VISION SCIENCES SOCIETY

VSS 2022

MAY 13-18

PROGRAM

ST.PETE BEACH
FLORIDA

Welcome to VSS 2022!

Eileen Kowler, VSS President

In most other years that might be a routine greeting, but not in 2022. Despite the enormous obstacles put in our path by the pandemic, we are here, in person, 1500 attendees, about to start our conference. Let's look at some highlights.

This year VSS features a host of timely and new events. Our Student-Postdoc Advisory Committee, in its second year of existence, continues to create original workshops on topics of particular relevance to younger investigators. This year they are hosting workshops on Open Science (at both VSS and V-VSS) and an important roundtable discussion on Accessibility in Vision Science at V-VSS. Thanks to the SPC for all its contributions this year.

Networking opportunities are at the forefront of VSS 2022. We start off on Friday night with the outdoor opening night reception. Be on the lookout for our "First-time attendees" tables. If you're a VSS veteran greeting all your old friends, be sure to stop by and meet some first-time attendees.

Many of you from across the globe have talked about the importance of having a gathering where attendees can meet and share experiences with those of similar backgrounds and life experiences. Celebrating Diversity, a networking event, will give you an opportunity to engage with those with similar backgrounds, as well as sharing your stories, and learning from others. All are welcome. We look forward to seeing you at Celebrating Diversity and learning more about how VSS can best serve its diverse community of participants.

VSS 2022 also includes three satellite events devoted to networking: Visibility a gathering of LGBTQ+ vision scientists and friends, FoVea (Females of Vision Science), which this year is focusing its VSS satellite on the impacts of the pandemic, and of course the Canadian Vision Science Social, back in person for 2022.

VSS is happy to announce that this year we were able to award travel grants to 130 student and postdoctoral attendees thanks to funding from Elsevier, and from an R-13 conference grant awarded to VSS by NIH. This year we also inaugurated the annual John I. Yellott Travel Award (thanks to generous donations from Friends of Jack Yellott), which was given to two early career presenters to honor Yellott's many foundational contributions to vision science. Thanks as well to our sponsors whose generous contributions were instrumental to supporting many facets of the meeting.

All VSS registrants are automatically registered for V-VSS (June 1-2), and VSS poster presenters have the opportunity to present their posters virtually at V-VSS. One V-VSS highlight is the Keynote address to be given by Geoffrey Hinton, who will talk about *Coordinate Frames and Shape Perception in Neural Nets.* (Not attending VSS this year? You can register to attend V-VSS and have access to all the VSS session recordings, poster PDFs, as well as all the V-VSS sessions and events, through September 30.)

It is a vast understatement to say that none of this would have been possible – a full and busy VSS 2022 meeting and a separate virtual conference – without the dedication, hard work, creative ideas, energy, insights and commitment to VSS of Meeting Perfect, in particular, Shauney Wilson (President), Shawna Lampkin, Jeff Wilson, Lily Carrick and Lynn Flannery. I am awed by how much this dedicated group of people has been able to accomplish over the past year and especially over the past months. They have been operating under constantly shifting and challenging conditions to organize the meeting, create the many virtual tools and platforms we need, expand and update the VSS website, and work with the board to manage the many operations and activities of the society. VSS is privileged to have this group stand behind our organization and work to make this conference the best possible experience for our members, and the best possible platform for vision science.

The VSS Board of Directors, Geoff Boynton, Rowan Candy, Jody Culham, Anya Hurlbert, Shin'ya Nishida, Ruth Rosenholtz, Johan Wagemans, and Laurie Wilcox, went above and beyond, taking on more than usual in this unpredictable year in order to create the scientific programs, design the supporting activities and consider at all times what policies and decisions were in the best interests of the members. VSS also acknowledges the work of many volunteers, including our DEI Advisory Committee, Program committee, and Awards committees, I also want to personally acknowledge the advice, wisdom and support of our two past presidents, David Brainard and Laurie Wilcox.

The final acknowledgement and appreciation goes to all of you, the scientists at all career levels who produced the cutting edge, exciting science we're going to learn about over the next few days and weeks. No scientific meeting can shut out the troubles and conflicts of the world, and we are certainly not aiming to do so. We stand in solidarity with our membership and reaffirm our commitment to global social justice. We are scientists, mentors, educators, students, scholars, colleagues and friends. We are persisting and grateful to be together and have the opportunity to do something we love.

VSS 2022 is happening. See you at the meeting!

Eileen Kowler
VSS President, 2021-2022
May, 2022

VSS Schedule of Events

	Thursday, May 12, 2022		
8:00 am - 5:00 pm	MODVIS	Satellite	Horizons
	Friday, May 13, 2022		
8:00 am - 12:30 pm	MODVIS	Satellite	Horizons
9:00 am - 6:00 pm	Registration Open	Registration	Grand Palm Colonnade
11:30 am - 12:00 pm	Coffee Break	Break	Garden Courtyard
11:30 am - 2:30 pm	Cash lunch available in Courtyard	Break	Garden Courtyard
12:00 pm - 2:00 pm	Beyond objects and features: High-level relations in visual perception	Symposium	Talk Room 1
12:00 pm - 2:00 pm	Beyond representation and attention: Cognitive modulations of activity in visual cortex	Symposium	Talk Room 2
2:00 pm - 2:30 pm	Coffee Break	Break	Garden Courtyard & Pavilion
2:30 pm - 4:30 pm	How we make saccades: selection, control, integration	Symposium	Talk Room 1
2:30 pm - 4:30 pm	Perceptual Organization - Lessons from Neurophysiology, Human Behavior, and Computational Modeling	Symposium	Talk Room 2
4:30 pm - 5:00 pm	Coffee Break	Break	Garden Courtyard
5:00 pm - 7:00 pm	The probabilistic nature of vision: How should we evaluate the empirical evidence?	Symposium	Talk Room 1
5:00 pm - 7:00 pm	What does the world look like? How do we know?	Symposium	Talk Room 2
7:00 pm - 9:30 pm	Open Night Reception	Social	Beachside Decks

8:30 pm - 9:30 pm	Visibility: A Gathering of LGBTQ+ Vision Scientists and Friends	Satellite	Beachside Decks
	Saturday, May 14, 2022		
7:30 am - 6:45 pm	Registration Open	Registration	Grand Palm Colonnade
7:45 am - 8:30 am	Morning Coffee & Continental Breakfast	Break	Garden Courtyard & Pavilion
Summary of Talk Sessions by Day/Room Here			
8:15 am - 9:45 am	Learning	Talk Session	Talk Room 1
8:15 am - 9:45 am	Temporal Processing: Neural mechanisms, timing perception	Talk Session	Talk Room 2
8:30 am - 12:30 pm	Saturday Morning Posters Object Recognition: Categories; Binocular Vision; Scene perception: Spatiotemporal statistics; Scene Perception: Virtual environments; Perceptual Organization: General aspects; Scene Perception: Categorization and memory; Perceptual Organization: Grouping, segmentation, hierarchies	Poster Session	Banyan Breezeway
8:30 am - 12:30 pm	Saturday Morning Posters Attention: Reward, capture; Visual Search: Features, cueing, suppression; Visual Memory: Objects; Perception and Action: Models; Perception and Action: Neural mechanisms	Poster Session	Pavilion
9:00 am - 5:30 pm	Exhibits Open	Exhibits	Pavilion
9:45 am - 10:30 am	Coffee Break	Break	Garden Courtyard & Pavilion
10:45 am - 12:30 pm	Face perception: Functional characteristics	Talk Session	Talk Room 1
10:45 am - 12:30 pm	Eye Movements: Models, localization, pursuit	Talk Session	Talk Room 2
12:30 pm - 2:30 pm	Lunch (on your own) cash lunch available in Courtyard	Break	Garden Courtyard
12:45 pm - 2:15 pm	Connect with Industry	Networking	Blue Heron
12:45 pm - 2:15 pm	Celebrating Diversity!	Networking	Jasmine/Palm
12:45 pm -	Data Visualization Micro-Talk Event	Satellite	Sabal/Sawgrass

2:15 pm			
2:30 pm - 4:15 pm	3D Perception	Talk Session	Talk Room 1
2:30 pm - 4:15 pm	Visual Search	Talk Session	Talk Room 2
2:45 pm - 6:45 pm	Saturday Afternoon Posters Motion: Object motion, biological motion; Plasticity and Learning: Typical function; Face Perception: Models; Face Perception: Wholes and parts; Perception and Action: Reaching, pointing, grasping; Eye Movements: Transaccadic, perisaccadic	Poster Session	Banyan Breezeway
2:45 pm - 6:45 pm	Saturday Afternoon Posters Color, Light and Materials: Lightness and brightness; Attention: Objects; Visual Memory: Interference; Visual Memory: Working memory and attention; Attention: Features	Poster Session	Pavilion
4:15 pm - 5:00 pm	Afternoon Coffee & Snack	Break	Garden Courtyard & Pavilion
5:15 pm - 7:15 pm	Perceptual Organization	Talk Session	Talk Room 1
5:15 pm - 7:15 pm	Spatial Vision	Talk Session	Talk Room 2

Sunday, May 15, 2022

7:30 am - 6:45 pm	Registration Open	Registration	Grand Palm Colonnade
7:45 am - 8:30 am	Morning Coffee & Continental Breakfast	Break	Garden Courtyard & Pavilion
8:15 am - 9:45 am	Face perception: Neural mechanisms	Talk Session	Talk Room 1
8:15 am - 9:45 am	Methods: New ideas and emerging trends	Talk Session	Talk Room 2
8:30 am - 12:30 pm	Sunday Morning Posters Color, Light and Materials: Individual differences, disorders; Color, Light and Materials: Materials, categories, concepts, preferences; Visual Search: Disorders, individual differences, strategy; Temporal Processing: Models, neural mechanisms; Attention: Ensemble and summary statistics; Object Recognition: Models, reading	Poster Session	Banyan Breezeway
8:30 am - 12:30 pm	Sunday Morning Posters Visual Memory: Representations; Scene Perception: Models; Scene Perception: Neural mechanisms; Perception and Action: Decision making; Visual Memory: Space, time and features	Poster Session	Pavilion

9:00 am - 5:30 pm	Exhibits Open	Exhibits	Pavilion
9:45 am - 10:30 am	Coffee Break	Break	Garden Courtyard & Pavilion
10:45 am - 12:30 pm	Development	Talk Session	Talk Room 1
10:45 am - 12:30 pm	Attention, Eye Movements and Scanning	Talk Session	Talk Room 2
12:30 pm - 2:15 pm	Canadian Vision Social Sponsored by VISTA	Satellite	Sabal/Sawgrass
12:30 pm - 2:30 pm	Lunch (on your own)	Break	Garden Courtyard
12:45 pm - 2:15 pm	How to setup multi-user eye tracking experiments in VR and collect data Sponsored by WorldViz	Satellite	Blue Heron
12:45 pm - 2:15 pm	Open Science Workshop on Preregistration	Workshop	Jasmine/Palm
2:30 pm - 4:15 pm	Color, Light and Materials: Light, materials, categories	Talk Session	Talk Room 1
2:30 pm - 4:15 pm	Cortical Organization	Talk Session	Talk Room 2
2:45 pm - 6:45 pm	Sunday Afternoon Posters Object Recognition: Neural mechanisms; Object Recognition: Features and parts; Attention: Spatiotemporal; Perceptual Organization: Preference, aesthetics, art	Poster Session	Banyan Breezeway
2:45 pm - 6:45 pm	Sunday Afternoon Posters 3D Perception: Virtual Environments; Plasticity and Learning: Disorders and restoration; Attention: Neural, top-down and bottom-up; Spatial Vision: Models; Eye Movements: Saccades and gaze patterns	Poster Session	Pavilion
4:15 pm - 5:00 pm	Afternoon Coffee & Snack	Break	Garden Courtyard & Pavilion
5:15 pm - 7:15 pm	Visual Memory: Working, objects, features	Talk Session	Talk Room 1
5:15 pm - 7:15 pm	Perception and Action	Talk Session	Talk Room 2
7:30 pm - 9:00 pm	Working during a Pandemic Organized by FoVea (Females of Vision et al)	Satellite	Beachside Decks

Monday, May 16, 2022

7:45 am - 8:30 am	Morning Coffee & Continental Breakfast	Break	Garden Courtyard & Pavilion
7:45 am - 1:30 pm	Registration Open	Registration	Grand Palm Colonnade
8:15 am - 9:45 am	Object Recognition: Models, reading	Talk Session	Talk Room 1
8:15 am - 9:45 am	Motion: Biological motion, body perception	Talk Session	Talk Room 2
8:30 am - 12:30 pm	Monday Morning Posters Face Perception: Emotion; Face Perception: Neural mechanisms; Perceptual Organization: Awareness, rivalry; Perception and Action: Navigation; Perception and Action: Affordances	Poster Session	Banyan Breezeway
8:30 am - 12:30 pm	Monday Morning Posters Attention: Search and salience; Attention: Neural, decision making, models; 3D Perception: Shape; Eye Movements: Perception; Spatial Vision: Neural Mechanisms	Poster Session	Pavilion
9:00 am - 12:30 pm	Exhibits Open	Exhibits	Pavilion
9:45 am - 10:30 am	Coffee Break	Break	Garden Courtyard & Pavilion
10:45 am - 12:15 pm	Search and Attention: Capture, real-world, lifespan	Talk Session	Talk Room 1
10:45 am - 12:15 pm	Color, Light and Materials: Mechanisms and models of visual processing	Talk Session	Talk Room 2
12:30 pm - 1:45 pm	VSS Awards Session Ken Nakayama Medal, Davida Teller Award, Young Investigator Award	Award	Talk Room 2
2:00 pm - 3:00 pm	INCF/MathWorks Psychophysics Working Group	Satellite	Sabal/Sawgrass
2:00 pm - 3:00 pm	Undergraduate Meet and Greet	Student	Pirate Island
3:15 pm - 4:30 pm	LabMaestro Pack&Go: a new tool for running MATLAB/Psychtoolbox experiments online	Satellite	Sabal/Sawgrass
3:30 pm - 5:00 pm	Meet the Professors	Student	Banyan Breezeway

3:30 pm - 5:30 pm	phiVis: Philosophy of Vision Science Workshop	Satellite	Blue Heron
6:00 pm - 8:00 pm	Demo Night Beach BBQ	Social	Beachside Decks
7:00 pm - 10:00 pm	Demo Night Demos	Social	Multiple Rooms
	Tuesday, May 17, 2022		
7:45 am - 8:30 am	Morning Coffee & Continental Breakfast	Break	Garden Courtyard & Pavilion
7:45 am - 6:45 pm	Registration Open	Registration	Grand Palm Colonnade
8:15 am - 9:45 am	Multisensory Processing	Talk Session	Talk Room 1
8:15 am - 9:45 am	Eye movements: Perception, cognition	Talk Session	Talk Room 2
8:30 am - 12:30 pm	Tuesday Morning Posters Face Perception: Experience, learning, and expertise; Face Perception: Social cognition; Object Recognition: Perceptual similarity; Perceptual Organization: Models, neural mechanisms; Object Recognition: Neural models	Poster Session	Banyan Breezeway
8:30 am - 12:30 pm	Tuesday Morning Posters Visual Search: Serial, temporal; Temporal Processing: Timing perception, duration; Visual Memory: Neural mechanisms; Visual Memory: Strategy, individual differences; Perception and Action: Virtual environments; Motion: Models, mechanisms, illusions	Poster Session	Pavilion
9:00 am - 5:30 pm	Exhibits Open	Exhibits	Pavilion
9:45 am - 10:30 am	Coffee Break	Break	Garden Courtyard & Pavilion
10:45 am - 12:30 pm	Attention: Features, objects, endogenous	Talk Session	Talk Room 1
10:45 am - 12:30 pm	Plasticity	Talk Session	Talk Room 2
12:30 pm - 1:00 pm	Business Meeting	Business	Talk Room 2
1:00 pm - 2:30 pm	Lunch (on your own)	Break	Garden Courtyard

2:30 pm - 4:15 pm	Binocular Vision	Talk Session	Talk Room 1
2:30 pm - 4:15 pm	Object Recognition: Neural mechanisms	Talk Session	Talk Room 2
2:45 pm - 6:45 pm	Tuesday Afternoon Posters Development; Eye Movements: Neural, fixation, instrumentation; Face Perception: Development and Disorders; Face Perception: Individual differences; Spatial Vision: Across the visual field	Poster Session	Banyan Breezeway
2:45 pm - 6:45 pm	Tuesday Afternoon Posters Color, Light and Materials: Neural mechanisms, models, dimensions; Visual Search: Eye movements, memory, knowledge; Visual Memory: Models and mechanisms; Visual Memory: Encoding, retrieval; Attention: Awareness	Poster Session	Pavilion
4:15 pm - 5:00 pm	Afternoon Coffee & Snack	Break	Garden Courtyard & Pavilion
5:15 pm - 7:15 pm	Motion: Models, neural mechanisms	Talk Session	Talk Room 1
5:15 pm - 7:15 pm	Scene Perception	Talk Session	Talk Room 2

Wednesday, May 18, 2022

7:45 am - 8:30 am	Morning Coffee & Continental Breakfast	Break	Garden Courtyard & Pavilion
7:45 am - 12:45 pm	Registration Open	Registration	Grand Palm Colonnade
8:15 am - 10:00 am	Attention: Prioritization, suppression, lapses	Talk Session	Talk Room 1
8:15 am - 10:00 am	Object Recognition: Features, categories, preferences	Talk Session	Talk Room 2
8:30 am - 12:30 pm	Wednesday Morning Posters Multisensory Processing; Visual Search: Real-world stimuli and factors; Eye Movements: Gaze patterns, binocular; Spatial Vision: Crowding; Binocular Vision: Clinical and amblyopia; Motion: Optic flow	Poster Session	Banyan Breezeway
10:00 am - 10:45 am	Coffee Break	Break	Garden Courtyard & Pavilion
10:45 am - 12:30 pm	Visual Memory: Capacity, encoding	Talk Session	Talk Room 1
10:45 am -	Human Vision and Neural Networks:	Talk Session	Talk Room 2

12:30 pm	General considerations

2022 Davida Teller Award – Lynne Kiorpes

Monday, May 16, 2022, 12:30 - 1:45 pm EDT, Talk Room 2

The Vision Sciences Society is honored to present Dr. Lynne Kiorpes with the 2022 Davida Teller Award

VSS established the Davida Teller Award in 2013. Davida was an exceptional scientist, mentor and colleague, who for many years led the field of visual development. The award is therefore given to an outstanding female vision scientist in recognition of her exceptional, lasting contributions to the field of vision science.

Lynne Kiorpes

Professor of Neural Science and Psychology, New York University

Lynne Kiorpes is a leader and innovator in the field of visual development. Throughout her career she has integrated studies of human visual development with studies of both behavior and neural development in infant macaques to understand immaturities and the role of visual experience in the development of visual processing. Her work on amblyopia has been critical in revealing the developmental changes in the visual pathways that may contribute to the disorder. Her findings have highlighted the role of extrastriate cortical development and the importance of focusing on higher-level visual functions in amblyopia. Recognitions of her accomplishments have included a James S. McDonnell Foundation Scholar Award (2007) and a Presidential Special Lecture at the Annual Meeting of the Society for Neuroscience (2016).

Dr. Kiorpes earned her Bachelor's degree from Northeastern University in 1973 and her Ph.D. from the University of Washington in 1982, both in Physiological Psychology. She took up her faculty position at New York University in Psychology and Neural Science after a postdoctoral position in Ophthalmology at the University of Washington, where she had trained with leading vision scientists Davida Teller and Anita Hendrickson.

Dr. Kiorpes has been consistently dedicated in her support of women and under-represented minorities aspiring to careers in science. She is currently serving as the Dean of the Graduate School of Arts and Sciences at NYU and was awarded a prestigious Executive Leadership in Academic Technology and Engineering Program Fellowship in 2015. She founded the NYU Women in Science Scholars program and has served as the director of NYU's NIMH-funded training program in systems and integrative neuroscience since 2005. Her accomplishments in teaching and mentoring have been recognized with both the Golden Dozen Teaching Award and the University Distinguished Teaching Medal at NYU. She has served in numerous innovative leadership roles in support of the mentoring and training of undergraduate and graduate students, as well as mentoring the students in her own laboratory, for over 30 years.

Linking behavior and brain development

"As infants get older they get better at things" was never a satisfactory explanation of visual development, especially because in some children development does not proceed normally – as is the case in amblyopia. The question of what mechanisms in the visual brain permit the maturation of vision is long-standing in the field. At the same time, understanding how that developmental process is affected by visual experience is critical for informing our knowledge of typical development as well as experience-dependent plasticity. To identify the neural correlates of visual development and evaluate brain-behavior relationships, establishing the macaque model for human visual development was essential. Our work has established that – contrary to expectation – developmental changes in neural response properties early in the visual pathways do not limit normal development or define amblyopia. In this talk, I will argue that visual processing beyond V1 is more important for understanding both normal and abnormal visual development.

Dr. Kiorpes will speak during the Awards session.

2022 Ken Nakayama Medal for Excellence in Vision Science – Norma Graham

Monday, May 16, 2022, 12:30 - 1:45 pm EDT, Talk Room 2

The Vision Sciences Society is honored to present Norma Graham with the 2022 Ken Nakayama Medal for Excellence in Vision Science.

The Ken Nakayama Medal is in honor of Professor Ken Nakayama's contributions to the Vision Sciences Society, as well as his innovations and excellence to the domain of vision sciences.

The winner of the Ken Nakayama Medal receives this honor for high-impact work that has made a lasting contribution in vision science in the broadest sense. The nature of this work can be fundamental, clinical or applied.

Norma Graham

Centennial Professor of Psychology, Columbia University

Dr. Graham is known for groundbreaking research integrating visual psychophysics, mathematical modeling and relating these to physiological measurements to uncover the workings of the early cortical stages of visual processing. Graham was an early and leading proponent of theories based on multiple spatial channels that have become the foundation of contemporary models of the early visual system. This work also involved the crystallization of the notion that probability summation across channels mediates stimulus detection, the idea that the observer's knowledge of the stimulus is an important determinant of detection, and later that the outputs of early filters are combined in a non-linear fashion to mediate the perception of higher-order patterns such as textures. Graham's seminal book "Vision Pattern Analyzers" integrated a vast body of empirical work within a rigorous computational framework that continues to inform the interpretation of psychophysical measurements and their relationship to underlying neural processes. Graham's thinking in these areas has become so deeply ingrained in the conceptual toolkit of modern vision science that it has in many cases transcended the need for citation.

Norma Graham completed her B.S. in Mathematics at Stanford University in 1966 and her Ph.D. in Psychology at the University of Pennsylvania in 1970. Following her Post-Doctoral Fellowship at Rockefeller University between 1970 and 1972. Norma then joined the faculty of Psychology at Columbia University, where she has been the William B. Ransford Professor of Psychology (2009-

2012) and the Centennial Professor of Psychology (2013-present). Graham was elected to the National Academy of Sciences in 1998, to the American Academy of Arts and Sciences in 1993 and to the Society of Experimental Psychologists in 1983. She is a Fellow of the American Association for the Advancement of Sciences, of the Optical Society of America (now Optica) and of the American Psychological Association.

Dr. Graham will speak during the Awards session.

2022 Elsevier/VSS Young Investigator Award – Dobromir (Doby) Rahnev

Monday, May 16, 2022, 12:30 - 1:45 pm EDT, Talk Room 2

The Vision Sciences Society is honored to present Dobromir (Doby) Rahnev with the 2022 Elsevier/VSS Young Investigator Award.

The Elsevier/VSS Young Investigator Award, sponsored by *Vision Research*, is given to an early-career vision scientist who has made outstanding contributions to the field. The nature of this work can be fundamental, clinical, or applied. The award selection committee gives highest weight to the significance, originality and potential long-range impact of the work. The selection committee may also take into account the nominee's previous participation in VSS conferences or activities, and substantial obstacles that the nominee may have overcome in their careers.   The awardee is asked to give a brief presentation of her/his work and is required to write an article to be published in *Vision Research*.

Dobromir (Doby) Rahnev

Associate Professor, School of Psychology, Georgia Institute of Technology

The 2022 Elsevier/VSS Young Investigator Award goes to Professor Dobromir (Doby) Rahnev for fundamental contributions to our understanding of perceptual decision making and visual metacognition. Dr. Rahnev is an Associate Professor in the School of Psychology at Georgia Tech. After finishing his Bachelor's degree in Psychology at Harvard University, Dr. Rahnev obtained his Ph.D. at Columbia University with Hakwan Lau and completed a postdoctoral fellowship at UC Berkeley with Mark D'Esposito.

Dr. Rahnev's research seeks to uncover the computational and neural bases of perceptual decision making. He studies the top-down processes that modulate the normal visual experience, using a combination of neuroimaging, brain stimulation, psychophysics, and computational modeling. His early pioneering work on attention-related subjective biases has inspired new lines of investigation and stimulated debates among philosophers. In another influential line of studies, Dr. Rahnev used a combination of brain stimulation and neuroimaging to demonstrate the existence of a hierarchical structure in the prefrontal cortex such that progressively rostral regions control later stages of perceptual decision making. His more recent work has uncovered the sources of suboptimality in perceptual decision making and developed improved models of visual metacognition. Dr. Rahnev has received an impressive series of grants from NIH, NSF, and the Office of Naval Research and mentored many graduate students and postdocs. He has also spearheaded several large collaborative efforts, such as creating the Confidence Database and organizing a consensus paper where researchers in visual metacognition agreed on shared goals. Dr. Rahnev's research exemplifies open and high-quality science that produces fundamental discoveries about how humans make perceptual decisions.

Bias and confidence in perceptual decision making

Perceptual decision making is the process of choosing a course of action based on the available sensory evidence. This process begins with a stimulus that is internally represented in the visual system. Based on the internal representation, a person makes a decision and can also evaluate this decision via a confidence rating. Progress on perceptual decision making ultimately requires an understanding of the stimulus, the internal representation, the decision, and the confidence in the decision. This talk will focus on recent work that begins to reveal the computations that link all these components together. I will show how previously unexplained response biases emerge from individual differences in the internal representation. I will also present a new process model of confidence that allows the unbiased measurement of metacognitive ability and fits empirical data better than existing alternatives. I will end by highlighting exciting new developments in the field that promise to revolutionize our understanding of the computations underlying perceptual decision making.

Dr. Rahnev will speak during the Awards session.

2022 Graphics Competition Winners

Each year, VSS solicits its membership to submit creative visual images related to the field of vision science, the Society, or the VSS meeting. There are two competitions, **Program Cover and Website Banner Competition** and the **T-Shirt Design Competition**. Winning graphic images are featured on the program, abstracts book, signage, and t-shirts.

The Vision Sciences Society is pleased to recognize **Wei Hau ("Danny") Lew** and **June Kim** as the winners of the 2022 Graphics Competition.

Program Cover and Website Banner Competition

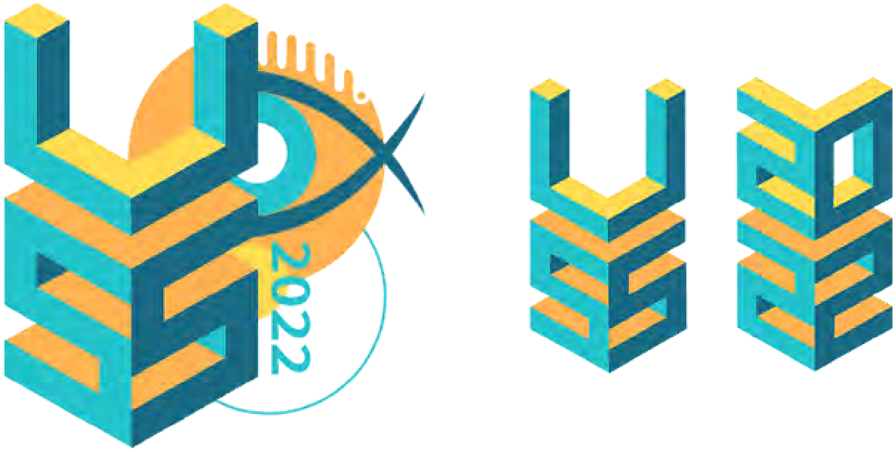
Winner: **Wei Hau ("Danny") Lew**, University of Houston College of Optometry

All the Shapes and Colors: This design inspired by Bauhaus art uses only basic shapes and colors as an abstract representation of human visual perception. The color shades give an illusion of depth, and lighting to represent the beginning of virtual reality in modern theories of vision. In the program cover, the design also includes sea waves to celebrate in-person VSS once again on the beautiful beach in Florida.

Program Cover

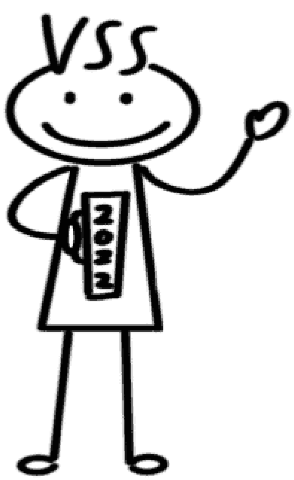
T-Shirt Design Competition

Winner: **June Hee Kim**, Laboratory of Brain and Cognition, National Institute of Mental Health, NIH, Bethesda, Maryland, United States of America



T-shirt Back and Chest Images

The t-shirt design consists of an isometric illustration of VSS and a simplified eye drawing to represent the versatility of human visual processing. Depending on the viewer's perspective (identified with different colors), one can easily recognize letters VSS or see random polygons. The cubic objects were placed in a way to provide various perspectives one can take when viewing and hopefully to spark interest in exploring different views. What to make of these objects relies on our visual system, and it is fascinating how it interprets information to form a meaningful representation of our surroundings.



Water Bottle Design

Winner: **Deyue Yu**, Ohio State University

This image was submitted to the T-Shirt Design Competition. Although it did not win the t-shirt competition, the review committee loved it and thought that it would be a great design for this year's water bottles, so an additional winner was added to this year's competition.

2022 Annual Business Meeting

Tuesday, May 17, 2022, 12:30 - 1:00 pm EDT, Talk Room 2

We encourage you to join the VSS Board of Directors for the Annual Business Meeting. During this meeting, the VSS leadership will provide an overview of the Society, including the outlook and priorities for next year's meeting.

The Business Meeting is an opportunity for VSS members to ask questions of the VSS Board of Directors and bring up issues of concern to the general membership.

You may send questions before the start of the Business Meeting to vss@visionsciences.org.

VSS Celebrating Diversity Event!

Saturday, May 14, 2022, 12:45 - 2:15 pm EDT, Jasmine/Palm

The VSS conference brings together vision scientists from all over the globe with a diverse array of life experiences, including many who have overcome significant challenges of all types to participate in vision science.

The event will offer opportunities for you to gather with those who share your background and life experiences, as well as meet and share stories from those who have followed different paths. VSS is also interested in hearing about challenges you may have faced or may continue to be facing, and hear your ideas about how VSS can better serve its diverse community, and can increase the participation and improve the experiences of those from groups that have been historically underrepresented in our field.

We invite all to attend our Celebrating Diversity event. Stop by, meet new people, and chat with a member of the board.

Refreshments and snacks will be available.

Open Science Workshop on Preregistration

Sunday, May 15, 2022, 12:45 - 2:15 pm EDT, Jasmine/Palm

Organizers: Sabrina Hansmann-Roth, University of Lille; Björn Jörges, York University
Moderator: Sabrina Hansmann-Roth, University of Lille
Speakers: William Ngiam, University of Chicago; Janna Wennberg, UC San Diego

Preregistration has been proposed as a tool to accelerate scientific advancement by making scientific results more robust, more reproducible, and more replicable. In this workshop, we will briefly go over the advantages of preregistered studies and the registered report publication format, and then delve deeper into the practicalities of preregistering studies as applied to the Vision Sciences. A range of topics will be discussed, such as proper specification and formalization of hypotheses, predictions, and data analysis pipelines as well as power analyses. There will also be an introduction to how registered reports go beyond preregistration and can help combat publication bias in the literature.

William Ngiam

University of Chicago

William Ngiam is a postdoctoral researcher in the Awh and Vogel Lab at the University of Chicago, studying how learning and experience influence the representation of visual information in memory, and leveraging that to understand the capacity limits of visual working memory. He is an active advocate for reform to improve science – he serves on the steering committee of ReproducibiliTea, a grassroots initiative to form Open Science communities at academic institutions, and is the Editor-in-Chief of the Journal for Reproducibility in Neuroscience, a non-profit diamond open access journal. You can follow him on Twitter @will_ngiam.

Janna Wennberg

UC San Diego

Janna Wennberg is a third-year Ph.D student in psychology at UC San Diego. With Dr. John Serences, she uses behavior, fMRI, and computational modeling to investigate how flexible neural codes support visual attention and working memory. She became interested in open science as an undergraduate through her work with Dr. Julia Strand, a speech perception researcher and leader in the open science movement. She realized that open science practices such as preregistration and registered reports have served as valuable training opportunities for her, and she is interested in exploring how scientific reforms can be tools both for improving research and training early career researchers.

Sabrina Hansmann-Roth

University of Lille

Sabrina Hansmann-Roth is a postdoctoral researcher at the University of Lille and the Icelandic Vision Lab. Before that, she obtained her Ph.D. from the Université Paris Descartes. She is interested in the mechanisms used to represent information in visual memory. For that, she investigates probabilistic representations of visual ensembles, visual priming and perceptual biases such as serial dependence. Beyond that, and as a member of the SPC, she is passionate about discussing Open Science particular for Early Career Researchers. Contact Sabrina at Sabrina@hi.is or on Twitter: @SHansmann_Roth

Connect With Industry

Saturday, May 14, 2022, 12:45 - 2:15 pm EDT, Horizons

Refreshments and snacks will be available

To reflect the range of interests and career goals of VSS attendees, we are pleased to offer our popular 'Connect with Industry' event at VSS 2022. This is an opportunity for our members to interact with representatives of industry and government agencies.

Representatives from companies including Apple, Exponent, Magic Leap, Meta and VPixx will be present to discuss opportunities for vision scientists in their companies and to answer questions about collaborating with, and working within, their organizations.

Two 45-minute sessions will be scheduled (12:45 – 1:30 pm and 1:30 – 2:15 pm). Drop in for one, or stay for both time slots. Representatives will present an introduction to their company/agency at the start of both sessions (12:45 and 1:30 pm).

No sign-ups are required. Although light snacks will be served, please feel free to bring your brown bag lunch to enjoy during the event.

All VSS attendees are welcome.

Undergraduate Meet and Greet

Monday, May 16, 2022, 2:00 - 3:00 pm EDT, Pirate Island

Enjoy free snacks and refreshments while you meet other undergraduates. We'll also have a few graduate student and faculty mentors who will be happy to answer any questions about the conference, career options, or scientific interests.

Meet the Professors

Monday, May 16, 2022, 3:30 - 5:00 pm EDT, Banyan Breezeway

Students and postdocs are invited to the 7th annual "Meet the Professors" event. This year's event will have a different format than usual, with short, 10-minute meetings in small groups. Chat about science, VSS, career issues, or whatever comes up. Or just meet and connect with a new VSS colleague.

Space will be limited and assigned on a first-come, first-served basis. Each student/postdoc will meet with five professors. If you would like to attend Meet the Professors, please complete this registration form. Registration will close on April 27 or when all spaces are filled. See below for this year's professors.

Members of the VSS Board are indicated with an asterisk*.

Marisa Carrasco (Julius Silver Professor of Psychology and Neural Science, New York University) investigates how different types of attention –spatial, feature, temporal, presaccadic– affect perceptual performance and alter appearance in a variety of tasks –e.g., contrast sensitivity, acuity and texture segmentation– across the visual field, using psychophysical, neuroimaging, neurostimulation and computational modeling. She also investigates how attention benefits perceptual learning.

Angela Brown & Del Lindsey (Professors, Ohio State University) study color vision, with special emphasis on the naming and understanding of colors, across languages and cultures, using computational and psychophysical approaches. We also study sensory visual development over the life span, from premature to elderly. "Come chat about vision science with a vision science couple."

Radoslaw Cichy (Researcher, Freie Universität Berlin) studies visual cognition for a variety of angles, including spatio-temporal mapping, deep neural network modelling, and recently also the developmental perspective.

Bevil Conway (Senior investigator, NEI) runs a lab that studies how the brain turns sense data into perceptions and thoughts, often using color as a tool. He's an artist and taught high school and college.

Emily Cooper (Assistant professor, University of California, Berkeley) uses visual psychophysics and modelling to study 3D vision in natural environments and applies this work to augmented reality system design.

Danny Dilks (Associate Professor, Emory University) studies two broad topics: i) face, place, and object processing, from infancy to adulthood – using psychophysics, fMRI, and TMS; and ii) cortical plasticity in adulthood – using psychophysics and fMRI.

Isabel Gauthier (Researcher, Vanderbilt University), studies object recognition usually in the visual modality but sometimes with other modalities. She is interested in individual differences, for both domain-general and domain-specific abilities, and uses converging evidence from several tools, including behavior, functional and structural brain imaging.

Bill Geisler (Professor, UT Austin) studies psychophysics, modeling, natural-scene statistics, and primate neurophysiology of early and mid-level vision.

Karl Gegenfurtner, (Professor of Psychology, Giessen University in Germany) is mainly interested in color vision and eye movements, using mainly behavioral methods, with a bit of computation and neuroscience added to the mix.

Anya Hurlbert* (Professor of Visual Neuroscience, Newcastle University, UK) studies colour perception, using behavioural and computational techniques, including in applied areas of lighting technology, visual art, digital image processing and medical diagnostics.

Krystel Huxlin (Professor, Associate Chair for Research in Ophthalmology, University of Rochester) studies humans and animals to understand how vision can be restored after visual cortex damage, and the mechanisms underlying such recovery. She uses a range of approaches that include perceptual training, imaging, cell biology, electrophysiology and modeling.

Dominique Lamy (Researcher, Tel Aviv University) mainly studies visual attention, unconscious vs. conscious processing and the relationships between visual awareness, attention, implicit memory and working memory. She mainly uses behavioral methods

Pascal Mamassian (Researcher, CNRS & Ecole Normale Supérieure, Paris) is studying visual perception in healthy human adults using psychophysics and computational modelling (mostly Bayesian), and is currently interested in motion perception, time perception, sequential effects in perception, and confidence judgments.

Maria Concetta Morrone (Professor, University of Pisa) research spanned many topics using behavioral, computational modeling and functional Imaging (EEG and MRI) techniques: spatial vision, development, plasticity, attention, color, motion, AI, vision during eye movements and more recently multisensory perception and action

Shin'ya Nishida* (Professor, Kyoto University) studies a range of topics, including motion perception, material perception, time perception, haptic perception, and perception-based display technology, using both behavioral and computational modeling techniques.

Chris Olivers (Head, Experimental and Applied Psychology, Vrije Universiteit Amsterdam) studies multiple aspects of vision, predominantly visual attention and visual working memory, using multiple techniques such as eye tracking, EEG, and fMRI.

Doby Rahnev (Associate Professor, Georgia Tech) studies perceptual decision making, attention, expectation, and visual metacognition, using fMRI, TMS, computational modeling, and psychophysics.

Jenny Read (Professor of Vision Science, Newcastle University) studies visual perception, especially stereoscopic and binocular vision, in primates and insects. Originally trained in physics, she uses a mixture of computational modeling and psychophysics, and collaborates with others to incorporate neurophysiology.

John Reynolds (Professor, The Salk Institute) studies visual perception and visual cognition in humans and non-human primates (macaques, marmosets), where he and his colleagues have recently discovered that traveling waves occur several times each second in the visual cortices, where they improve perceptual sensitivity and border-ownership signals in macaque V4 are organized in a columnar fashion and occur first in the deep layers, positioning them to provide feedback to V1, V2 and the oculomotor system.

Jan Theeuwes (Professor, Vrije Universiteit Amsterdam, Netherlands & ISPA Lisbon Portugal) does basic and applied research in the area of attention, emotion, reward learning, eye movements and statistical learning using behavioral and neuroimaging techniques (EEG and fMRI). Before becoming full professor, Jan Theeuwes did applied human factors research in industry.

Galit Yovel (School of Psychological Sciences & Neuroscience at Tel Aviv University). Galit is studying the cognitive and neural basis of person recognition with behavioural, neuroimaging and deep learning models.

Melissa Vo (Researcher, Goethe University Frankfurt) studies top-down guidance in scene search, neural representation and development of scene knowledge, rapid object and scene categorization, as well as action-perception interactions in real-world scenarios using a variety of methods, including psychophysics, stationary, real-world and VR eye-tracking, EEG, as well as computational modeling approaches.

18th Annual Dinner and Demo Night

***Beach BBQ**: Monday, May 16, 2022, 6:00 – 8:00 pm EDT, Beachside Sun Decks, limited seating in Banyan Breezeway*
***Demos:** Monday, May 16, 2022, 7:00 – 10:00 pm EDT, Talk Room 1-2, Royal Tern, Snowy Egret, and Jacaranda Hall*

Please join us Monday evening for the 18th Annual VSS Dinner and Demo Night, a spectacular night of imaginative demos solicited from VSS members. The demos highlight the important role of visual displays in vision research and education.

Demos are free to view for all registered VSS attendees and their families and guests. The Beach BBQ is free for attendees, but **YOU MUST WEAR YOUR BADGE** to receive dinner. Guests and family members must purchase a VSS Friends and Family Pass to attend the Beach BBQ. You can register your guests at any time at the VSS Registration Desk, located in the Grand Palm Colonnade. Guest passes may also be purchased at the BBQ event, beginning at 5:45 pm.

The following demos will be presented from 7:00 to 10:00 pm, in Talk Room 1-2, Royal Tern, Snowy Egret, and Jacaranda Hall:

A joint attention game using Gazer, a system for web-based eye tracking

Amy vanWell, University of Victoria, Dr. James Tanaka, University of Victoria

At the University of Victoria, we have developed a web-based eye-tracking system to track gaze locations using personal laptop cameras. Come demo our system by playing a joint attention task. Participants will be scored on how quickly they can follow the gaze direction of cartoon eyes, for a prize.

Anisotropy of 3-D Non-Rigidity

Akihito Maruya, State University of New York, Graduate Center for Vision Research, Qasim Zaidi (State University of New York, Graduate Center for Vision Research)

When two rigidly linked rings rotate horizontally around a vertical axis oblique to both, by manipulating motion-energy responses with random flicker, and feature-tracking with salience of features, we can change the percept from rigid rotation to non-rigid wobbling. However, rotating the image 90o always gives non-rigid percepts indicating motion-mechanism anisotropy.

Artist as Vision Scientist: ‘Brain Lessons’ From The Surreal Art of René François Ghislain Magritte

RUSSELL D HAMER, Florida Atlantic University, Can Visual Art teach us about the Visual Brain? Yes, indeed. This demo is a Safari through the panoply of surprising lessons in two iconic paintings by the Surreal Artist, René Magritte. Exploration of space/scene construction in both; exploration of the nature of representation and visual experience itself in another!

Contour Erasure Filling-in Effects

Yih-Shiuan Lin, University of Regensburg, Chien-Chung Chen/National Taiwan University; Mark W. Greenlee/University of Regensburg; Stuart Anstis/University of California, San Diego

Here in our demos, you will see several examples of the fascinating contour erasure effect: objects completely disappear into the background or merge together after only a short adaptation period on their contours. We will also demonstrate the application of such effect in our contour adaptation contrast threshold paradigm.

Duchamp-Style Rotoreliefs

Christopher Tyler, Smith-Kettlewell Eye Reearch Institute,

One form of Marcel Duchamp's lesser-known works are his rotoreliefs, that sit faded and static in many modern art museums. In fact they are designed to be viewed while rotating, when they generate vivid and unexpected forms of dynamic 3D depth structure that tap into unexpected aspects of perceptual processing.

Engaging with distraction

Sarah Kerns, Wellesley College, Jeremy Wilmer, Wellesley College

A small change makes all the difference… but will it affect YOU? Come see how you stack up when you engage with distraction.

Exploring the Frame Effect

Patrick Cavanagh, Glendon College, Stuart Anstis, UCSD

Probes flashed within a moving frame are dramatically displaced (Özkan et al, PNAS 2021). The effect is much larger than that seen on static or moving probes. Here we show that this frame effect is robust to many variations in its shape and path and type of motion.

Feed the Fractal

Paul Zerr, Icelandic Vision Lab, Icelandic University,

Gaze into the abyss of emergent properties and become a canvas for your own fractalized self. Pointing a camera at the projection of its own output creates a visual feedback loop that opens a stunningly beautiful window into infinity, demonstrating how complexity arises from simplicity through iteration.

Hidden in Plain Sight!

Peter April, VPixx Technologies, Jean-Francois Hamelin, Dr. Lindsey Fraser, Dr. Amanda Estephan (all VPixx Technologies)

Can visual information be hidden in plain sight? We use the PROPixx 1440Hz projector to demonstrate images which are invisible until you make a rapid eye movement. Do your eyes deceive?

High Speed Gaze-Contingent Visual Search

Kurt Debono, SR-Research Ltd, Marcus Johnson

Try to find the target in a visual search array which is continuously being updated based on the location of your gaze. High speed video based eye tracking combined with a high speed monitor make for a compelling challenge.

Mind control in motion perception

Carolin Hübner, Department of Psychology, Humboldt-Universität zu Berlin, Martin Rolfs, Department of Psychology, Humboldt-Universität zu Berlin

In an interactive setting you will experience objects moving in ambiguous ways. Using mysterious powers of mind control, the demonstrators will influence your percept or predict what you see. Along the way, you will learn about some of the most secret powers of motion processing.

Mixed Reality Experiences on Magic Leap Device

Jacob Duijnhouwer, Magic Leap, Agostino Gibaldi (Magic Leap)

We will present a Magic Leap augmented reality device with color stereo displays, head tracking, and eye tracking. We will demonstrate the mixed reality experience and vision research possibilities via various sample applications.

Retinal painting using (intra-saccadic) anorthoscopic presentations

Richard Schweitzer, Humboldt-Universität zu Berlin, Tamara Watson (Western Sydney University), John Watson (independent researcher), Martin Rolfs (Humboldt-Universität zu Berlin)

Anorthoscopic presentation devices show stimuli in a piecewise manner, as if seen moving through a narrow slit. At extremely high velocities, such presentations appear like brief flashes, but not during saccades: When spread across the retina, they produce well resolvable images that briefly remain visible due to visual persistence!

Saccadic Persistence of Vision

Rolf Nelson, Wheaton College (MA), Elizabeth Shelto, Wheaton College (MA)

A rapid sequential presentation of vertical slices of an image can be shown on an LED strip during a saccade. This image is “painted” on the retina and can be perceived during a saccade, which is atypical, since saccadic suppression typically operates during saccades. In addition to being an interesting demonstration, it also provides a way to understand mechanisms of saccadic suppression and attention.

The Caricature Effect in Graphical Communication

Jeremy Wilmer, Wellesley College, Sarah H. Kerns, Wellesley College

Come participate in a hands-on exploration of a striking phenomenon in graphical communication: the Caricature Effect!

The magic shadow and inter-reflection show

Maarten Wijntjes, Delft University of Technology, Cehao Yu, Jan Jaap van Assen and Yuguang Zhao

A cast shadows is produced when an object occludes a light source. For collimated light, the objects' outline determines the shadow *shape*, but what about the *colour*? We discovered a way where the shadow adopts the colour of the object, an intriguing example of unintuitive physics.

The McGurk effect – When visual and auditory information clash

Jonathon Toft-Nielsen, Intelligent Hearing Systems / JÖRVEC, Özcan Özdamar, University of Miami

Are you more inclined to trust your eyes or your ears? The McGurk effect is a well know auditory illusion which occurs when we are presented with conflicting audio and visual information. Experience the illusion yourself in our live demonstration and afterwards you may not believe your ears!

The UW Virtual Brain ProjectTM: Virtual reality exploration of the visual, auditory, and touch systems

Melissa Schoenlein, 1Department of Psychology 2Wisconsin Institute for Discovery, University of Wisconsin-Madison, Nathaniel Miller3, Chris Racey4, Simon Smith2, Ross Treddinick2, Kudirat Alimi2, Chris Castro5, Bas Rokers6, & Karen B. Schloss1,2 1Department of Psychology, University of Wisconsin-Madison 2Wisconsin Institute for Discovery, University of Wisconsin-Madison 3University of Minnesota Medical School 4Psychology, University of Sussex 5College of Engineering, University of Wisconsin-Madison 6Department of Psychology, New York University, Abu Dhabi

Explore the UW Virtual Brain ProjectTM visual, auditory, and touch system lessons in virtual reality or on a desktop display. Each lesson provides an immersive experience of information flow from sensory input to cortical processing. Evidence suggests these experiences are fun and easy to use, which can advance neuroscience education.

Transparency despite Pattern, Junction, Luminance and Color Incongruity: The Power of Common Fate.

Zhehao Huang, SUNY Optometry, Qasim Zaidi

We show that motion-defined common fate overrides geometric, pattern and color incongruities in transparency perception. We demonstrate transparency percepts despite the combination of T-junctions and overlaid surfaces with different patterns and colors than surround surfaces.

Video communication through MPdepth

Niko Troje, Centre for Vision Research, York University,

Turn directionality back on. Establish true dynamic eye contact. Feel free, to look into her eyes or avoid her gaze. Let your visual system take advantage of the amazing wealth of mutual eye gaze again that thought you had lost over Zoom-ing and Skype-ing. No, you don’t need a headset for that. Check it out.

Visual awareness modulated by edge detector adaptation

Shinsuke Shimojo, California Institute of Technology, Shao Min Hung (California Institute of Technology)

VIsual awareness of an object can be suppressed (ie. made invisible) by adapting to the same-shaped higher-contrast adaptor (Moradi & Shimojo, ’04). A variety of new observations indicate a failure of edge detection, being consistent with the interaction between the boundary and the feature systems.

StroboPong

VSS Staff

Back by popular demand. Strobe lights and ping pong!

Attendee Resources

Abstract Book

A printed Abstract book is no longer available. The Abstract book can be downloaded in PDF format for free from the VSS website.

ATM

An ATM is located in the main lobby of the hotel. A second ATM can be found in the lobby of the Breckenridge Building.

Audiovisual Equipment for Talks

LCD projectors are provided in the talk rooms for giving slide presentations. Computers are NOT provided. Presenters must bring their own laptop computers and set them up BEFORE the start of the session in which they are presenting. Please review the Talk Presentations Rules and Instructions for more information.

For speakers who cannot bring a laptop, there will be a loaner Windows PC laptop available in the talk room. Please make advance arrangements with Jeff Wilson at the VSS Registration Desk.

Baggage Check

Bags can be checked with the Bell Hop in the main lobby.

Business Center

The Business Center is located in the hotel lobby. Computer terminals are available in both the Social Lounge and the Quiet Lounge. A printer is available in the VSS Social Lounge.

Business Meeting

The VSS Business Meeting is Tuesday, May 17, 12:30 – 1:30 pm in Talk Room 2. All VSS members are encouraged to attend. This is your opportunity to hear about VSS, ask questions, and give feedback.

Certificates of Attendance

To receive a Certificate of Attendance, please visit the Registration Desk. If you require any changes, we will be happy to email or mail a copy after the meeting.

Code of Conduct

The Vision Sciences Society is committed to providing a safe, professional and harassment-free environment during our annual meeting. All VSS attendees must conduct themselves in a professional manner. It is unlawful to harass any person or employee. Harassment is unwelcome or hostile behavior, including speech that intimidates, creates discomfort, or interferes with a person's participation or opportunity for participation in a conference, event or program. Harassment includes the use of abusive or degrading language, intimidation, stalking, harassing photography or recording, inappropriate physical contact, and unwelcome sexual attention. Individuals violating these standards may be sanctioned or excluded from further participation at the discretion of the organizers. Violations of the anti-harassment policy can be reported to any of the members of the VSS Board of Directors or to Shauney Wilson, the VSS Executive Director and Event Director. See the full text of VSS's anti-harassment policy.

Contact Us

If you need to reach VSS meeting personnel while at the meeting, call extension 7814 from a house phone. From outside the hotel, call (727) 367-6461, extension 7814.

Cyber Lounge

The Cyber Lounge has merged with the Social Lounge this year. Computer terminals are available in both the Social Lounge and the Quiet Lounge. A printer is available in the Social Lounge.

Disclaimer

The Program Committee reserves the right to change the meeting program at any time without notice. Please note that this program was correct at the time of printing.

Drink Tickets

Each attendee will receive two "free drink" tickets which may be redeemed at the Opening Night Reception (May 13) or Demo Night (May 16).

Exhibits

All exhibits are located in the Pavilion. See our list of Exhibitors and the Exhibits Floor Plan (*coming soon*).

Exhibit Hours

Saturday, May 14, 8:00 am – 5:30 pm
Sunday, May 15, 8:00 am – 5:30 pm
Monday, May 16, 8:00 am – 12:30 pm
Tuesday, May 17, 8:00 am – 5:30 pm

Exhibitor Setup and Tear down

Setup: Friday, May 15, 4:00 – 7:00 pm and Saturday, May 16, 7:00 – 9:00 am
Tear down: Tuesday, May 19, 5:30 – 7:30 pm

Fitness Center

The TradeWinds Island Grand fitness center is open daily from 6:00 am – 10:00 pm. The Center is available to attendees staying at either of the TradeWinds hotels. The RumFish Beach Resort fitness center is open 24/7 with a room key.

Food Service/Catering

Complimentary coffee and tea, as well as a light continental breakfast is available each morning in the Garden Courtyard and the Pavilion. Coffee, tea, and refreshments will also be served each afternoon between afternoon talk sessions.

Your VSS registration includes a reception and a dinner. The Opening Night Reception is held on Friday night and the Demo Night BBQ dinner is held on Monday night. Both events take place on the beach (weather permitting). Attendees may purchase a Friends & Family Pass, which will allow their guests to attend the food and social events.

Each attendee will be given two "free drink" tickets, good at the Opening Night Reception and Demo Night.

The VSS schedule provides a generous two-hour lunch period to take advantage of the beautiful surroundings and amenities of the TradeWinds Island Grand Hotel and the RumFish Beach Resort.

Note: VSS meeting attendees will receive a 10% discount on all food and beverage purchases in ALL TradeWinds Islands Resorts restaurants and bars. You must present your VSS badge to receive the discount.

The 10% discount does not apply to food or drinks at VSS events, such as the Opening Night Reception, Demo Night, or Grab and Go Lunches. Discounted pricing has already been applied to these functions.

Grab and Go Lunches

The TradeWinds will offer a selection of reasonably-priced lunch items just for VSS attendees.
Friday – Sunday, Tuesday 11:30 am – 2:30 pm, in the Garden Courtyard
Monday, 11:30 am – 2:30 pm, in the Grand Palm Colonnade

Friends & Family Pass

The Friends & Family Pass allows your family to enjoy our many fun VSS social events. For $60.00, your travel companion can attend the Opening Night Reception, Demo Night, as well as enjoy all Coffee/Snack Breaks and the Daily Continental Breakfast! Passes are only $60.00 for adult guests and $20.00 for children ages 6 through 12. Children under the age of 6 are free. To purchase a Family & Friends Pass, please visit the VSS Registration Desk onsite.

Passes are required for entrance to all social events and meals, including the Friday evening Welcome Reception and Monday evening Demo Night.

Note: The Friends & Family Pass does not cover entrance to the scientific sessions. For a guest pass to a scientific session, please inquire at the VSS Registration Desk. For more information, please see Guests below.

Guests

Guests are allowed complimentary entry into one VSS session to see the poster or talk of the person they are guests of at the meeting.

Guests must register at the VSS Registration Desk upon arrival and must be accompanied by a VSS attendee. Guests must wear their guest badge for entrance into the session they attend.

To attend social functions, including the Opening Night Reception, Demo Night BBQ, Coffee/Snack Breaks and Daily Continental Breakfast, attendees' guests will need to purchase a Friends & Family Pass, available at the VSS Registration Desk.

Internet Access

VSS provides free wireless internet access in the meeting areas, guest rooms, and VSS lounges. In the VSS meeting space, connect to **twgroup**; password is **group5500**. In the hotel common areas and sleeping rooms connect to TW; password is guest5500

If you did not bring your own computer, a limited number of laptop computers with free internet access are available for your use in both the Quiet and Social Lounges.

Lost and Found

The Lost and found is located at the VSS Registration Desk in the Grand Palm Colonnade.

Lounges

VSS offers two lounge areas exclusively for meeting attendees:

Quiet Lounge
The VSS Quiet Lounge is designed especially for attendees who need a quiet place to read, work, silently meditate, or relax. There are two laptops available. The Quiet Lounge is located in the Glades room in Jacaranda Hall.
Quiet Lounge Hours:
Friday – Sunday, 7:30 am – 9:30 pm
Monday, 7:30 am – 12:30 pm
Tuesday, 7:30 am – 9:30 pm
Wednesday, 7:30 am – 12:30 pm

Social Lounge
The VSS Social Lounge features comfortable seating for relaxing and visiting with colleagues. There are two laptops and a printer available, as well as phone charging stations. The Social Lounge is located in the Banyan/Citrus room in Jacaranda Hall.
Social Lounge Hours:
Friday – Sunday, 7:30 am – 9:30 pm
Monday, 7:30 am – 12:30 pm

Tuesday, 7:30 am – 9:30 pm
Wednesday, 7:30 am – 12:30 pm

Message Center

Messages for registrants can be left and retrieved at the VSS Registration Desk. A bulletin board will be available in the Grand Palm Colonnade for announcements and job postings.

Networking and mentoring opportunity

FoVea, Visibility and SPARK have developed a slack space called Mentoring Envisioned to facilitate networking and mentoring opportunities for all members of the VSS community. This space is intended to help VSS attendees meet other attendees and communicate during the conference and beyond. For more information see https://forms.gle/F1FkuRFKeyyP8eJP7.

Networking Events

Connect with Industry
Saturday, 12:45 – 2:15 pm
Blue Heron

Celebrating Diversity!
Saturday, 12:45 – 2:15 pm
Jasmine/Palm

Moderators

Please arrive at the meeting room 30 minutes prior to the start of your session to allow time for setup and to check in with your speakers. Please see the Moderator Instructions emailed to you. Copies are available at the VSS Registration Desk.

Parking

Complimentary self-parking is available to all meeting attendees. Access is through the Island Grand guard gate. Valet parking is available at the TradeWinds Grand Island Resort lobby for an additional fee.

Phone Charging Station

Phone charging stations will be located at the VSS Registration Desk and in the VSS Social Lounge.

Photographing/Videotaping Presentations

Unless otherwise noted, photographing and videotaping posters and talks is permitted at VSS. Presenters who do NOT wish to be photographed or videotaped should indicate this by displaying our "No videos and photos" image on their poster or the title slide at the beginning of their talk. The image can be downloaded from the VSS website or you can pick up a printed version at the Registration Desk.

Poster Sessions

All poster sessions are held in Banyan Breezeway and the Pavilion. The last three digits of your poster number indicate the number of your poster board.

Posters should be put up at the beginning of a session and taken down at the end. Authors of even numbered posters are expected to be present at their posters during the entire “Even Authors Present” time, and authors of odd numbered posters are expected to be present at their posters during the entire “Odd Authors Present” time. Authors may be present during the entire session, if desired. Abstracts not presented at the meeting during the designated author present time will not be published in the *Journal of Vision*.

Please be courteous and take down your poster promptly at the end of the session so that the board is empty when the next presenter arrives to put up their poster.

Push pins are available for your use and are located in the Banyan Breezeway and Pavilion.

Quiet Lounge

See Lounges.

Registration

The Registration Desk is located in the Grand Palm Colonnade. The Registration Desk is open during the following times:

Friday, May 15, 9:00 am – 6:00 pm
Saturday, May 16, 7:30 am – 6:45 pm
Sunday, May 17, 7:30 am – 6:45 pm
Monday, May 18, 7:45 am – 1:30 pm
Tuesday, May 19, 7:45 am – 6:45 pm
Wednesday, May 20, 7:45 am – 12:45 pm

Shipping

To ship your poster or other items home from the meeting, ask for the Concierge at the front desk of the TradeWinds Island Grand.

Social Lounge

See Lounges.

Student Events

Student/Postdoc workshop: Open Science Workshop on Pre-registration
Sunday, 12:45 – 2:15 pm
Jasmine/Palm

Undergrad Meet & Greet

Monday, 2:00 -3:00 pm

Pirate Island (behind Sharktooth Tavern)

Meet the Professors

Monday, 3:30- 5:00 pm

Banyan Breezeway

Canadian Vision Science Social

Sunday, May 15, 2022, 12:30 - 2:15 pm EDT, Sabal/Sawgrass

Organizers: Caitlin Mullin, Vision: Science to Applications (VISTA) | York University; Doug Crawford, Vision: Science to Applications (VISTA) | York University

This social event is open to any VSS member who is, knows, or would like to meet a Canadian Vision Scientist! Join us for casual discussions with students and faculty from several Canadian Institutes or to just satisfy your curiosity as to why we in the North are so polite and good natured, Eh? We particularly encourage trainees and scientists who would like to learn about the various opportunities available through York's Vision: Science to Applications (VISTA) program. So grab your toques and your double-double and come connect with your favorite Canucks. This event will feature free food and refreshments, with a complimentary beverage for the first 50 attendees. This event is sponsored by the York Centre for Vision Research and VISTA, which is funded in part by the Canada First Research Excellence Fund (CFREF)

VISTA
VISION: SCIENCE TO APPLICATIONS
YORK UNIVERSITY

Data Visualization Micro-Talk Event

Saturday, May 14, 2022, 12:45 - 2:15 pm EDT, Sabal/Sawgrass

Organizers: Jeremy Wilmer, Wellesley College; Sarah Kerns, Wellesley College

A whirlwind tour of data visualization insights from VSS members: share a tool, a research result, an effective graph, an ineffective graph. The event features a series of “micro-talks” where speakers give 2-minute presentations.

If you are interested in contributing a micro-talk, please contact Jeremy at jeremy.wilmer@gmail.com.

FoVea Workshop: Working during a Pandemic

Sunday, May 15, 2022, 7:30 - 9:00 pm EDT, Beachside Decks

Organizers: Diane Beck, University of Illinois; Mary Peterson, University of Arizona; Karen Schloss, University of Wisconsin-Madison

The pandemic has impacted all aspects of our life and will likely continue in some form for a while. These impacts have been particularly disruptive for women (e.g., Augustus, 2021). We will break into small, facilitator-led groups to discuss the ways in which the pandemic has impacted our work in the past and how it might continue to impact our work in the future, as well as discuss possible accommodations and solutions. What have others tried? What has worked? What has not? Participants will have the opportunity to choose affinity groups (e.g. graduate students, early career researchers, parents and caregivers, BIPOC researchers, LGBTQ2S researchers) ahead of time on our registration form. As part of our commitment to intersectionality, we have partnered with SPARK and Visibility to provide facilitators and affinity tables to discuss intersectionality issues.

FoVea is a group founded to advance the visibility, impact, and success of women in vision science (www.foveavision.org). We encourage vision scientists of all genders to participate in the workshops.

Please register at: http://www.foveavision.org/vss-workshops.

INCF/MathWorks Psychophysics Working Group

Monday, May 16, 2022, 2:00 - 3:00 pm EDT, Sabal/Sawgrass

Organizers: Vijay Iyer, MathWorks & Malin Sandström INCF

The planned INCF/MathWorks Psychophysics Working Group aims to be an international group facilitating regular and active coordination among users and developers of various open access software tools for conducting psychophysics experiments while building upon the MATLAB™ software platform from MathWorks. The planned working group intends to conduct one of its regular meetings annually at the VSS meeting, allowing communication with and participation by the broader vision science community.

Computational and Mathematical Models in Vision (MODVIS)

Thursday, May 12, 2022, 9:00 am - 6:30 pm EDT, Horizons

Friday, May 13, 2022, 9:00 - 11:30 am EDT, Horizons

Organizers: Jeff Mulligan, Freelance Vision Scientist; Zygmunt Pizlo, UC Irvine, Anne B. Sereno, Purdue University; Qasim Zaidi, SUNY College of Optometry

Keynote Selection Committee: Yalda Mohsenzadeh, MIT; Michael Rudd, University of Washington

A keynote address will be given by George Sperling, Distinguished Professor, University of California, Irvine.

More information about the workshop, including how to register, can be found at the workshop website https://www.purdue.edu/conferences/events/modvis/. The registration fees are $140 (regular) and $70 (student), which cover audio-visual expenses, coffee and snacks, and the VSS satellite fee.

The workshop features contributed presentations that are longer than standard VSS talks, with interactive discussion. Contributions are solicited on all aspects of modeling and simulation.

phiVis: Philosophy of Vision Science Workshop

Monday, May 16, 2022, 3:30 - 5:30 pm EDT, Blue Heron

Organizers: Kevin Lande, Department of Philosophy & Centre for Vision Research, York University; Chaz Firestone, Department of Psychological and Brain Sciences, Johns Hopkins University

VSS SATELLITE
PHILOSOPHY OF VISION SCIENCE WORKSHOP

The past decade has seen a resurgence in conversation between vision science and philosophy of perception on questions of fundamental interest to both fields, such as: What do we see? What is seeing for? What is seeing? The phiVIS workshop is a forum for continuing and expanding this interdisciplinary conversation. Short talks by philosophers of perception that engage with the latest research in vision science will be followed by discussion with a slate of vision scientists.

Conversations between philosophers of vision and vision scientists have enriched research programs in both fields. On the one hand, the latest generation of philosophers of vision are deeply immersed in the scientific literatures on natural scene statistics, visual short-term memory, ensemble perception, contour integration, amodal completion, visual salience, multi-sensory integration, visual adaptation, and much else. On the other hand, vision scientists have found a great deal of value in responding to and thinking together with philosophers about the mechanisms and effects of perceptual constancies, attentional selection, object perception, and perceptual uncertainty, to name just a handful of topics. These conversations are not only intrinsically interesting for everyone involved, they have been fruitful sources of research and collaboration. However, opportunities for dialogue are all too rare, often occurring only through chance interactions or one-off workshops. The phiVis satellite is meant to be a platform to extend these discussions. Our first event took place at the 2021 V-VVS and drew nearly 300 attendees. Join us this year, in person, for phiVis 2!

Program:

- Mohan Matthen (University of Toronto), with comments from Viola Störmer (Dartmouth)
- Nico Orlandi (University of California, Santa Cruz), with comments from Frank Tong (Vanderbilt)
- Jacob Beck (York University) and Sam Clarke (University of Pennsylvania), with comments from Stella Lourenco (Emory)

This event is supported by York University's Vision: Science to Applications (VISTA) program, Centre for Vision Research, and Department of Philosophy, as well as the Johns Hopkins University Vision Sciences Group.

For more information and to register, visit: www.phivis.org

Visibility: A Gathering of LGBTQ+ Vision Scientists and Friends

Friday, May 13, 2022, 8:30 - 9:30 pm EDT, Beachside Decks

Organizers: Alex White, Barnard College; Michael Grubb, Trinity College

LGBTQ students are disproportionately likely to drop out of science early. Potential causes include the lack of visible role models and the absence of a strong community. This social event is one small step towards filling that gap and will bring awareness to continuing challenges for queer scientists.

How to setup multi-user eye tracking experiments in VR and collect data

Sunday, May 15, 2022, 12:45 - 2:15 pm EDT, Blue Heron

Organizers: Matthias Pusch, WorldViz; Andrew Beall, WorldViz

WorldViz VR will teach participants how to set up and perform Multi-User eye tracking studies in VR using Python and a GUI based configurator. We will explain drag and drop methods for adding 360 videos and 3D models, and demonstrate analytics methods with associated templates. At the end of this session participants will know how to insert their own 3D geometry or 360 video in VR scenes, generate 3D visualizations of the scene and gaze path, extract gaze intersects, view an interactive session replay, save out raw data, and modify the template using their own target objects and parameters. We will also show how you can easily customize and add unique metaverse level avatars and perform interactions across remote locations or local LAN in an eye tracking study.

LabMaestro Pack&Go: a new tool for running MATLAB/Psychtoolbox experiments online

Monday, May 16, 2022, 3:15 - 4:30 pm EDT, Sabal/Sawgrass

Organizers: Lindsey Fraser, VPixx Technologies; Amanda Estephan, VPixx Technologies

Last year at V-VSS 2021, VPixx Technologies introduced a new software tool under development: LabMaestro Pack&Go, a solution for conducting MATLAB/Psychtoolbox experiments online.

In this satellite talk, VPixx Staff Scientists will present the current status of Pack&Go, and demonstrate its use. We will show how to upload local MATLAB experiments, recruit participants and send invitations, collect and store data, and download results files and experiment metadata. Specific concerns related to end-to-end latency, network timing and data security will be addressed.

We will also present results from an online MATLAB experiment hosted throughout the conference. We encourage VSS attendees to complete this experiment on a laptop available at our Exhibitor's Booth during normal booth hours.

VSS Symposia

Beyond objects and features: High-level relations in visual perception

Friday, May 13, 2022, 12:00 - 2:00 pm EDT, Talk Room 1

Organizers: Chaz Firestone[1], Alon Hafri[1]; [1]Johns Hopkins University

The world contains not only objects and features (red apples, glass bowls, large dogs, and small cats), but also relations holding between them (apples contained in bowls, dogs chasing cats). What role does visual processing play in extracting such relations, and how do relational representations structure visual experience? This symposium brings together a variety of approaches to explore new perspectives on the visual processing of relations. A unifying theme is that relations deserve equal place at the vision scientist's table—and indeed that many traditional areas of vision science (including scene perception, attention, and memory) are fundamentally intertwined with relational representation. More…

Beyond representation and attention: Cognitive modulations of activity in visual cortex

Friday, May 13, 2022, 12:00 - 2:00 pm EDT, Talk Room 2

Organizers: Alex White[1], Kendrick Kay[2]; [1]Barnard College, Columbia University, [2]University of Minnesota

This symposium addresses modulations of activity in visual cortex that go beyond classical notions of stimulus representation and attentional selection. For instance, activity patterns can reflect the contents of visual imagery, working memory, and expectations. In other cases, unstimulated regions of cortex are affected by the level of arousal or task difficulty. Furthermore, what might appear as general attentional amplifications are sometimes quite specific to stimulus type, brain region, and task. Although these effects are diverse, this symposium will seek unifying principles that are required to build general models of how sensory and cognitive signals are blended in visual cortex. More…

How we make saccades: selection, control, integration

Friday, May 13, 2022, 2:30 - 4:30 pm EDT, Talk Room 1

Organizers: Emma Stewart[1], Bianca R. Baltaretu[1]; [1]Justus-Liebig University Giessen, Germany

Making a saccade is a non-trivial process: the saccade target must be selected, the visuomotor system must execute a motor command, and the visual system must integrate pre- and postsaccadic information. Recent research has uncovered titillating new roles for established neural regions, giving an evolving and sophisticated perspective into processes underlying saccadic selection and control. Additionally, computational models have advanced our understanding of how saccades shape perception. This symposium will unify established knowledge about the disparate phases of saccade production, giving insight into the full life cycle of a saccade, from selection, to control, to the ultimate ensuing transsaccadic perception. More…

Perceptual Organization - Lessons from Neurophysiology, Human Behavior, and Computational Modeling

Friday, May 13, 2022, 2:30 - 4:30 pm EDT, Talk Room 2

Organizers: Dirk B. Walther[1], James Elder[2]; [1]University of Toronto, [2]York University

A principal challenge for both biological and machine vision systems is to integrate and organize the diversity of cues received from the environment into the coherent global representations we experience and require to make good decisions and take effective actions. Early psychological investigations date back more than 100 years to the seminal work of the Gestalt school. But in the last 50 years, neuroscientific and computational approaches to understanding perceptual organization have become equally important, and a full understanding requires integration of all three approaches. This symposium will highlight the latest results and identify promising directions in perceptual organization research. More…

The probabilistic nature of vision: How should we evaluate the empirical evidence?

Friday, May 13, 2022, 5:00 - 7:00 pm EDT, Talk Room 1

Organizers: Ömer Dağlar Tanrıkulu[1], Arni Kristjansson[2]; [1]Williams College, [2]University of Iceland

The view that our visual system represents sensory information probabilistically is prevalent in contemporary vision science. However, providing empirical evidence for such a claim has proved to be difficult since both probabilistic and non-probabilistic perceptual representations can, in principle, account for the experimental results in the literature. In this symposium, we discuss how vision research can provide empirical evidence relevant to the question of probabilistic perception. How can we operationalize probabilistic visual representations, and, if possible, how can we provide empirical evidence that settles the issue? Our goal is to encourage researchers to make their assumptions about probabilistic perception explicit. More…

What does the world look like? How do we know?

Friday, May 13, 2022, 5:00 - 7:00 pm EDT, Talk Room 2

Organizers: Mark Lescroart[1], Benjamin Balas[2], Kamran Binaee[1], Michelle Greene[3], Paul MacNeilage[1]; [1]University of Nevada, Reno, [2]North Dakota State University, [3]Bates College

Statistical regularities in visual experience have been broadly shown to shape neural and perceptual visual processing. However, our ability to make inferences about visual processing based on natural image statistics is limited by the representativeness of natural image datasets. Here, we consider the consequences of using non-representative datasets, and we explore challenges in assembling datasets that are more representative in terms of the sampled environments, activities, and individuals. We explicitly address the following questions: what are we not sampling, why are we not sampling it, and how does this limit the inferences we can draw about visual processing? More…

Beyond objects and features: High-level relations in visual perception

Friday, May 13, 2022, 12:00 - 2:00 pm EDT, Talk Room 1

Organizers: Chaz Firestone[1], Alon Hafri[1]; [1]Johns Hopkins University

Presenters: Alon Hafri, Melissa Le-Hoa Võ, Liuba Papeo, Daniel Kaiser, Hongjing Lu

A typical VSS program devotes sections to low-level properties such as motion, orientation, and location; higher-level properties such as faces, scenes, and materials; and core visual processes such as working memory and attention. Yet a notable absence among these are relational representations: properties holding *between* elements, beyond any properties each element has on its own. For example, beyond perceiving red apples and glass bowls, we may also see apples contained inside bowls; beyond perceiving an object and its motion, we may see it collide with another object; and beyond perceiving two agents, we may also see them socially interact. The aim of this symposium is to showcase work that investigates relational representation using the methods and tools of vision science, including classic paradigms from visual cognition, modern neuroimaging techniques, and state-of-the-art computational modeling. A central theme is that fully understanding the nature of visual perception — including core processes such as object and scene representation, visual attention, and working memory — requires a consideration of how visual elements relate to one another. First, Alon Hafri and Chaz Firestone will provide an overview of the "relational landscape". They will delineate criteria for determining whether a relational property is perceived rather than merely judged or inferred, and they will discuss several case studies exemplifying this framework. Second, Melissa Võ will discuss her work on "scene grammar", whereby the mind represents natural environments in terms of the typical composition of their objects (e.g., soap generally appears on sinks). Võ suggests that certain clusters of objects (especially "anchor objects") guide visual search, object perception, and memory. Third, Liuba Papeo will present her work on social relations (e.g., when two agents approach, argue, or fight). Papeo shows that the visual system identifies social relations through a prototypical "social template", and she explores the ways such representations generalize across visual contexts. Fourth, Daniel Kaiser will extend the discussion from objects to scene structure. Using neuroimaging evidence, he shows that natural scene processing is fundamentally relational: when configural relations between scene parts are disrupted, there are downstream consequences for scene and object processing. Finally, Hongjing Lu and Phil Kellman will discuss the computational machinery necessary to achieve relational representations. Although deep-learning models achieve remarkable success at many vision tasks, Lu and Kellman present modeling evidence arguing that abstract structure is necessary for representing visual relations in ways that go beyond mere pattern classification. Overall, this work explores how relational structure plays a crucial role in how we see the world around us, and raises important questions for future vision science research. David Marr famously defined vision as the capacity to "know what is where by looking" — to represent objects and their features, located somewhere in space. The work showcased here adds an exciting dimension to this capacity: not only what and where, but "how" visual elements are configured in their physical and social environment.

Presentations

Perceiving relational structure

Alon Hafri[1], Chaz Firestone[1]; [1]Johns Hopkins University

When we open our eyes, we immediately see the colors, shapes, and sizes of the objects around us — round apples, wooden tables, small kittens, and so on — all without effort or intention. Now consider relations between these objects: An apple supported by a table, or two kittens chasing one another. Are these experiences just as immediate and perceptual, or do they require effort and reflection to arise? Which properties of relations are genuinely perceived, and how can we know? Here, we outline a framework for distinguishing perception of relations from mere judgments about them, centered on behavioral "signatures" that implicate rapid, automatic visual processing as distinct from high-level judgment. We then discuss several case studies demonstrating that visual relations fall within this framework. First, we show that physical relations such as containment and support are extracted in an abstract manner, such that instances of these relations involving very different objects are confused for one another in fast target-identification tasks. Second, we show that the mind "fills in" required elements of a relation that are inferred from physical interaction (e.g., a man running into an invisible "wall"), producing visual priming in object detection tasks. Third, we show that when objects look like they can physically fit together, this impression influences numerosity estimates of those objects. We argue that visual processing itself extracts sophisticated, structured relations, and we reflect on the consequences of this view for theorizing about visual perception more broadly.

Hierarchical relations of objects in real-world scenes

Melissa Le-Hoa Võ[1]; [1]Goethe University - Frankfurt

The sources that guide attention in real-world scenes are manifold and interact in complex ways. We have been arguing for a while now that attention during scene viewing is mainly controlled by generic scene knowledge regarding the meaningful composition of objects that make up a scene (a.k.a. scene grammar). Contrary to arbitrary target objects placed in random arrays of distractors, objects in naturalistic scenes are placed in a very rule-governed manner. In this talk, I will highlight some recent studies from my lab in which we have tried to shed more light on the hierarchical nature of scene grammar. In particular, we have found that scenes can be decomposed into smaller, meaningful clusters of objects, which we have started to call "phrases". At the core of these phrases you will find so-called "anchor objects", which are often larger, stationary objects that anchor strong relational predictions about where other objects within the phrase are expected to be. Thus, within a "phrase" the spatial relations of objects are strongly defined. Manipulating the presence of anchor objects, we were able to show that both eye movements and body locomotion are strongly guided by these anchor objects when carrying out actions with naturalistic 3D settings. Overall, the data I will present will provide further evidence for the crucial role that anchor objects play in structuring the composition of scenes and thereby critically affecting visual search, object perception and the forming of memory representations in naturalistic environments.

(In what sense) We see social relations

Liuba Papeo[1,2]; [1]CNRS, [2]Université Claude Bernard Lyon

The most basic social relation is realized when two social agents engage in a physical exchange, or interaction. How do representations of social interactions come about, from basic processing in visual perception? Behavioral and neuroimaging phenomena show that human vision (and selective areas of the visual cortex) discriminates between scenes involving the same bodies, based on whether the individuals appear to interact or not. What information in a multiple-body scene channels the representation of social interaction? And what exactly is represented of a social relation in the visual system? I will present behavioral results, based on a switch cost paradigm, showing that the visual system exploits mere spatial information (i.e., relative position of bodies in space and posture features) to "decide" not only whether there is an interaction or not, but also who the agent and the patient are. Another set of results, based on a backward masking paradigm, shows that the visual processing of socially-relevant spatial relations is agnostic to the content of the interaction, and indeed segregated from, and prior to, (inter)action identification. Thus, drawing a divide between perception and cognition, the current results suggest that the visual representation of social relations corresponds to a configuration of parts (bodies/agents) that respect the spatial relations of a prototypical social interaction –a sort of social-template, theoretically analogous to the face- or body-template in the visual system– before inference. How specific/general to different instances of social interaction this template is will be the main focus of my discussion.

The role of part-whole relations in scene processing

Daniel Kaiser[1]; [1]Justus-Liebig-Universität Gießen

Natural scenes are not arbitrary arrangements of unrelated pieces of information. Their composition rather follows statistical regularities, with meaningful information appearing in predictable ways across different parts of the scene. Here, I will discuss how characteristic relations across different scene parts shape scene processing in the visual system. I will present recent research, in which I used variations of a straightforward "jumbling" paradigm, whereby scenes are dissected into multiple parts that are then either re-assembled into typical configurations (preserving part-whole relations) or shuffled to appear in atypical configurations (disrupting part-whole relations). In a series of fMRI and EEG studies, we showed that the presence of typical part-whole relations has a profound impact on visual processing. These studies yielded three key insights: First, responses in scene-selective cortex are highly sensitive to spatial part-whole relations, and more so for upright than for inverted scenes. Second, the presence of typical part-whole structure facilitates the rapid emergence of scene category information in neural signals. Third, the part-whole structure of natural scenes supports the perception and neural processing of task-relevant objects embedded in the scene. Together, these results suggest a configural code for scene representation. I will discuss potential origins of this configural code and its role in efficient scene parsing during natural vision.

Two Approaches to Visual Relations: Deep Learning versus Structural Models

Hongjing Lu[1], Phil Kellman[1]; [1]University of California, Los Angeles

Humans are remarkably adept at seeing in ways that go well beyond pattern classification. We represent bounded objects and their shapes from visual input, and also extract meaningful relations among object parts and among objects. It remains unclear what representations are deployed to achieve these feats of relation processing in vision. Can human perception of relations be best emulated by applying deep learning models to massive numbers of problems, or should learning instead focus on acquiring structural representations, coupled with the ability to compute similarities based on such representations? To address this question, we will present two modeling projects, one on abstract relations in shape perception, and one on visual analogy based on part-whole relations. In both projects we compare human performance to predictions derived from various deep learning models and from models based on structural representations. We argue that structural representations at an abstract level play an essential role in facilitating relation perception in vision.

Beyond representation and attention: Cognitive modulations of activity in visual cortex

Friday, May 13, 2022, 12:00 - 2:00 pm EDT, Talk Room 2

Organizers: Alex White[1], Kendrick Kay[2]; [1]Barnard College, Columbia University, [2]University of Minnesota

Presenters: Alex L. White, Clare Press, Charlie S. Burlingham, Clayton E. Curtis, Jesse Breedlove

The concept of sensory representation has been immensely productive for studying visual cortex, especially in the context of 'image-computable models' of visually evoked responses. At the same time, many experiments have demonstrated that various forms of attention modulate those evoked responses. Several computational models of attention explain how task-relevant stimuli are represented more faithfully than task-irrelevant stimuli. However, these models still paint an incomplete picture of processing in visual cortex. Activity in visual brain regions has been shown to depend on complex interactions between bottom-up sensory input and task demands. In many cases, that activity is affected by cognitive factors that are not clearly related to sensory representation or attention, such as memory, arousal, and expectation. This symposium will bring together complementary perspectives on cognitive effects on activity in visual cortex. Each speaker will present a recently studied interaction of vision and cognition and how it manifests in experimental data. In addition, the speakers will consider the underlying mechanisms for the effects they observe. Key questions include: Are visual representations simply enhanced for any behaviorally relevant stimulus, or do task-specific neural networks modulate visual cortex only in the presence of specific stimuli? How do we interpret activity observed in the absence of retinal stimulation? Are there distinct representational systems for visual working memory, imagery, and expectations? In a final panel discussion, we will broach additional fundamental issues: To what extent is it possible to study representation in the absence of manipulating cognition? How can we build formal models that account for the range of cognitive and sensory effects in visual cortex? Each of the 5 speakers will be allotted 15 minutes for presentation plus 3 minutes for audience questions, for a total of 18 minutes per speaker. The final panel discussion will last 30 minutes. The panel will be moderated by Kendrick Kay, who will deliver an initial brief summary that will attempt to integrate the disparate studies presented by the speakers and weave together a coherent bigger picture regarding overall challenges and goals for studying cognitive effects on activity in visual cortex. A panel discussion will follow with questions posed by the moderator, as well as questions solicited from the audience.

Presentations

High specificity of top-down modulation in word-selective cortex

Alex L. White[1], Kendrick Kay[2], Jason D. Yeatman[3]; [1]Barnard College, Columbia University, [2]University of Minnesota, [3]Stanford University

Visual cortex is capable of processing a wide variety of stimuli for any number of behavioral tasks. So how does the specific information required for a given task get selected and routed to other necessary brain regions? In general, stimuli that are relevant to the current task evoke stronger responses than stimuli that are irrelevant, due to attentional selection on the basis of visual field location or non-spatial features. We will first review evidence that such attentional effects happen in category-selective regions, such as the visual word form area, as well as early retinotopic regions. We will then demonstrate evidence for top-down effects that are not domain-general, but extremely specific to task demands, stimulus features, and brain region. We measured fMRI responses to written words and non-letter shapes in retinotopic areas as well as word- and face-selective regions of ventral occipitotemporal cortex. In word-selective regions, letter strings evoked much larger responses when they were task-relevant (during a lexical decision task) than when they were irrelevant (during a color change task on the fixation mark). However, non-letter shapes evoked smaller responses when they were task-relevant than when irrelevant. This surprising modulation pattern was specific to word-selective regions, where response variability was also highly correlated with a region in the pre-central sulcus that is involved in spoken language. Therefore, we suggest that top-down modulations in visual cortex do not just generally enhance task-relevant stimuli and filter irrelevant stimuli, but can reflect targeted communication with broader networks recruited for specific tasks.

The influence of expectation on visual cortical processing

Clare Press[1,2], Emily Thomas[1,3], Daniel Yon[1]; [1]Birkbeck, University of London, [2]University College London, [3]New York University

It is widely assumed that we must use predictions to determine the nature of our perceptual experiences. Work from the last few years suggests that supporting mechanisms operate via top-down modulations of sensory processing. However, theories within the domain of action concerning the operation of these mechanisms are at odds with those from other perceptual disciplines. Specifically, action theories propose that we cancel predicted events from perceptual processing to render our experiences informative - telling us what we did not already know. In contrast, theories outside of action - typically couched within Bayesian frameworks - demonstrate that we combine our predictions (priors) with the evidence (likelihood) to determine perception (posterior). Such functions are achieved via predictions sharpening processing in early sensory regions. In this talk I will present three fMRI studies from our lab that ask how these predictions really shape early visual processing. They will ask whether action predictions in fact shape visual processing differently from other types of prediction and about differences in representation across different cortical laminae. The studies compare processing of observed avatar movements and simple grating events, and ask about the information content associated with the stimulus types as well as signal level across different types of voxels. We can conclude that action expectations exhibit a similar sharpening effect on visual processing to other expectations, rendering our perception more veridical on average. Future work must now establish how we also use our predictions - across domains - to yield informative experiences.

Task-related activity in human visual cortex

Charlie S. Burlingham[1], Zvi Roth[2], Saghar Mirbagheri[3], David J. Heeger[1], Elisha P. Merriam[2]; [1]New York University, [2]National Institute of Mental Health, National Institutes of Health, [3]University of Washington

Early visual cortex exhibits widespread hemodynamic responses during task performance even in the absence of a visual stimulus. Unlike the effects of spatial attention, these “task-related responses” rise and fall around trial onsets, are spatially diffuse, and even occur in complete darkness. In visual cortex, task-related and stimulus-evoked responses are similar in amplitude and sum together. Therefore, to interpret BOLD fMRI signals, it is critical to characterize task-related responses and understand how they change with task parameters. We measured fMRI responses in early visual cortex (V1/2/3) while human observers judged the orientation of a small peripheral grating in the right visual field. We measured task-related responses by only analyzing voxels in the ipsilateral hemisphere, i.e., far from the stimulus representation. Task-related responses were present in all observers. Response amplitude and timing precision were modulated by task difficulty, reward, and behavioral performance, variables that are frequently manipulated in cognitive neuroscience experiments. Surprising events, e.g., responding incorrectly when the task was easy, produced the largest modulations. Response amplitude also covaried with peripheral signatures of arousal, including pupil dilation and changes in heart rate. Our findings demonstrate that activity in early visual cortex reflects internal state — to such a large extent that behavioral performance can have a greater impact on BOLD activity than a potent visual stimulus. We discuss the possible physiological origins of task-related responses, what information about internal state can be gleaned from them, and analytic approaches for modelling them.

Unveiling the abstract format of mnemonic representations

Clayton E. Curtis[1], Yuna Kwak[1]; [1]New York University

Working memory (WM) enables information storage for future use, bridging the gap between perception and behavior. We hypothesize that WM representations are abstractions of low-level perceptual features. Yet the neural nature of these putative abstract representations has thus far remained impenetrable. Here, we first demonstrate that distinct visual stimuli (orientated gratings and moving dots) are flexibly re-coded into the same WM format in visual and parietal cortex when that representation is useful for memory-guided behavior. Next, we aimed to reveal the latent nature of the abstract WM representation. We predicted that the spatial distribution of higher

response amplitudes across a topographic map forms a line at a given angle, as if the retinal positions constituting a line were actually visually stimulated. To test this, we reconstructed the spatial profile of neural activity during WM by projecting the amplitudes of voxel activity during the delay period for each orientation and direction condition into visual field space using parameters obtained from models of each visual map's population receptive field. Remarkably, the visualization technique unveiled a stripe encoded in the amplitudes of voxel activity at an angle matching the remembered feature in many of the visual maps. Finally, we used models of V1 that demonstrate the feasibility of such a working memory mechanism and ruled out potential confounds. We conclude that mnemonic representations in visual cortex are abstractions of percepts that are more efficient than and proximal to the behaviors they guide.

With or without the retina: analyses of non-optic visual activity in the brain

Jesse Breedlove[1], Ghislain St-Yves[1], Logan Dowdle[1], Tom Jhou[2], Cheryl Olman[1], Thomas Naselaris[1]; [1]University of Minnesota, [2]Medical University of South Carolina

One way to investigate the contribution of cognition on activity in the visual cortex is to fix or remove the retinal input altogether. There are many such non-optic visual experiences to draw from (e.g., mental imagery, synesthesia, hallucinations), all of which produce brain activity patterns consistent with the visual content of the experience. But how does the visual system manage to both accurately represent the external world and synthesize visual experiences? We approach this question by expanding on a theory that the human visual system embodies a probabilistic generative model of the visual world. We propose that retinal vision is just one form of inference that this internal model can support, and that activity in visual cortex observed in the absence of retinal stimulation can be interpreted as the most probable consequence unpacked from imagined, remembered, or otherwise assumed causes. When applied to mental imagery, this theory predicts that the encoding of imagined stimuli in low-level visual areas will resemble the encoding of seen stimuli in higher areas. We confirmed this prediction by estimating imagery encoding models from brain activity measured while subjects imagined complex visual stimuli accompanied by unchanging retinal input. In a different fMRI study, we investigated another far rarer form of non-optic vision: a case subject who, after losing their sight to retinal degeneration, now “sees” objects they touch or hear. The existence of this phenomenon further supports visual perception being a generative process that depends as much on top-down inference as on retinal input.

How we make saccades: selection, control, integration

Friday, May 13, 2022, 2:30 - 4:30 pm EDT, Talk Room 1

Organizers: Emma Stewart[1], Bianca R. Baltaretu[1]; [1]Justus-Liebig University Giessen, Germany
Presenters: Jacqueline Gottlieb, Michele Basso, J. Patrick Mayo, J. Douglas Crawford, Alexander C. Schütz

Everyday behaviour is facilitated by our ability to correctly locate and fixate pertinent objects and locations within our surroundings. This is accomplished through the 2-3 saccades per second that are made to gather visual information and guide actions. With each saccade, however, a complex series of processes occurs: a saccade target must be selected, motor commands must ensure accurate saccade execution, and the perceptual consequences of making a saccade need to be accounted for. Over the past few decades, a wealth of research has given us insight into the related, intricate neural and behavioural mechanisms underlying saccade production. However, recent research has uncovered more nuanced roles for key established neural regions associated with the selection, control, and integration of saccadic eye movements. These regions extend from subcortical superior colliculus (SC) to the frontal cortex (i.e., frontal eye field, FEF) and posterior parietal cortex (Sommer & Wurtz, 1998, 2004; Medendorp et al., 2003). New evidence has also been uncovered about the goals and strategies of saccade target selection, and about how saccades actively shape and change our predictions about, and perception of, the world. While the underlying circuitry may have been identified, there is a significant gap in our knowledge about the complex interactions between the discrete neural components of a saccade, the goals that drive saccades, and the perception of the world that precedes and follows these events. In this symposium, leading researchers will unveil a more sophisticated perspective on the sequence of processes that occur before, during, and after a saccade, in humans and non-human primates, with a focus on three key areas. 1) Selection: What complex neural and behavioral processes underlie target selection? What new evidence is there for where perceptual decisions that drive saccades occur in the brain? Jacqueline Gottlieb will outline the link between target selection and uncertainty reduction in belief states, linking theories of information sampling with neurophysiological evidence. Furthermore, Michele Basso will highlight a new role for the superior colliculus in perceptual decision-making, reforming our understanding of the function of this subcortical structure. 2) Control: Once a target is selected, how does the visuomotor system exert its control over eye movements? J. Patrick Mayo will discuss new neurophysiological findings on the crucial role that FEF neurons play in online oculomotor control and decisions. 3) Integration: How does the visual system reconcile behaviourally and cortically pre- and postsaccadic information to perceive a seamless world across saccades? Doug Crawford will reveal the nature and identity of the cortical mechanism(s) that underlie object feature integration across saccades, and for action (i.e., grasping). Finally, Alexander Schütz will discuss recent behavioural and computational insights into how humans reconcile the perceptual differences in peripheral and foveal input across saccades, which will outline how we ultimately perceive the world across saccades. By bringing together behavioural, neurophysiological, neuroimaging, and computational findings, this symposium will present groundbreaking new advances that will establish a contemporary understanding of how saccades are made.

Presentations

Saccadic control for reducing uncertainty

Jacqueline Gottlieb[1]; [1]Columbia University

Saccades gather visual information. Although few scientists would question this statement, the neural mechanisms of saccade target selection are typically described in terms of reward with no reference to information. I will describe evidence from my laboratory that attentional sampling is sensitive to expected information gains (EIG). Saccade selective neurons in the parietal cortex are modulated by the two quantities that determine EIG - uncertainty and predictive validity - independently of rewards. Moreover, the effects of uncertainty before the saccade modulate the efficiency with which monkeys use the information after the saccade. The findings suggest that saccade target selection is closely coordinated with our belief states and is geared toward reducing the future uncertainty of those states.

A causal role of the primate superior colliculus in perceptual decision-making

Michele Basso[1]; [1]University of California Los Angeles

People with Parkinson’s disease show impairments in their ability to use memory information to guide choices of action when faced with perceptual uncertainty. Changes in the inhibitory output of the basal ganglia underlies motor symptoms in Parkinson’s disease. The superior colliculus, a brainstem target of the basal ganglia, is known to play a role in aspects of attention and decision-making. Therefore, we asked whether changes in the level of inhibition in the superior colliculus altered the ability of monkeys to make perceptual decisions. Trained monkeys performed a two-choice perceptual decision-making task in which they reported the perceived orientation of a dynamic Glass pattern, before and after unilateral, reversible, inactivation of the superior colliculus. We found that unilateral SC inactivation produced significant decision biases and changes in reaction times consistent with a causal role for the primate superior colliculus in perceptual decision-making. Fitting signal detection theory and sequential sampling models to the data showed that superior colliculus inactivation produced a decrease in the relative evidence for contralateral decisions, as if adding a constant offset to a time-varying evidence signal for the ipsilateral choice. The results provide causal evidence for an embodied cognition model of perceptual decision-making and provide compelling evidence that the superior colliculus of primates (a brainstem structure) plays a causal role in how evidence is computed for decisions-a process usually attributed to the forebrain.

The interaction of saccadic and smooth pursuit eye movements signals in macaque frontal eye fields

J. Patrick Mayo[1], Ruitong "Larry" Jiang[1]; [1]The University of Pittsburgh

Natural vision involves the constant coordination of multiple different types of eye movements. Prior research has tended to focus on behavioral and neuronal correlates of a single type of eye movement (e.g., only saccades or only smooth pursuit). These investigations have set the stage for our current work on the selection and control of different types of eye movements. We recorded neuronal activity in the macaque frontal eye fields, a region of prefrontal cortex with an established role in saccadic control and smooth pursuit, while monkeys made saccades and pursuit in one of eight directions. Although the interaction of saccade and pursuit signals is traditionally thought to be minimal in FEF, we set out to test this idea by recording from populations of neurons using multi-contact linear electrode arrays. Taking inspiration from the classic characterization of visual-saccadic activity in FEF ("VMI"; visual-motor index), we created a contrast ratio called the Saccade Pursuit Index (SPI) to measure the relative firing rates of individual neurons to saccadic and smooth pursuit eye movements. We found that a large proportion of neurons elicited roughly equal firing rates during saccades and pursuit, forming a relatively continuous and unimodal distribution of SPI values. We extended our analyses to pairs of simultaneously recorded neurons, where the independence of saccadic and pursuit signals was evaluated using spike count correlations ("noise" correlations). Our results suggest that FEF neurons interact across different types of eye movements more than previously assumed, implicating FEF in the online control of real-time oculomotor decisions.

Cortical networks for transsaccadic perception: fMRI and functional connectivity

J. Douglas Crawford[1], Bianca R. Baltaretu[2], Benjamin T. Dunkley[3], George Tomou[1]; [1]York University, Toronto, Canada, [2]Justus-Liebig University Giessen, Germany, [3]Hospital for Sick Children, Toronto, Canada

Transsaccadic perception (TSP) requires the retention, updating, and integration / comparison of visual information obtained before and after a saccade. Based on our earlier psychophysical and TMS studies, we hypothesized that TSP taps into frontoparietal mechanisms for spatial updating, and that low level location/feature integration might occur through feedback to occipital cortex, whereas higher level interactions might occur through lateral dorsoventral connectivity or prefrontal convergence (e.g., Prime et al., Philos. Trans. R. Soc. Lond., B, Biol. Sci. 2011). Here, we set about localizing these interactions using an fMRI adaptation paradigm. We found evidence for transsaccadic orientation perception in supramarginal gyrus (SMG) (Dunkley et al., Cortex 2016). We then extended SMG's role to updating object orientation for grasp, engaging a functional network including the frontal eye fields and parietal grasp areas (Balaretu et al., J. Neurosci. 2021). However, when we applied this approach to spatial frequency, we found saccade-feature interactions in dorsal occipital cortex (Baltaretu et al., Sci. Rep. 2021). Most recently, we employed a task involving transsaccadic discrimination of object orientation versus shape (Baltaretu et al., bioRxiv 2021). Graph theory analysis revealed a bilateral dorsal functional module extending across parietofrontal cortex, whereas saccade-feature interactions fell within two lateralized occipital modules that rejoined in the presence of saccades. Overall, our data are consistent with the notion that TSP is a cortical network phenomenon that includes interactions between saccade signals and spatial features (location, orientation) in parietal cortex versus identity-related features (spatial frequency, shape) in occipital cortex.

Interaction of peripheral and central visual information in transsaccadic perception

Alexander C. Schütz[1], Emma E.M. Stewart[2], Matteo Valsecchi[3]; [1]Phillips-Universität Marburg, Germany, [2]Justus-Liebig University Giessen, Germany, [3]Universitá di Bologna, Italy

In active vision, relevant objects are selected in the peripheral visual field and then brought to the central visual field by saccadic eye movements. Hence, there are usually two sources of visual information about an object: information from peripheral vision before a saccade and information from central vision after a saccade. The well-known differences in processing and perception between the peripheral and the central visual field lead to the question whether and how the two pieces of information are matched and combined. This talk will provide an overview about different mechanisms that may alleviate differences between peripheral and central representations and allow for a seamless perception across saccades. Transsaccadic integration results in a weighted combination of peripheral and central information according to their relative reliability, such that uncertainty is minimized. It is a resource-limited process that does not apply to the whole visual field, but only to attended objects. Nevertheless, it is not strictly limited to the saccade target, but can be flexibly directed to other relevant locations. Transsaccadic prediction uses peripheral information to estimate the most likely appearance in the central visual field. This allows appearance to be calibrated in the peripheral and central visual field. Such a calibration is not only relevant to maintain perceptual stability across saccades, but also to match templates for visual search in peripheral and central vision.

Perceptual Organization - Lessons from Neurophysiology, Human Behavior, and Computational Modeling

Friday, May 13, 2022, 2:30 - 4:30 pm EDT, Talk Room 2

Organizers: Dirk B. Walther[1], James Elder[2]; [1]University of Toronto, [2]York University
Presenters: James Elder, Thomas Serre, Anitha Pasupathy, Mary A. Peterson, Pieter Roelfsema, Dirk B. Walther

A principal challenge for both biological and machine vision systems is to integrate and organize the diversity of cues received from the environment into the coherent global representations we experience and require to make good decisions and take effective actions. Early psychological investigations date back more than 100 years to the seminal work of the Gestalt school. But in the last 50 years, neuroscientific and computational approaches to understanding perceptual organization have become equally important, and a full understanding requires integration of all three approaches. We understand perceptual organization as the process of establishing meaningful relational structures over raw visual data, where the extracted relations correspond to the physical structure and semantics of the scene. The relational structure may be simple, e.g., set membership for image segmentation, or more complex, for example, sequence representations of contours, hierarchical representations of surfaces, layered representations of scenes, etc. These representations support higher-level visual tasks such as object detection, object recognition, activity recognition and 3D scene understanding. This symposium will review the current state of perceptual organization research as well as open questions from a neuroscientific, psychophysical, and computational approach and highlight outstanding issues. Current feedforward computational models for object perception fail to account for the holistic nature of human object perception. A computational analysis of perceptual grouping problems leads to an alternative account that refines feedforward representations of local features with recurrent computations implementing global optimization objectives (James Elder). These principles can be seen in the recurrent computations leading to the formation of extra-classical receptive fields in early visual cortex. New neural network models of these recurrent circuits lead to emergent grouping principles of proximity and good continuation and demonstrate how recurrence leads to better contour detection and a more accurate account of human contour processing (Thomas Serre). These early contour representations are further integrated in mid-level stages of the ventral visual pathway to form object representations. A key challenge for perceptual organization is to accurately encode object shape despite occlusion and clutter. Behavioural and physiological results reveal that the visual system relies upon a competitive recurrent grouping-by-similarity computation to protect object encoding from the effects of crowding (Anitha Pasupathy). This kind of competitive computation also appears to be at the heart of figure/ground assignment, where convexity serves as a figural prior (Mary Peterson). While simple grouping operations may be achieved through a feedforward process, it will be argued that these more complex grouping operations are invoked through an incremental, attentive process that manifests as a more gradual spread of activation across visual cortex. (Pieter Roelfsema). To close, we show that local parallelism of contours leads to improved scene categorization as well as clearer representations of natural scenes in the human visual cortex. (Dirk B. Walther). Through these closely-related talks, the symposium will illustrate how integration of physiological, psychophysical and computational research has led to a better understanding of perceptual organization, and will highlight key open research questions and suggest directions for integrative research that will answer these questions.

Presentations

The role of local and holistic processes in the perceptual organization of object shape

James Elder[1]; [1]York University

Perceptual grouping is the problem of determining what features go together and in what configuration. Since this is a computationally hard problem, it is important to ask whether object perception really depends on perceptual grouping. For example, under ideal conditions, a collection of local features may be sufficient to classify an object. These features could be computed via a feedforward process, obviating the need for perceptual grouping. Indeed, this fast feedforward `bag of features' conception of object processing is prevalent in both human and computer vision research. Here I will review psychophysical and computational research that challenges the ability of this class of model to explain object perception. Psychophysical assessment shows that humans are largely unable to pool local shape features to make object judgements unless these features are configured holistically. Further, the formation of these perceptual groups is itself found to rely on holistic shape representations, pointing to a recurrent circuit that conditions local grouping computations on this holistic encoding. While feedforward deep learning models for object classification are more powerful than earlier bag-of-feature models, we find that these models also fail to capture human sensitivity to holistic shape and perceptual robustness to occlusion. This leads to the hypothesis that a computational model designed to solve perceptual grouping tasks as well as object classification will form a better account of human object perception, and I will highlight how optimal solutions to these grouping tasks are typically based on a fusion of feedforward local computations with holistic optimization and feedback.

Recurrent neural circuits for perceptual grouping

Thomas Serre[1]; [1]Brown University

Neurons in the visual cortex are sensitive to context: Responses to stimuli presented within their classical receptive fields (CRFs) are modulated by stimuli in their surrounding extra-classical receptive fields (eCRFs). However, the circuits underlying these contextual effects are not well understood, and little is known about how these circuits drive perception during everyday vision. We tackle these questions by approximating circuit-level eCRF models with a differentiable discrete-time recurrent neural network that is trainable with gradient-descent. After optimizing model synaptic connectivity and dynamics for object contour detection in natural images, the neural-circuit model rivals human observers on the task with far better sample efficiency than state-of-the-art computer vision approaches. Notably, the model also exhibits CRF and eCRF phenomena typically associated with primate vision. The model's ability to accurately detect object contours also critically depends on these effects, and these contextual effects are not found in ablated versions of the model. Finally, we derive testable predictions about the neural mechanisms responsible for contextual integration and illustrate their importance for accurate and efficient perceptual grouping.

Encoding occluded and crowded scenes in the monkey brain: object saliency trumps pooling

Anitha Pasupathy[1]; [1]University of Washington

I will present results from a series of experiments investigating how simple scenes with crowding and partial occlusion are encoded in midlevel stages of the ventral visual pathway in the macaque monkey. Past studies have demonstrated that neurons in area V4 encode the shape of isolated visual stimuli. When these stimuli are surrounded by distractors that crowd and occlude, shape selectivity of V4 neurons degrades, consistent with the decline in the animal's ability to discriminate target object shapes. To rigorously test whether this is due to the encoding of "pooled" summary statistics of the image within the RF, we characterized responses and selectivity for a variety of target-distractor relationships. We find that the pooling model is a reasonable approximation for neuronal responses when targets and distractors are either all similar or all different. But when the distractors are all similar and can be perceptually grouped, the target becomes salient by contrast. This saliency is reflected in the neuronal responses and animal behavior being more resistant to crowding and occlusion. Thus, target saliency in terms of featural contrasts trumps pooled encoding. These results are consistent with a normalization model where target saliency titrates the relative influence of different stimuli in the normalization pool.

Inhibitory Competition in Figure assignment: Insights from brain and behavior

Mary A. Peterson[1]; [1]University of Arizona

Behavioral and neural evidence indicates that the organization of the visual field into figures (i.e., objects) and their local grounds is not a simple, early, stage of processing, as traditional theories supposed. Instead, figure/object detection entails competition between different interpretations that might be seen. In the first part of my talk, I will discuss behavioral evidence that multiple interpretations compete in the classic demonstration that convexity is a figural prior. In the second part, I will present neural evidence of suppression in the BOLD response to the groundside of objects when a portion of a familiar configuration was suggested there but lost the competition for perception. These results begin to elucidate the complex interactions between local and global, high- and low-level factors involved in perceptually organizing the visual field into objects and backgrounds.

The neuronal mechanisms for object-based attention and how they solve the binding problem

Pieter Roelfsema[1,2,3]; [1]Netherlands Institute for Neuroscience, [2]Vrije Universiteit Amsterdam, [3]Academic University Medical Center, Amsterdam

Our visual system groups image elements of objects and segregates them from other objects and the background. I will discuss the neuronal mechanisms for these grouping operations, proposing that there are two processes for perceptual grouping. The first is ‘base grouping’, which is a process that relies on neurons tuned to feature conjunctions and occurs in parallel across the visual scene. If there are no neurons tuned to the required feature conjunctions, a second process, called ‘incremental grouping’, comes into play. Incremental grouping is a time-consuming and capacity-limited process, which relies on the gradual spread of enhanced neuronal activity across the distributed representation of an object in the visual cortex, during a delayed phase of the neuronal responses. Incremental grouping can occur for only one object at any one time. The spread of enhanced activity corresponds to the spread of object-based attention at the psychological level of description. Hence, we found that the binding problem is solved by labelling the representation of image elements in the visual cortex with enhanced activity and we did not obtain any evidence for a role of neuronal synchronization. Inhibition of the late-phase activity in primary visual cortex completely blocked figure-ground perception, demonstrating a causal link between enhanced neuronal activity and perceptual organization. These neuronal mechanisms for perceptual grouping account for many of the perceptual demonstrations by the Gestalt psychologists.

Neural correlates of local parallelism during naturalistic vision

Dirk B. Walther[1]; [1]University of Toronto

Human observers can rapidly perceive complex real-world scenes. Grouping visual elements into meaningful units is an integral part of this process. Yet, so far, the neural underpinnings of perceptual grouping have only been studied with simple lab stimuli. We here uncover the neural mechanisms of one important perceptual grouping cue, local parallelism. Using a new, image-computable algorithm for detecting local symmetry in line drawings and photographs, we manipulated the local parallelism content of real world scenes. We decoded scene categories from patterns of brain activity obtained via functional magnetic resonance imaging (fMRI) in 38 human observers while they viewed the manipulated scenes. Decoding was significantly more accurate for scenes containing strong local parallelism compared to weak local parallelism in the parahippocampal place area (PPA), indicating a central role of parallelism in scene perception. To investigate the origin of the parallelism signal we performed a model-based fMRI analysis of the public BOLD5000 dataset, looking for voxels whose activation time course matches that of the locally parallel content of the 4916 photographs viewed by the participants in the experiment. We found a strong relationship with average local symmetry in visual areas V1-4, PPA, and retrosplenial cortex (RSC). Notably, the parallelism-related signal peaked first in V4, suggesting V4 as the site for extracting paralleism from the visual input. We conclude that local parallelismis a perceptual grouping cue that influences neuronal activity throughout the visual hierarchy, presumably starting at V4. Parallelism plays a key role in the representation of scene categories in PPA.

The probabilistic nature of vision: How should we evaluate the empirical evidence?

Friday, May 13, 2022, 5:00 - 7:00 pm EDT, Talk Room 1

Organizers: Ömer Dağlar Tanrıkulu[1], Arni Kristjansson[2]; [1]Williams College, [2]University of Iceland

Presenters: Ömer Dağlar Tanrıkulu, Dobromir Rahnev, Andrey Chetverikov, Robbe Goris, Uta Noppeney, Cristina Savin

The presence of image noise and the absence of one-to-one inverse mapping from images back to scene properties has led to the idea that visual perception is inherently probabilistic. Our visual system is considered to deal with this uncertainty by representing sensory information in a probabilistic fashion. Despite the prevalence of this view in vision science, providing empirical evidence for such probabilistic representations in the visual system can be very challenging. Firstly, probabilistic perception is difficult to operationalize, and has therefore been interpreted differently by various researchers. Second, experimental results can typically be accounted for, in principle, by both probabilistic and non-probabilistic representational schemes. Our goal in this symposium is to evaluate the empirical evidence in favor of (or against) the probabilistic description of visual processing by discussing the potential advantages (and disadvantages) of different methodologies used within vision science to address this question. This symposium will bring together speakers from diverse perspectives, which include computational modeling, neuroscience, psychophysics and philosophy. Our speakers include promising junior researchers, as well as established scientists. In the first talk, Omer Daglar Tanrikulu will provide an introduction with a summary of the main challenges in providing evidence for probabilistic visual representations, as well as his proposal to sidestep these obstacles. Next, Dobromir Rahnev will focus on the difficulties in operationalizing the term “probabilistic perception” and suggest a tractable research direction with illustration of studies from his lab. In the third talk, Andrey Chetverikov will explain and illustrate empirical methodologies in distinguishing between representation of probabilities and probabilistic representations in vision. In the fourth talk, Robbe Goris will present a recently developed methodology to discuss the implications of observers’ estimates of their own visual uncertainty. In the fifth talk, Uta Noppeny will approach the issue from a multisensory perspective and discuss the success of Bayesian Causal Inference models in explaining how our brain integrates visual and auditory information to create a representation of the world. Finally, Cristina Savin will consider probabilistic representations at a mechanistic level and present a novel neural network model implementing Bayes-optimal decisions to account for certain sequential effects in perceptual judgments. Each 15-min talk will be followed by 5-min Q&A and discussion. The speaker line-up highlights the multidisciplinary nature of this symposium which reflects that our target audience is composed of researchers from all areas of vision science. We are confident that researchers at all career stages, as well as the broad audience of VSS, will benefit from this symposium. Students and early-career researchers will have a better understanding of the evidence for, or against, probabilistic visual perception, which will equip them with a perspective to evaluate other research that they will encounter at VSS. More importantly, such discussion will help both junior and senior scientists to draw their implicit assumptions about this important topic to the surface. This, in turn, will allow the general vision community to determine research directions that are more likely to increase our understanding of the probabilistic nature of visual processing.

Presentations

How can we provide stronger empirical evidence for probabilistic representations in visual processing?

Ömer Dağlar Tanrıkulu[1]; [1]Cognitive Science Program, Williams College, MA, USA

Probabilistic approaches to cognition have had great empirical success, especially in building computational models of perceptual processes. This success has led researchers to propose that the visual system represents sensory information probabilistically, which resulted in high-profile studies exploring the role of probabilistic representations in visual perception. Yet, there is still substantial disagreement over the conclusions that can be drawn from this work. In the first part of this talk, I will outline the critical views over the probabilistic nature of visual perception. Some critics underline the inability of experimental methodologies to distinguish between perceptual processes and perceptual decisions, while others point to the successful utilization of non-probabilistic representational schemes in explaining these experimental results. In the second part of the talk, I will propose two criteria that must be satisfied to provide empirical evidence for probabilistic visual representations. The first criterion requires experiments to demonstrate that representations involving probability distributions are actually generated by the visual system, rather than being imposed on the task by the experimenter. The second criterion requires the utilization of structural correspondence (as opposed to correlation) between the internal states of the visual system and stimulus uncertainty. Finally, I will illustrate how these two criteria can be met through a psychophysical methodology using priming effects in visual search tasks.

The mystery of what probabilistic perception means and why we should focus on the complexity of the internal representations instead

Dobromir Rahnev[1]; [1]School of Psychology, Georgia Institute of Technology, Atlanta, GA

Two years ago, I joined an adversarial collaboration on whether perception is probabilistic. The idea was to quickly agree on a precise definition of the term “probabilistic perception” and then focus on designing experiments that can reveal if it exists. Two years later, we are still debating the definition of the term, and I now believe that it cannot be defined. Why the pessimism? At the heart of probabilistic perception is the idea that the brain represents information as probability distributions. Probability distributions, however, are mathematical objects derived from set theory that do not easily apply to the brain. In practice, probabilistic perception is typically equated with "having a representation of uncertainty." This phrase ultimately seems to mean "having a representation of any information beyond a point estimate." Defined this way, the claim that perception is probabilistic borders on the trivial, and the connection to the notion of probability distributions appears remote. I no longer think that there is a way forward. Indeed, in empirical work, the term probabilistic perception seems to serve as a litmus test of how researchers feel about Bayesian theories of the brain rather than a precise hypothesis about the brain itself. What then? I argue that the question that is both well-posed and empirically tractable is "How complex is the perceptual representation?" I will briefly review what we know about this question and present recent work from my lab suggesting that perceptual representations available for decision-making are simple and impoverished.

Representations of probabilities and probabilistic representations

Andrey Chetverikov[1], Arni Kristjansson[2]; [1]Donders Institute for Brain, Cognition and Behavior, Radboud University, Nijmegen, The Netherlands, [2]Icelandic Vision Lab, School of Health Sciences, University of Iceland, Reykjavík, Iceland.

Both the proponents and the opponents of probabilistic perception draw a distinction between representations of probabilities (e.g., the object I see is more likely to have orange hues than green) and probabilistic representations (this object is probably an orange and not an apple). The former corresponds to the probability distribution of sensory observations given the stimulus, while the latter corresponds to the opposite, the probabilities of potential stimuli given the observations. This dichotomy is important as even plants can respond to probabilistic inputs presumably without making any inferences about the stimulus. It is also important for the computational models of perception as the Bayesian observer aims to infer the stimulus, not the observations. It is then essential to evaluate the empirical evidence for probabilistic representations and not the representation of probabilities to answer the question posed by this symposium. However, is it possible to empirically distinguish between the two? We will discuss this question using the data from our recent work on probabilistic perception as an illustration.

Quantifying perceptual introspection

Robbe Goris[1]; [1]Center for Perceptual Systems, University of Texas at Austin, Austin, TX, USA

Perception is fallible, and humans are aware of this. When we experience a high degree of confidence in a perceptual decision, it is more likely to be correct. I will argue that our sense of confidence arises from a computation that requires direct knowledge of the uncertainty of perception, and that it is possible to quantify the quality of this knowledge. I will introduce a new method to assess the reliability of a subject's estimate of their perceptual uncertainty (i.e., uncertainty about uncertainty, which I term "meta-uncertainty"). Application of this method to a large set of previously published confidence studies reveals that a subject's level of meta-uncertainty is stable over time and across at least some domains. Meta-uncertainty can be manipulated experimentally: it is higher in tasks that involve more levels of stimulus reliability across trials or more volatile stimuli within trials. Meta-uncertainty appears to be largely independent of task difficulty, task structure, response bias, and attentional state. Together, these results suggest that humans intuitively understand the probabilistic nature of perception and automatically evaluate the reliability of perceptual impressions.

Constructing a representation of the world across the senses

Uta Noppeney[1]; [1]Donders Institute for Brain, Cognition and Behavior, Radboud University, Nijmegen, The Netherlands

Our senses are constantly bombarded with myriads of diverse signals. Transforming this sensory cacophony into a coherent percept of our environment relies on solving two computational challenges: First, we need to solve the causal inference problem - deciding whether signals come from a common cause and thus should be integrated, or come from different sources and be treated independently. Second, when there is a common cause, we should integrate signals across the senses weighted in proportion to their sensory precisions. I discuss recent research at the behavioural, computational and neural systems level investigating how the brain combines sensory signals in the face of uncertainty about the world's causal structure. Our results show that the brain constructs a multisensory representation of the world approximately in line with Bayesian Causal Inference.

Sampling-based decision making

Cristina Savin[1]; [1]Center for Neural Science, Center for Data Science, New York University, New York, NY

There is substantial debate about the neural correlates of probabilistic computation (as evidenced in a Computational Cognitive Neuroscience - GAC 2020 workshop). Among competing theories, neural sampling provides a compact account of how variability in neuron responses can be used to flexibly represent probability distributions, which accounts for a range of V1 response properties. As samples encode uncertainty implicitly, distributed across time and neurons, it remains unclear how such representations can be used for decision making. Here we present a simple model for how a spiking neural network can integrate posterior samples to support Bayes-optimal decision making. We use this model to study behavioral and neural consequences of sampling based decision making. As the integration of posterior samples in the decision circuit is continuous in time, it leads to systematic biases after abrupt changes in the stimulus. This is reflected in behavioral biases towards recent history, similar to documented sequential effects in human decision making, and stimulus-specific neural transients. Overall, our work provides a first mechanistic model for decision making using sampling-based codes. It is also a stepping stone towards unifying sampling and parametric perspectives of Bayesian inference.

What does the world look like? How do we know?

Friday, May 13, 2022, 5:00 - 7:00 pm EDT, Talk Room 2

Organizers: Mark Lescroart[1], Benjamin Balas[2], Kamran Binaee[1], Michelle Greene[3], Paul MacNeilage[1]; [1]University of Nevada, Reno, [2]North Dakota State University, [3]Bates College

Presenters: Mark Lescroart, Caitlin M. Fausey, Martin N. Hebart, Michelle R. Greene, Jeremy Wilmer, Wilma Bainbridge

A central tenet of vision science is that perception is shaped by visual experience. The statistical regularities of our visual input are reflected in patterns of brain activity, enabling efficient behavior. A growing body of work has sought to understand the natural statistical regularities in human visual experience, and to increase the ecological validity of vision science research by using naturalistic stimuli in experiments. However, the stimuli available for experiments and the conclusions that can be drawn about natural image statistics--especially higher-order statistics, such as the co-occurrence rates of specific object categories in different scenes--are constrained by the limits of extant datasets. Datasets may be limited by sampling choices, by practical constraints related to the robustness of hardware and software used to collect data, by environmental factors like movement, or by the characteristics of different observers who vary in their behavioral repertoire as a function of development or experience. Consequently many visual datasets that aspire to generality are nonetheless sampled from convenience and thus limited in size or scope. Many datasets are also reliant on the use of proxies for visual experiences, such as photos or movies sampled from the internet. The potential consequences of this gap between what we hope to do and what we can do may be substantial. This workshop will examine the issues involved in sampling from representative visual experience, and will specifically address the lacunae of visual experience -- what are we not sampling and why? How might the blind spots in our sampling lead to blind spots in our inferences about human vision? The symposium will begin with a brief 5-minute introduction, followed by six 15-minute talks with 2 minutes each for clarifying questions. We will finish with a 10-15 minute discussion of overarching issues in sampling. We will feature work that grapples with sampling issues across several areas of vision sciences. Mark Lescroart will talk about practical limits on the activities, locations, and people that can be sampled with mobile eye tracking. Caitlin Fausey will then talk about sampling visual experience in infants. Martin Hebart will talk about the THINGS initiative, which aims to comprehensively sample the appearance of object categories in the world. Michelle Greene will talk about the causes and consequences of biases in extant datasets. Jeremy Wilmer will talk about sampling participants--specifically about sampling across vs within racial groups. Finally, Wilma Bainbridge will talk about richly sampling memory representations. Perfectly representative sampling of visual experience may be an unreachable goal. However, we argue that a focus on the limits of current sampling protocols--of objects, of participants, of dynamic visual experience at different stages of development, and of mental states--will advance the field, and in the long run improve the ecological validity of vision science.

Presentations

Methodological limits on sampling visual experience with mobile eye tracking

Mark Lescroart[1], Kamran Binaee[1], Bharath Shankar[1], Christian Sinnott[1], Jennifer A. Hart[2], Arnab Biswas[1], Ilya Nudnou[3], Benjamin Balas[3], Michelle R. Greene[2], Paul MacNeilage[1]; [1]University of Nevada, Reno, [2]Bates College, [3]North Dakota State University

Humans explore the world with their eyes, so an ideal sampling of human visual experience requires accurate gaze estimates while participants perform a wide range of activities in diverse locations. In principle, mobile eye tracking can provide this information, but in practice, many technical barriers and human factors constrain the activities, locations, and participants that can be sampled accurately. In this talk we present our progress in addressing these barriers to build the Visual Experience Database. First, we describe how the hardware design of our mobile eye tracking system balances participant comfort and data quality. Ergonomics matter, because uncomfortable equipment affects behavior and reduces the reasonable duration of recordings. Second, we describe the challenges of sampling outdoors. Bright sunlight causes squinting, casts shadows, and reduces eye video contrast, all of which reduce estimated gaze accuracy and precision. We will show how appropriate image processing at acquisition improves eye video contrast, and how DNN-based pupil detection can improve estimated pupil position. Finally, we will show how physical shift of the equipment on the head affects estimated gaze quality. We quantify the reduction in gaze precision and accuracy over time due to slippage, in terms of drift of the eye in the image frame and instantaneous jitter of the camera with respect to the eye. Addressing these limitations takes us some way towards achieving a representative sample of visual experience, but recording of long-duration, of highly dynamic activities, and in extreme lighting conditions remains challenging.

Sampling Everyday Infancy: Lessons and Questions

Caitlin M. Fausey[1]; [1]University of Oregon

Everyday sights, sounds, and actions are the experiences available to shape experience-dependent change. Recent efforts to quantify this everyday input – using wearable sensors in order to capture experiences that are neither scripted by theorists nor perturbed by the presence of an outsider recording – have revealed striking heterogeneity. There is no meaningfully “representative” hour of a day, instance of a category, interaction context, or infant. Such heterogeneity raises questions about how to optimize everyday sampling schemes in order to yield data that advance theories of experience-dependent change. Here, I review lessons from recent research sampling infants’ everyday language, music, action, and vision at multiple timescales, with specific attention to needed next steps. I suggest that most extant evidence about everyday ecologies arises from Opportunistic Sampling and that we must collectively focus our ambitions on a next wave of Distributionally Informed Sampling. In particular, we must center (1) activity distributions with their correlated opportunities to encounter particular inputs, (2) content distributions of commonly and rarely encountered instances, (3) temporal distributions of input that comes and goes, and (4) input trajectories that change over developmental time, as we model everyday experiences and their consequences. Throughout, I highlight practical constraints (e.g., sensor battery life and fussy infants) and payoffs (e.g., annotation protocols that yield multi-timescale dividends) in these efforts. Grappling with the fact that people do not re-live the same hour all life long is a necessary and exciting next step as we build theories of everyday experience-dependent change.

The THINGS initiative: a global initiative of researchers for representative sampling of objects in brains, behavior, and computational models

Martin N. Hebart[1]; [1]Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany

As scientists, we carry out experiments to contribute to the knowledge of the world. Yet we have to make choices in our experimental design that abstract away from the real world, which can lead to selection bias, limiting our ability to translate our research findings into generalizable conclusions. For studies involving the presentation of objects, central choices are which objects are shown and - in case of visual stimuli - in what format object images should be presented (e.g. abstracted, cropped from background, or natural photographs). In this talk, I will discuss the THINGS initiative, which is a large-scale global initiative of researchers collecting behavioral and brain imaging datasets using the THINGS object concept and image dataset. I will highlight the motivation underlying the development of THINGS, the advantages and limitations in the object and image sampling strategy, and new insights enabled by this strategy about the behavioral and neural representation of objects. Further, I will discuss strategies that offer more generalizable conclusions for their small-scale laboratory experiments using THINGS images. Moving beyond THINGS, I will discuss ideas for future sampling approaches that may further narrow the gap between stimulus sampling and neural representations.

What we don't see in image databases

Michelle R. Greene[1], Jennifer A. Hart[1], Amina Mohamed[1]; [1]Bates College

The rise of large-scale image databases has accelerated productivity in both human and machine vision communities. Most extant databases were created in three phases: (1) Obtaining a comprehensive list of categories to sample; (2) Scraping images from the web; (3) Verifying category labels through crowdsourcing. Subtle biases can arise in each stage: offensive labels can get reified as categories; images represent what is typical of the internet, rather than what is typical of daily experience, and verification is dependent on the knowledge and cultural competence of the annotators that provide “ground truth” labels. Here, we describe two studies that examine the bias in extant visual databases and the deep neural networks trained from them. 66 observers took part in an experience sampling experiment via text message. Each received 10 messages per day at random intervals for 30 days, and sent a picture of their surroundings if possible (N=6280 images). Category predictions were obtained from CNNs pretrained on the Places database. The dCNNs showed poor classification performance for these images. A second study investigated cultural biases. We scraped images of private homes from Airbnb from 219 countries. Pre-trained deep neural networks were less accurate and less confident in recognizing images from the Global South. We observed significant correlations between dCNN confidence and GDP per capita (r=0.30) and literacy rate (r=0.29). These studies show a dissociation between lived visual content and web-based content, and suggest caution when using the internet as a proxy for visual experience.

Multiracial Reading the Mind in the Eyes Test (MRMET): validation of a stimulus-diverse and norm-referenced version of a classic measure

Jeremy Wilmer[1], Heesu Kim[1], Jasmine Kaduthodil[1], Laura Germine[1], Sarah Cohan[1], Brian Spitzer[1], Roger Strong[1]; [1]Wellesley College

Do racially homogeneous stimuli facilitate scientific control, and thus validity of measurement? Here, as a case in point, we ask whether a multiracial cognitive assessment utilizing a diverse set of stimuli maintains psychometric qualities that are as good as, if not better than, an existing Eurocentric measure. The existing measure is the Reading the Mind in the Eyes Test (RMET) (Baron-Cohen et al., 2001), a clinically significant neuropsychiatric paradigm that has been used to assess face expression reading, theory of mind, and social cognition. The original measure, however, lacked racially inclusive stimuli, among other limitations. In an effort to rectify this and other limitations of the original RMET, we have created and digitally administered a Multiracial version of the RMET (MRMET) that is reliable, validated, stimulus-diverse, norm-referenced, and free for research use. We show, with a series of sizable datasets (Ns ranging from 1,000 to 12,000), that the MRMET is on par or better than the RMET across a variety of psychometric indices. Moreover, the reliable signal captured by the two tests is statistically indistinguishable, evidence for full interchangeability. Given the diversity of the populations that neuropsychology aims to survey, we introduce the Multiracial RMET as a high-quality, inclusive alternative to the RMET that is conducive to unsupervised digital administration across a diverse array of populations. With the MRMET as a key example, we suggest that multiracial cognitive assessments utilizing diverse stimuli can be as good as, if not better than, Eurocentric measures.

An emerging landscape for the study of naturalistic visual memory

Wilma Bainbridge[1]; [1]University of Chicago

Our memories are often rich and visually vivid, sometimes even resembling their original percepts when called to mind. Yet, until recently, our methods for quantifying the visual content in memories have been unable to capture this wealth of detail, relying on simple, static stimuli, and testing memory with low-information visual recognition or verbal recall tasks. Because of this, we have been largely unable to answer fundamental questions such as what aspects of a visual event drive memory, or how the neural representations of perceived and recalled visual content compare. However, in recent years, new methods in quantifying visual memories have emerged, following the growth of naturalistic vision research more broadly. Instead of verbal recall, drawings can directly depict the visual content in memory, at a level of detail allowing us to simultaneously explore questions about object memory, spatial memory, visual-semantic interactions, and false memories. Social media is presenting new memory stimulus sets on the order of hundreds or thousands, allowing us to examine neural representations for diverse memories across years. And, the internet has also allowed us to identify surprising new phenomena in memory—such as the existence of shared visual false memories learned across people (the "Visual Mandela Effect"), or the existence of a population of individuals who lack visual recall in spite of intact perception ("aphantasia"). In this talk, I will present exciting new directions in the naturalistic study of visual memory and provide resources for those interested in pursuing their own studies of naturalistic memory.

VSS Talk Sessions

Saturday, May 14

Time	*Talk Room 1*	*Talk Room 2*
8:15 am	Learning	Temporal Processing: Neural mechanisms, timing perception
10:45 am	Face perception: Functional characteristics	Eye Movements: Models, localization, pursuit
2:30 pm	3D Perception	Visual Search
5:15 pm	Perceptual Organization	Spatial Vision

Sunday, May 15

Time	*Talk Room 1*	*Talk Room 2*
8:15 am	Face Perception: Neural mechanisms	Methods: New ideas and emerging trends
10:45 am	Development	Attention, Eye Movements and Scanning
2:30 pm	Color, Light and Materials: Light, materials, categories	Cortical Organization
5:15 pm	Visual Memory: Working, objects, features	Prception and Action

Monday, May 16

Time	*Talk Room 1*	*Talk Room 2*
8:15 am	Object Recognition: Models, reading	Motion: Biological motion, body perception
10:45 am	Search and Attention: Capture, real-world, lifespan	Color, Light and Materials: Mechanisms and models of visual processing

Tuesday, May 17

Time	*Talk Room 1*	*Talk Room 2*
8:15 am	Multisensory Processing	Eye movements: Perception, cognition
10:45 am	Attention: Features, objects, endogenous	Plasticity
2:30 pm	Binocular Vision	Object Recognition: Neural mechanisms
5:15 pm	Motion: Models, neural mechanisms	Scene Perception

Wednesday, May 18

Time	*Talk Room 1*	*Talk Room 2*
8:15 am	Attention: Prioritization, suppression, lapses	Object Recognition: Features, categories, preferences
10:45 am	Visual Memory: Capacity, encoding	Human Vision and Neural Networks: General considerations

Learning

Talk Session: Saturday, May 14, 2022, 8:15 – 9:45 am EDT, Talk Room 1

Moderator: Yuka Sasaki, Brown

Talk 1, 8:15 am, 21.11

Drawing in the mind's eye: Developing targeted routines for assessing and enhancing visual 'learning through drawing' following treatment for congenital blindness.

Sharon Gilad-Gutnick[1] (sharongu@mit.edu), Anna Musser[1], Matt Groth[1], Michal Fux[2], Pragya Shah[3], Priti Gupta[4], Pawan Sinha[1]; [1]Massachusetts Institute of Technology, [2]Tufts University School of Medicine, [3]Shroff Charitable Eye Hospital, [4]Indian Institute of Technology, Delhi

Talk 2, 8:30 am, 21.12

Sculpting New Visual Concepts into the Human Brain

Marius Cătălin Iordan[1] (mci@princeton.edu), Victoria J.H. Rotvo[1], Kenneth A. Norman[1], Nicholas B. Turk-Browne[2], Jonathan D. Cohen[1]; [1]Princeton University, [2]Yale University

Talk 3, 8:45 am, 21.13

Contextual learning and inference in perceptual learning

Gabor Lengyel[1,2] (lengyel.gaabor@gmail.com), Máté Lengyel[1,3], József Fiser[1]; [1]Central European University, [2]University of Rochester, [3]University of Cambridge

Talk 4, 9:00 am, 21.14

Sustained attention fluctuations impact visual statistical learning

Ziwei Zhang[1] (zz112@uchicago.edu), Monica Rosenberg[1]; [1]The University of Chicago

Talk 5, 9:15 am, 21.15

The stabilization of visual perceptual learning during REM sleep involves reward-processing circuits

Takashi Yamada[1] (takashi_yamada@brown.edu), Tyler Barnes-diana[1], Shazain Khan[1], Luke Rosedahl[1], Sebastian Frank[1], Antoinette Burger[1], Takeo Watanabe[1], Yuka Sasaki[1]; [1]Department of Cognitive, Linguistic, and Psychological Sciences, Brown University, Providence, RI

Talk 6, 9:30 am, 21.16

Subjective Judgments of Learning Reveal Conscious Access to Stimulus Memorability

Joseph M. Saito[1] (joseph.saito@mail.utoronto.ca), Matthew Kolisnyk[2], Keisuke Fukuda[1,3]; [1]University of Toronto, [2]Western University, [3]University of Toronto Mississauga

Temporal Processing: Neural mechanisms, timing perception

Talk Session: Saturday, May 14, 2022, 8:15 – 9:45 am EDT, Talk Room 2

Moderator: Iris Groen, University of Amsterdam

Talk 1, 8:15 am, 21.21

Propagation speeds of action potentials in the human retina compensate for traveling distances

Annalisa Bucci[1,2] (annalisa.bucci@bsse.ethz.ch), Roland Diggelmann[1,2], Matej Znidaric[1,2], Martina De Gennaro[2], Cameron Cowan[2], Botond Roska[2], Andreas Hierlemann[1], Felix Franke[2]; [1]ETH Zürich, [2]Institute of Molecular and Clinical Ophthalmology Basel

Talk 2, 8:30 am, 21.22

Near-additive temporal dynamics of sub-threshold population responses in macaque V1

Jingyang Zhou[1,2] (jyz205@nyu.edu), Matt Whitmire[3,4,5], Yuzhi Chen[3,4,5], Eyal Seidemann[3,4,5]; [1]Center for Computational Neuroscience, Flatiron Institute, [2]Center for Neural Science, New York University, [3]Center for Perceptual Systems, University of Texas, Austin, [4]Department of Psychology, University of Texas, Austin, [5]Department of Neuroscience, University of Texas, Austin

Talk 3, 8:45 am, 21.23

Delayed divisive normalization predicts temporal dynamics of neural responses in human visual cortex

Iris Groen[1,2] (i.i.a.groen@uva.nl), Giovanni Piantoni[3], Stephanie Montenegro[4], Adeen Flinker[4], Sasha Devore[4], Orrin Devinsky[4], Werner Doyle[4], Nick Ramsey[3], Natalia Petridou[3], Jonathan Winawer[2]; [1]University of Amsterdam, [2]New York University, [3]University Medical Center Utrecht, [4]New York University Grossman School of Medicine

Talk 4, 9:00 am, 21.24

Limited visual representation of moving objects during physical occlusion

Lina Teichmann[1], Denise Moerel[2], Anina Rich[3], Chris Baker[1]; [1]National Institute of Mental Health, [2]University of Sydney, [3]Macquarie University

Talk 5, 9:15 am, 21.25

Temporal expectations facilitate performance in the absence of concomitant spatial expectations and in dynamically unfolding environments

Irene Echeverria-Altuna[1] (ireneetxeberria@gmail.com), Sage Boettcher[1], Kia Nobre[1,2]; [1]Department of Experimental Psychology, University of Oxford, [2]Oxford Centre for Human Brain Activity (OHBA), Department of Psychiatry, University of Oxford

Talk 6, 9:30 am, 21.26

Motor-Independent but Modality-Specific Time Adaptation

Eckart Zimmermann[1] (eckartzi@gmail.com), Michael Wiesing[1], Nadine Schlichting[1]; [1]Institute for Experimental Psychology, Heinrich Heine University Dűsseldorf, Germany

Face perception: Functional characteristics

Talk Session: Saturday, May 14, 2022, 10:45 am – 12:30 pm EDT, Talk Room 1

Moderator: Rachael E. Jack, University of Glasgow

Talk 1, 10:45 am, 22.11

The face diet of adults with autism spectrum disorder

Todd Kamensek[1] (todd.kamensek@ubc.ca), Elizabeth Wong[1], Cherice Leung[1], Grace Iarocci[2], Ipek Oruc[1]; [1]University of British Columbia, [2]Simon Fraser University

Talk 2, 11:00 am, 22.12

She still seems angry: inflexibility in updating emotional priors in autism

Sarit Szpiro[1,2], Renana Twito[1], Bat-Sheva Hadad[1,2]; [1]Special Education Department, University of Haifa, Israel, [2]Edmond J. Safra Brain Research Center for the Study of Learning Disabilities, University of Haifa, Israel

Talk 3, 11:15 am, 22.13

Investigating the origins of the face inversion effect with an extraordinary participant

Yiyuan Zhang[1] (yiyuan.zhang@dartmouth.edu), Lucia Garrido[2], Constantin Rezlescu[3], Maira Braga[4], Tirta Susilo[5], Brad Duchaine[1]; [1]Dartmouth College, [2]City, University of London, [3]UCL, [4]University of Western Australia, [5]Victoria University of Wellington

Talk 4, 11:30 am, 22.14

Norm-referenced neural mechanism for the recognition of facial expressions across fundamentally different face shapes

Michael Stettler[1,2] (michael.stettler@cin.uni-tuebingen.de), Nick Taubert[1], Ramona Siebert[3], Silvia Spadacenta[3], Peter Dicke[3], Peter Thier[3], Martin Giese[1]; [1]Section for Computational Sensomotorics, Centre for Integrative Neuroscience & Hertie Institute for Clinical Brain Research, University Clinic Tübingen, 72076 Tübingen, Germany, [2]International Max Planck Research School for Intelligent Systems (IMPRS-IS), 72076 Tübingen, Germany., [3]Department of Cognitive Neurology, Hertie Institute for Clinical Brain Research, University of Tübingen, 72076 Tübingen, Germany

Talk 5, 11:45 am, 22.15

Facial expressions of threatening emotions show greater communicative robustness

Tobias Thejll-Madsen[1] (2590705t@student.gla.ac.uk), Robin A.A. Ince[1], Oliver G.B. Garrod[1], Philippe G. Schyns[1], Rachael E. Jack[1]; [1]School of Psychology & Neuroscience, University of Glasgow

Talk 6, 12:00 pm, 22.16

Early automatic processes shape other-race effects for faces

Justin Duncan[1,2], Chloé Galinier[1], Caroline Blais[1], Daniel Fiset[1], Roberto Caldara[2]; [1]Université du Québec en Outaouais, [2]Université de Fribourg

Talk 7, 12:15 pm, 22.17

Social Inference from Relational Visual Information

Manasi Malik[1] (mmalik16@jhu.edu), Leyla Isik[1]; [1]Johns Hopkins University

Eye Movements: Models, localization, pursuit

Talk Session: Saturday, May 14, 2022, 10:45 am – 12:30 pm EDT, Talk Room 2

Moderator: Preeti Verghese, Smith Kettlewell

Talk 1, 10:45 am, 22.21

Fast Smooth Pursuit Inhibition Reveals Mechanisms of Multisensory Integration

Philipp Kreyenmeier[1,2] (philipp.kreyenmeier@googlemail.com), Ishmam Bhuiyan[1], Hiu-Mei Chow[1], Miriam Spering[1,2,3,4]; [1]Department of Ophthalmology & Visual Sciences, University of British Columbia, Vancouver, Canada, [2]Graduate Program in Neuroscience, University of British Columbia, Vancouver, Canada, [3]Djavad Mowafaghian Center for Brain Health, University of British Columbia, Vancouver, Canada, [4]4Institute for Computing, Information, and Cognitive Systems; University of British Columbia, Vancouver, Canada

Talk 2, 11:00 am, 22.22

Modeling the impairment of smooth pursuit eye movements in macular degeneration

Jason Rubinstein[1] (jrubinstein@ski.org), Preeti Verghese[1]; [1]Smith-Kettlewell Eye Research Institute

Talk 3, 11:15 am, 22.23

Relating curvature to speed: How smooth pursuit of predictable and unpredictable 2D target motions complies with the two-thirds power law

Jie Z. Wang[1] (jie.zy.wang@rutgers.edu), Eileen Kowler[1]; [1]Rutgers University

Talk 4, 11:30 am, 22.24

Modelling the neural control of ocular accommodation

Jenny Read[1] (jenny.read@ncl.ac.uk), Christos Kaspiris-Rousellis[1], Toby Wood[1], Bing Wu[2], Björn Vlaskamp[2], Clifton Schor[3]; [1]Newcastle University, [2]Magic Leap Inc, [3]University of California at Berkeley

Talk 5, 11:45 am, 22.25

Active recalibration of visual localization

Sandra Tyralla[1] (satyr100@hhu.de), Antonella Pomè[1], Eckart Zimmermann[1]; [1]Heinrich Heine University Düsseldorf, Germany

Talk 6, 12:00 pm, 22.26

Seeing the unconscious? Limited awareness for involuntary microsaccades

Jan-Nikolas Klanke[1,2] (jan-nikolas.klanke@hu-berlin.de), Sven Ohl[1], Martin Rolfs[1,2]; [1]Department of Psychology, Humboldt-Universität zu Berlin, Germany, [2]Berlin School of Mind and Brain, Humboldt-Universität zu Berlin, Germany

Talk 7, 12:15 pm, 22.27

A small foveated target is not the optimal fixation stimulus

Scott Watamaniuk[1,3] (scott.watamaniuk@wright.edu), Jeremy Badler[2], Stephen Heinen[3]; [1]Wright State University, Dayton OH, [2]Max Planck Institute for Biological Cybernetics, [3]The Smith-Kettlewell Eye Research Institute

3D Perception

Talk Session: Saturday, May 14, 2022, 2:30 – 4:15 pm EDT, Talk Room 1

Moderator: Fulvio Domini, Brown University

Talk 1, 2:30 pm, 24.11

Compositional and texture-independent 3D orientation coding in visual cortex

Judith Hoeller[1] (hoellerj@janelia.hhmi.org), Michalis Michaelos[1], Marius Pachitariu[1], Sandro Romani[1]; [1]HHMI Janelia

Talk 2, 2:45 pm, 24.12

Searching for hidden objects in 3D environments

Erwan David[1] (david@psych.uni-frankfurt.de), Melissa L.-H. Vo[1]; [1]Scene Grammar Lab, Goethe University Frankfurt

Talk 3, 3:00 pm, 24.13

Degraded disparity signal reduces magnitude but not precision of depth estimates

Ailin Deng[1] (dengailin@gmail.com), Fulvio Domini[2]; [1]Brown University

Talk 4, 3:15 pm, 24.14

A collection of stationary objects flashed periodically produce depth perception under ordinary viewing conditions

Frédéric Gosselin[1] (frederic.gosselin@umontreal.ca), Mégan Brien[1], Justine Mathieu[1], Ariane Tremblay[1]; [1]Département de psychologie, Université de Montréal

Talk 5, 3:30 pm, 24.15

Stereoscopic distortions when viewing geometry does not match inter-pupillary distance

Jonathan Tong[1] (tongj86@yorku.ca), Robert Allison[1], Laurie Wilcox[1]; [1]York University

Talk 6, 3:45 pm, 24.16

Near space distance perception in cluttered scenes

Rebecca L Hornsey[1] (rhorns@essex.ac.uk), Paul B Hibbard[1]; [1]University of Essex

Talk 7, 4:00 pm, 24.17

Mug shots: Systematic biases in the perception of facial orientation

Nikolaus F. Troje[1] (troje@yorku.ca), Maxwell Esser[2], Anne Thaler[3]; [1]York University

Visual Search

Talk Session: Saturday, May 14, 2022, 2:30 – 4:15 pm EDT, Talk Room 2

Moderator: Anna Kosovicheva, U. of Toronto Mississauga

Talk 1, 2:30 pm, 24.21

The spatial and temporal characteristics of the priming of location effect: Revisiting Maljkovic and Nakayama (1996)

Daniel Toledano[1] (danielt@mail.tau.ac.il), Dominique Lamy[1]; [1]Tel Aviv University

Talk 2, 2:45 pm, 24.22

Target-rate effects in continuous visual search

Louis K H Chan[1] (clouis@graduate.hku.hk), Winnie W L Chan[2]; [1]Hong Kong Baptist University, [2]Hong Kong Shue Yan University

Talk 3, 3:00 pm, 24.23

The Moose Came Out of Nowhere: Low Prevalence Effects in Road Hazard Detection

Anna Kosovicheva[1] (a.kosovicheva@utoronto.ca), Jeremy M. Wolfe[2,3], Benjamin Wolfe[1]; [1]University of Toronto Mississauga, [2]Brigham & Women's Hospital, [3]Harvard Medical School

Talk 4, 3:15 pm, 24.24

Feature-temporal predictions can guide attention during visual search in dynamic scenes

Gwenllian C. Williams[1] (gwenllian.williams@psy.ox.ac.uk), Sage E. P. Boettcher[1], Nir Shalev[1], Anna C. Nobre[1]; [1]Department of Experimental Psychology, University of Oxford

Talk 5, 3:30 pm, 24.25

Functionally Related Objects Capture Attention and Improve Search Guidance

Steven Ford[1] (stevenford@knights.ucf.edu), Gregory Zelinsky[2], Joseph Schmidt[1]; [1]University of Central Florida, [2]Stony Brook University

Talk 6, 3:45 pm, 24.26

Is There One “Beam” of Attention for Searching in Space and Time?

Raymond Klein[1] (ray.klein@dal.ca), Brett Feltmate[2], Yoko Ishigami[3], Nicholas Murray[4]; [1]Dalhousie University, [2]Department of Psychology and Neuroscience

Talk 7, 4:00 pm, 24.27

Goal-Directed Control of Visual Attention and the Minimization of Effort

Sangji Lee[1] (lee737612@gmail.com), Brian Anderson[2]; [1]Texas A&M University, [2]Texas A&M University

Perceptual Organization

Talk Session: Saturday, May 14, 2022, 5:15 – 7:15 pm EDT, Talk Room 1

Moderator: Benjamin van Buren, New School for Social Research NYC

Talk 1, 5:15 pm, 25.11

Color-motion feature misbinding with optic-flow versus vertical motion

Sunny M. Lee[1] (sunnylee@uchicago.edu), Steven K. Shevell[1]; [1]University of Chicago

Talk 2, 5:30 pm, 25.12

Hidden by letters: How grouping lines into letters interferes with ensemble perception

Sabrina Hansmann-Roth[1], Bilge Sayim[1,2]; [1]University of Lille, France, [2]University of Bern, Switzerland

Talk 3, 5:45 pm, 25.13

Objects that look heavier look larger

Hong B. Nguyen[1] (nguyh376@newschool.edu), Benjamin van Buren[1]; [1]The New School

Talk 4, 6:00 pm, 25.14

How bar graphs deceive: readout-based measurement reveals three fallacies

Jeremy Wilmer[1] (jwilmer@wellesley.edu), Sarah Kerns[2]; [1]Wellesley College

Talk 5, 6:15 pm, 25.15

Spatial affordances can automatically trigger dynamic visual routines: Spontaneous path tracing in task-irrelevant mazes

Kimberly W. Wong[1] (kimberly.wong@yale.edu), Brian Scholl[1]; [1]Yale University

Talk 6, 6:30 pm, 25.16

Toward modeling visual routines of object segmentation with biologically inspired recurrent vision models

Lore Goetschalckx[1] (lore_goetschalckx@brown.edu), Maryam Zolfaghar[1,2], Alekh K. Ashok[1], Lakshmi N. Govindarajan[1], Drew Linsley[1], Thomas Serre[1]; [1]Brown University, [2]University of California Davis

Talk 7, 6:45 pm, 25.17

Human-like signatures of contour integration in deep neural networks

Fenil Doshi[1] (fenil_doshi@fas.harvard.edu), Talia Konkle[1], George Alvarez[1]; [1]Harvard University

Talk 8, 7:00 pm, 25.18

Representing multiple visual objects in the human brain and convolutional neural networks

Viola Mocz[1] (viola.mocz@yale.edu), Su Keun Jeong[2], Marvin Chun[1], Yaoda Xu[1]; [1]Yale University, [2]Chungbuk National University

Spatial Vision

Talk Session: Saturday, May 14, 2022, 5:15 – 7:15 pm EDT, Talk Room 2

Moderator: Martina Poletti, Rochester University

Talk 1, 5:15 pm, 25.21

Topological Receptive Field Model: An enhancement to the pRF

Yanshuai Tu[1] (yanshuai@asu.edu), Zhong-Lin Lu[2,3,4], Yalin Wang[1]; [1]School of Computing and Augmented Intelligence, Arizona State University, Tempe, AZ, USA, [2]Division of Arts and Sciences, NYU Shanghai, Shanghai, China, [3]Center for Neural Science and Department of Psychology, New York University, New York, United States of America, [4]NYU-ECNU Institute of Brain and Cognitive Science, NYU Shanghai, Shanghai, China

Talk 2, 5:30 pm, 25.22

Nonlinear spatiotemporal suppression by population receptive fields of human visual cortex

Eline R Kupers[1], Insub Kim[1], Kalanit Grill-Spector[1,2]; [1]Department of Psychology, Stanford University, CA, USA, [2]Wu Tsai Neurosciences Institute, Stanford University, CA, USA

Talk 3, 5:45 pm, 25.23

Divisive normalization and the computational neuropharmacology of vision

Marco Aqil[1] (m.aqil@spinozacentre.nl), Tomas Knapen, Serge Dumoulin; [1]Spinoza Centre for Neuroimaging

Talk 4, 6:00 pm, 25.24

Population receptive field size varies between thin vs. thick stripes in cortical areas V2/V3

Roger Tootell[1,2,3] (tootell@mgh.harvard.edu), Louis Vinke[1,2], Bryan Kennedy[1,2], Shahin Nasr[1,2,3]; [1]Massachusetts General Hospital, [2]Martinos Center for Biomedical Imaging, [3]Department of Radiology, Harvard Medical School

Talk 5, 6:15 pm, 25.25

A role for spatiotemporal dynamics in the function of the visual system.

Zachary Davis[1] (zdavis@salk.edu), Lyle Muller[2], John Reynolds[1]; [1]The Salk Institute for Biological Studies, [2]Western University

Talk 6, 6:30 pm, 25.26

The temporal dynamics of visual crowding and segmentation

Michael Herzog[1] (michael.herzog@epfl.ch), Greg Francis[1,2], Mauro Manassi[3]; [1]EPFL, [2]Purdue, [3]University of Aberdeen

Talk 7, 6:45 pm, 25.27

Eccentricity driven modulations of visual crowding across the central fovea

Ashley M. Clark[1] (aclark43@ur.rochester.edu), Martina Poletti[2]; [1]University of Rochester

Talk 8, 7:00 pm, 25.28

A contrast masking investigation of color induction

Chien-Chung Chen[1] (c3chen@ntu.edu.tw), Cheng-Ying Yu[2], Chih-Hsien Huang[2]; [1]National Taiwan University, [2]Taipei First Girls High School

Face Perception: Neural mechanisms

Talk Session: Sunday, May 15, 2022, 8:15 – 9:45 am EDT, Talk Room 1

Moderator: Galit Yovel, Tel Aviv University

Talk 1, 8:15 am, 31.11

Common encoding axes for both face selectivity and non-face objects in macaque face cells

Kasper Vinken[1] (kasper_vinken@hms.harvard.edu), Talia Konkle[2], Margaret Livingstone[1]; [1]Harvard Medical School, [2]Harvard University

Talk 2, 8:30 am, 31.12

Testing the Expertise Hypothesis with Deep Convolutional Neural Networks Optimized for Subordinate-level Categorization

Galit Yovel[1] (gality@post.tau.ac.il), Idan Grosbard[1], Noam Avidor[1], Amit Bardosh[1], Koby Boyango[1], Danielle Chason[1], Naphtali Abudarham[1]; [1]Tel Aviv University

Talk 3, 8:45 am, 31.13

Fast Periodic Visual Stimulation Reveals Expedited Neural Face Processing in Super-Recognizers

Jeffrey D. Nador[1] (jeffrey.nador@unifr.ch), Meike Ramon[1]; [1]Applied Face Cognition Lab, Switzerland

Talk 4, 9:00 am, 31.14

Identifying visual brain regions in the absence task fMRI

David Osher[1] (osher.6@osu.edu), Zeynep Saygin[2]; [1]The Ohio State University, [2]The Ohio State University

Talk 5, 9:15 am, 31.15

Prosopagnosia does not abolish other-race effects

Pauline Schaller[1], Anne-Raphaëlle Richoz[1], Roberto Caldara[1]; [1]University of Fribourg

Talk 6, 9:30 am, 31.16

Beyond faces: Characterizing the response of the amygdala to visual stimuli.

Jessica Taubert[1,2] (jesstaubert@gmail.com), Susan G. Wardle[2], Amanda Patterson[2], Chris I. Baker[2];
[1]The University of Queensland, [2]The National Institute of Mental Health

Methods: New ideas and emerging trends

Talk Session: Sunday, May 15, 2022, 8:15 – 9:45 am EDT, Talk Room 2

Moderator: Michele Rucci, University of Rochester

Talk 1, 8:15 am, 31.21

Adaptive methods to quickly estimate psychometric functions: the case of Psi-marg-grid and the effect of non-monotony

Adrien Chopin[1] (adrien.chopin@gmail.com); [1]Sorbonne Université, INSERM, CNRS

Talk 2, 8:30 am, 31.22

Opto-Array: an implantable array of LEDs built for behavioral optogenetic experiments in nonhuman primates

Reza Azadi[1] (r.azadi9@gmail.com), Emily Lopez[1], Rishi Rajalingham[2], Michael Sorenson[3], Simon Bohn[4], Arash Afraz[1]; [1]Laboratory of Neuropsychology, NIMH, NIH, Bethesda, MD, [2]Brain and Cognitive Science, MIT, Cambridge, MA, [3]BlackRock Microsystems, Salt Lake City, UT, USA, [4]Neuroscience Graduate Group, University of Pennsylvania, Philadelphia, PA

Talk 3, 8:45 am, 31.23

Multichannel recordings in neuroscience: new computational methods for fluctuating neural dynamics and spatiotemporal patterns

Lyle Muller[1,2] (lmuller2@uwo.ca), Gabriel Benigno[1,2], Alexandra Busch[1,2], Zachary Davis[3], John Reynolds[3]; [1]Department of Mathematics, Western University, London, ON, Canada, [2]Brain and Mind Institute, Western University, London, ON, Canada, [3]The Salk Institute for Biological Studies, La Jolla, CA, USA

Talk 4, 9:00 am, 31.24

Predicting Gaze Position with Deep Learning of Electroencephalography Data

Martyna Plomecka[1] (martyna.plomecka@uzh.ch), Ard Kastrati[2], Lukas Wolf[1], Roger Wattenhofer[2], Nicolas Langer[1]; [1]University of Zurich, [2]ETH Zurich

Talk 5, 9:15 am, 31.25

Task-dependent head-eye coordination during natural fixation

Zhetuo Zhao[1,2] (zzhao33@ur.rochester.edu), Yuanhao H. Li[1,2], Ruitao Lin[1,2], Sanjana Kapisthalam[1,2], Ashley M. Clark[1,2], Bin Yang[1,2], Janis Intoy[1,2], Michele A. Cox[1,2], Michele Rucci[1,2]; [1]Department of Brain and Cognitive Sciences, [2]Center for Visual Science, University of Rochester, USA

Talk 6, 9:30 am, 31.26

The FreeMoCap Project - and - Gaze/Hand coupling during a combined three-ball juggling and balance task

Jonathan Matthis[1] (jonmatthis@gmail.com), Aaron Cherian[2], Trent Wirth[3]; [1]Northeatern University

Development

Talk Session: Sunday, May 15, 2022, 10:45 am – 12:30 pm EDT, Talk Room 1

Moderator: Michael Arcaro, Penn

Talk 1, 10:45 am, 32.11

Mapping anatomical connectivity between visual cortex and the pulvinar in human neonates

Chenjie Song[1] (lucysong@upenn.edu), Michael Arcaro[1]; [1]University of Pennsylvania

Talk 2, 11:00 am, 32.12

Neural selectivity for faces in human infants after pandemic lockdown

Tristan Yates[1] (tristan.yates@yale.edu), Cameron Ellis[2], Nicholas Turk-Browne[1,3]; [1]Yale University, [2]Haskins Laboratories, [3]Wu Tsai Institute

Talk 3, 11:15 am, 32.13

Face perception after prolonged early-onset visual deprivation

Asael Sklar[1] (asaelsk@gmail.com), Yuval Porat[1], Ehud Zohary[1]; [1]The Hebrew University of Jerusalem

Talk 4, 11:30 am, 32.14

Neurochemical markers of degeneration in the visual cortex after vision loss from Stargardt macular dystrophy

Aislin Sheldon[1] (aislin.sheldon@ndcn.ox.ac.uk), Jasleen Jolly[1,2,3,4], Betina Ip[1], William Clarke[1], Saad Jbabdi[1], Susan Downes[2,3], Holly Bridge[1]; [1]Oxford Centre for Functional Magnetic Resonance Imaging of the Brain (FMRIB), Wellcome Centre for Integrative Neuroimaging (WIN), Nuffield Department of Clinical Neuroscience, University of Oxford, [2]Nuffield Laboratory of Ophthalmology, Nuffield Department of Clinical Neuroscience, University of Oxford, [3]Oxford Eye Hospital, Oxford University Hospitals NHS Foundation Trust, [4]Vision and Eye Research Institute, Anglia Ruskin University, Cambridge

Talk 5, 11:45 am, 32.15

Stimulus-evoked and endogenous alpha oscillations show a linked dependence on patterned visual experience for development.

Rashi Pant[1] (rashi.pant@uni-hamburg.de), José Ossandón[1], Liesa Stange[1], Idris Shareef[2,3], Ramesh Kekunnaya[2], Brigitte Röder[1]; [1]University of Hamburg, [2]LV Prasad Eye Institute, [3]University of Nevada, Reno

Talk 6, 12:00 pm, 32.16

Differentiating the impact of amblyopia on spatial frequency encoding within human V2/V3 thin and thick stripes

Shahin Nasr[1,2,3] (shahin.nasr@mgh.harvard.edu), Bryan Kennedy[1,2], Jan Skerswetat[4], Nicolas Aycardi[4], Amanda Nabasaliza[5], Roger B.H. Tootell[1,2,3], David G. Hunter[5,6], Peter Bex[4]; [1]Massachusetts General Hospital, [2]Athinoula A. Martinos Center for Biomedical Imaging, [3]Department of Radiology, Harvard Medical School, [4]Department of Psychology, Northeastern University, [5]Department of Ophthalmology, Boston Children's Hospital, [6]Department of Ophthalmology, Harvard Medical School

Talk 7, 12:15 pm, 32.17

Assessing the contribution of eye movements to slow binocular reading in children with amblyopia

Dorsa Mir Norouzi[1], Lori Dao[2], Cynthia Beauchamp[2], David Stager, Jr[3], Jeffrey Hunter[4], Krista Kelly[1,5]; [1]Retina Foundation of the Southwest, Dallas, TX, [2]ABC Eyes Pediatric Ophthalmology, PA, Dallas, TX, [3]Pediatric Ophthalmology & Adult Strabismus, PA, Plano, TX, [4]Heaton Eye Associates, Tyler, TX, [5]UT Southwestern Medical Center, Dallas, TX

Attention, Eye Movements and Scanning

Talk Session: Sunday, May 15, 2022, 10:45 am – 12:30 pm EDT, Talk Room 2

Moderator: Freek van Ede, Vrije Univ., Amsterdam

Talk 1, 10:45 am, 32.21

Relating microsaccades and EEG-alpha activity during covert spatial attention in visual working memory

Baiwei Liu[1] (b.liu@vu.nl), Anna Nobre[2,3], Freek van Ede[1,3]; [1]Institute for Brain and Behavior Amsterdam, Department of Experimental and Applied Psychology, Vrije Universiteit Amsterdam, The Netherlands, [2]Department of Experimental Psychology, University of Oxford, United Kingdom, [3]Oxford Centre for Human Brain Activity, Wellcome Centre for Integrative Neuroimaging, Department of Psychiatry, University of Oxford, United Kingdom

Talk 2, 11:00 am, 32.22

Distinct frontal cortex circuits for covert attention and saccade planning

Adam Messinger[1] (messinga@mail.nih.gov), Aldo Genovesio[2]; [1]National Eye Institute, National Institutes of Health, [2]Sapienza University of Rome, Rome, Italy

Talk 3, 11:15 am, 32.23

Trade-off between uncertainty reduction and reward collection reveals intrinsic cost of gaze switches

Florian Kadner[1,2], Tabea A Wilke[1,2,3], Thi DK Vo[1,2], David Hoppe[1,2], Constantin A Rothkopf[1,2]; [1]Center for Cognitive Science, Technical University Darmstadt, [2]Institute of Psychology, Technical University Darmstadt, [3]Deutscher Wetterdienst, Germany

Talk 4, 11:30 am, 32.24

Scanpath prediction in dynamic real-world scenes based on object-based selection

Nicolas Roth[1,3] (roth@tu-berlin.de), Martin Rolfs[2,3], Klaus Obermayer[1,3]; [1]Technische Universität Berlin, [2]Humboldt-Universität zu Berlin, [3]Exzellenzcluster Science of Intelligence, Technische Universität Berlin

Talk 5, 11:45 am, 32.25

DeepGaze vs SceneWalk: what can DNNs and biological scan path models teach each other?

Lisa Schwetlick[1] (lisa.schwetlick@uni-potsdam.de), Matthias Kümmerer[2], Ralf Engbert[1], Matthias Bethge[2]; [1]University of Potsdam, [2]University of Tübingen

Talk 6, 12:00 pm, 32.26

Modeling "meaning" and weighing it against other factors in predicting fixations: you can find whatever result you are looking for

Souradeep Chakraborty[1], Gregory J. Zelinsky[1]; [1]Stony Brook University

Talk 7, 12:15 pm, 32.27

“Attentional Fingerprints”: Real-world scene semantics capture individuating signatures in gaze behavior

Amanda J Haskins[1] (ajh.gr@dartmouth.edu), Caroline Robertson[1]; [1]Dartmouth College

Color, Light and Materials: Light, materials, categories

Talk Session: Sunday, May 15, 2022, 2:30 – 4:15 pm EDT, Talk Room 1

Moderator: Karl Gegenfurtner, JLU, Giessen, Germany

Talk 1, 2:30 pm, 34.11

The role of texture summary-statistics in material recognition from drawings and photographs

Benjamin Balas[1] (benjamin.balas@ndsu.edu), Michelle Greene[2]; [1]North Dakota State University, [2]Bates College

Talk 2, 2:45 pm, 34.12

Asymmetric matching of color and gloss across different lighting environments

Takuma Morimoto[1,2] (takuma.morimoto@psy.ox.ac.uk), Arash Akbarinia[1], Katherine Storrs[1], Hannah E. Smithson[2], Karl R. Gegenfurtner[1], Roland W. Fleming[1]; [1]University of Giessen, [2]University of Oxford

Talk 3, 3:00 pm, 34.13

A Perceptual Evaluation of the StyleGAN2-ADA Generated Images of Translucent Objects

Chenxi Liao[1] (cl6070a@student.american.edu), Masataka Sawayama[2], Bei Xiao[1]; [1]American University, [2]Inria

Talk 4, 3:15 pm, 34.14

Color constancy as a function of similarity in material appearance

Robert Ennis[1], Karl Gegenfurtner[1], Katja Doerschner[1,2]; [1]Justus-Liebig Universitaet Giessen, [2]National Magnetic Resonance Research Center, Bilkent University

Talk 5, 3:30 pm, 34.15

Spatial and temporal dynamics of effective daylight in natural scenes

Cehao Yu[1] (c.yu-2@tudelft.nl), Maarten Wijntjes[1], Elmar Eisemann[2], Sylvia Pont[1]; [1]Perceptual Intelligence Lab (π–Lab), Delft University of Technology, [2]Computer Graphics and Visualization

Group, Delft University of Technology

Talk 6, 3:45 pm, 34.16

The geometry of high-level colour perception reflects the amount of information provided by colours about objects.

Mubaraka Muchhala[1] (mm14914@bristol.ac.uk), Nick Scott-Samuel[1], Roland Baddeley[1]; [1]University of Bristol

Talk 7, 4:00 pm, 34.17

Color category boundaries predict generalization of color-concept associations

Melissa A. Schoenlein[1] (schoenlein@wisc.edu), Karen B. Schloss[1]; [1]University of Wisconsin-Madison

Cortical Organization

Talk Session: Sunday, May 15, 2022, 2:30 – 4:15 pm EDT, Talk Room 2

Moderator: Katherine Storrs, Giessen, Germany

Talk 1, 2:30 pm, 34.21

Orientation selectivity in human V1 revisited

Zvi N. Roth[1] (zviroth@gmail.com), Kendrick Kay[2], Elisha P. Merriam[1]; [1]Laboratory of Brain and Cognition, National Institute of Mental Health, NIH, Bethesda, MD, USA, [2]Center for Magnetic Resonance Research (CMRR), Department of Radiology, University of Minnesota, Minneapolis, MN, USA

Talk 2, 2:45 pm, 34.22

Snakes fade slower than gratings: perceptual correlates of neuroimaging support normalization by orientation variance

Guido Maiello[1] (guido_maiello@yahoo.it), Katherine Storrs[1], Roland Fleming[1]; [1]Justus Liebig University Giessen

Talk 3, 3:00 pm, 34.23

Linking cortical magnification in human primary visual cortex with contrast sensitivity

Marc Himmelberg[1], Jonathan Winawer[1], Marisa Carrasco[1]; [1]New York University

Talk 4, 3:15 pm, 34.24

Numerosity selective responses elicited from viewing of natural images

Shir Hofstetter[1], Serge Dumoulin[1,2,3]; [1]Spinoza Center for Neuroimaging, Amsterdam, The Netherlands, [2]Utrecht University, The Netherlands, [3]VU University Amsterdam

Talk 5, 3:30 pm, 34.25

Data-driven component modeling reveals the functional organization of high-level visual cortex

Meenakshi Khosla[1] (meenakshik1993@gmail.com), N Apurva Ratan Murty[1], Nancy Kanwisher[1]; [1]Massachusetts Institute of Technology

Talk 6, 3:45 pm, 34.26

Computational modeling of traveling waves using MEG-EEG in human

Laetitia Grabot[1], Garance Merholz[1], Jonathan Winawer[2,3], David Heeger[2,3], Laura Dugué[1,4]; [1]Université de Paris, INCC UMR 8002, CNRS, F-75006 Paris, France, [2]Department of Psychology, New York University, New York, NY 10003, United States, [3]Center for Neural Science, New York University, New York, NY 10003, United States, [4]Institut Universitaire de France (IUF), Paris, France

Talk 7, 4:00 pm, 34.27

Purely Perceptual Machines Robustly Predict Human Visual Arousal, Valence, and Aesthetics

Colin Conwell[1] (conwell@g.harvard.edu), Daniel Graham[2], Talia Konkle[1], Edward Vessel[3]; [1]Harvard University, [2]Hobart and William Smith Colleges, [3]Max Planck Institute for Empirical Aesthetics

Visual Memory: Working, objects, features

Talk Session: Sunday, May 15, 2022, 5:15 – 7:15 pm EDT, Talk Room 1

Moderator: Timothy Brady, UCSD

Talk 1, 5:15 pm, 35.11

Long-term memory enhances object retention in visual working memory independently from perceptual complexity

Markus Conci[1] (conci@psy.lmu.de), Hermann J. Müller[1]; [1]Ludwig-Maximilians-Universität München

Talk 2, 5:30 pm, 35.12

Dissociating the Impact of Object-Color Expectations and Object-Color Violations on Visual Feature Memory

Kimele Persaud[1] (kimele.persaud@rutgers.edu), Elizabeth Bonawitz[2]; [1]Rutgers University - Newark, [2]Harvard University

Talk 3, 5:45 pm, 35.13

Event segments and sensory memory storage

Shaoying Wang[1], Srimant Tripathy[2], Haluk Öğmen[1]; [1]University of Denver, [2]University of Bradford

Talk 4, 6:00 pm, 35.14

A Beta-Variational Auto-Encoder Model of Human Visual Representation Formation in Utility-Based Learning

Tyler Malloy[1] (mallot@rpi.edu), Chris R. Sims[1]; [1]Rensselaer Polytechnic Institute

Talk 5, 6:15 pm, 35.15

Visual working memory in action: Planning for multiple potential actions alongside multi-item visual encoding and retention

Rose Nasrawi[1] (r.nasrawi@vu.nl), Freek van Ede[1,2]; [1]Institute for Brain and Behavior Amsterdam, Vrije Universiteit Amsterdam, [2]Oxford Centre for Human Brain Activity, University of Oxford

Talk 6, 6:30 pm, 35.16

Visual Working Memory Performance With Just 1 Item Predicts Nearly All of the Variance in Performance with 5 Items

Timothy Brady[1] (timothy.brady@gmail.com); [1]University of California, San Diego

Talk 7, 6:45 pm, 35.17

Perceptual similarity judgments predict the precision but not the distribution of errors in working memory

Paul Bays[1], Ivan Tomić[1]; [1]University of Cambridge

Talk 8, 7:00 pm, 35.18

Neural signatures of serial dependence emerge during cued selection in working memory

Cora Fischer[1] (cora.fischer@med.uni-frankfurt.de), Jochen Kaiser[1], Christoph Bledowski[1]; [1]Institute of Medical Psychology, Goethe University Frankfurt, Germany

Perception and Action

Talk Session: Sunday, May 15, 2022, 5:15 – 7:15 pm EDT, Talk Room 2

Moderator: Mike Landy, NYU

Talk 1, 5:15 pm, 35.21

Robust changes in confidence efficiency during post-decision time windows

Tarryn Balsdon[1,2], Valentin Wyart[2], Pascal Mamassian[1]; [1]Ecole Normale Superieure and CNRS, [2]Ecole Normale Superieure and INSERM

Talk 2, 5:30 pm, 35.22

An analysis method for continuous psychophysics based on Bayesian inverse optimal control

Dominik Straub[1] (straub@psychologie.tu-darmstadt.de), Constantin A. Rothkopf[1]; [1]TU Darmstadt

Talk 3, 5:45 pm, 35.23

Eye-movements during active sensing suffer from a confirmation bias

Ralf M Haefner[1] (ralf.haefner@gmail.com), Sabyasachi Shivkumar[1], Ankani Chattoraj[1], Yong Soo Ra[2]; [1]Brain & Cognitive Sciences, Center for Visual Science, University of Rochester, [2]Seoul National University

Talk 4, 6:00 pm, 35.24

What are the neural correlates of perceptual awareness? Evidence from an fMRI no-report masking paradigm

Elaheh Hatamimajoumerd[1,2] (ehatami@amherst.edu), N. Apurva Ratan Murty[2], Michael Pitts[3], Michael Cohen[1,2]; [1]Amherst College, [2]Massachusetts Institute of Technology, [3]Reed College

Talk 5, 6:15 pm, 35.25

Prospective and Retrospective Cues for Sensorimotor Confidence in a Reaching Task

Marissa H. Evans[1] (mhe229@nyu.edu), Shannon M. Locke[2], Michael S. Landy[1,3]; [1]Department of Psychology, New York University, [2]Laboratoire des systèmes perceptifs, CNRS & École normale supérieure, Paris, France Fyssen Foundation, Alexander von Humboldt Foundation , [3]Center for Neural Science, New York University

Talk 6, 6:30 pm, 35.26

Perceptual modulation over the gait-cycle: vision-in-action in virtual reality

Matt Davidson[1] (matthew.davidson@sydney.edu.au), Robert Keys[1], Frans Verstraten[1], David Alais[1]; [1]University of Sydney

Talk 7, 6:45 pm, 35.27

The relationship between gaze and foot placement is shaped by the visual discriminability and availability of footholds in an overground Augmented Reality stepping stone task

Trenton Wirth[1] (t.wirth@northeastern.edu), Jonathan Matthis[1]; [1]Northeastern University

Talk 8, 7:00 pm, 35.28

Step by step - Walking shapes visual space

Michael Wiesing[1] (wiesing@hhu.de), Eckart Zimmermann[2]; [1]Institute for Experimental Psychology, Heinrich Heine University Düsseldorf, Universitätsstr. 1, 40225 Düsseldorf, Germany, [2]Institute for Experimental Psychology, Heinrich Heine University Düsseldorf, Universitätsstr. 1, 40225 Düsseldorf, Germany

Object Recognition: Models, reading

Talk Session: Monday, May 16, 2022, 8:15 – 9:45 am EDT, Talk Room 1

Moderator: Talia Konkle, Harvard University

Talk 1, 8:15 am, 41.11

Parallel word reading revealed by fixation-related potentials

Joshua Snell[1] (j.j.snell@vu.nl), Jeremy Yeaton[2], Jonathan Mirault[3], Jonathan Grainger[3]; [1]Vrije Universiteit Amsterdam, [2]University of California Irvine, [3]Aix Marseille University & CNRS

Talk 2, 8:30 am, 41.12

Connectivity constraints, viewing biases, and task demands within a bi-hemispheric interactive topographic network account for the layout of human ventral temporal cortex

Nicholas Blauch[1] (blauch@cmu.edu), Marlene Behrmann[1], David Plaut[1]; [1]Carnegie Mellon University

Talk 3, 8:45 am, 41.13

Mechanisms of human dynamic visual perception revealed by sequential deep neural networks

Lynn K. A. Sörensen[1], Sander M. Bohté[2], Heleen A. Slagter[3], H. Steven Scholte[1]; [1]University of Amsterdam, [2]Centrum Wiskunde & Informatica, [3]Vrije Universiteit Amsterdam

Talk 4, 9:00 am, 41.14

A brain-inspired object-based attention network for multi-object recognition and visual reasoning

Hossein Adeli[1] (hossein.adelijelodar@gmail.com), Seoyoung Ahn[1], Gregory Zelinsky[1,2]; [1]Department of Psychology, Stony Brook University, [2]Department of Computer Science, Stony Brook University

Talk 5, 9:15 am, 41.15

Neural and computational evidence that category-selective visual regions are facets of a unified object space

Jacob S. Prince[1] (jacob.samuel.prince@gmail.com), Talia Konkle[1]; [1]Harvard University

Talk 6, 9:30 am, 41.16

Intuiting machine failures

Makaela Nartker[1] (makaelanartker@gmail.com), Zhenglong Zhou[2], Chaz Firestone[1]; [1]Johns Hopkins University, [2]University of Pennsylvania

Motion: Biological motion, body perception

Talk Session: Monday, May 16, 2022, 8:15 – 9:45 am EDT, Talk Room 2

Moderator: Kami Koldewyn, Bangor

Talk 1, 8:15 am, 41.21

Neural underpinnings of biological motion perception under attentional load

Hilal Nizamoğlu[1] (hilal.nizam.97@gmail.com), Burcu A. Urgen[1]; [1]Bilkent University

Talk 2, 8:30 am, 41.22

Social action understanding after late sight recovery from congenital near-blindness

Ilana Naveh[1] (ilana.naveh@mail.huji.ac.il), Sara Attias[1], Asael Y. Sklar[1], Ehud Zohary[1]; [1]The Hebrew University of Jerusalem

Talk 3, 8:45 am, 41.23

Characterization of visual response properties and connectivity of Wide-field vertical neurons in the mouse superior colliculus

Elise Savier[1] (els6f@virginia.edu), Kara McHaney[1], Hui Chen[1], Jianhua Cang[1]; [1]University of Virginia

Talk 4, 9:00 am, 41.24

What makes an elegant walk: Aesthetic preferences for prototypical movements in human walking actions

Yi-Chia Chen[1] (yichiachen@g.ucla.edu), Frank Pollick[2], Hongjing Lu[1]; [1]University of California, Los Angeles, [2]University of Glasgow

Talk 5, 9:15 am, 41.25

The role of motion in the neural representation of social interactions

Kami Koldewyn[1] (k.koldewyn@bangor.ac.uk), Julia Landsiedel[1], Katie Daughters[2], Paul E. Downing[1]; [1]Bangor University, [2]University of Essex

Talk 6, 9:30 am, 41.26

Distributed representations of natural body pose in visual cortex

Hongru Zhu[1] (hongruz95@gmail.com), Yijun Ge[2], Alexander Bratch[3], Alan Yuille[1], Kendrick Kay[4], Daniel Kersten[4]; [1]Johns Hopkins University, [2]RIKEN Center for Brain Science, [3]Stanford University, [4]University of Minnesota Twin Cities

Search and Attention: Capture, real-world, lifespan

Talk Session: Monday, May 16, 2022, 10:45 am – 12:15 pm EDT, Talk Room 1
Moderator: Trafton Drew, University of Utah

Talk 1, 10:45 am, 42.11

Contextual learning determines early attentional orienting in visual selection

Chris Jungerius[1,2], Dirk Van Moorselaar[2], Heleen A. Slagter[2]; [1]University of Amsterdam, [2]Vrije Universiteit

Talk 2, 11:00 am, 42.12

Visual search asymmetries are explained by visual homogeneity

Georgin Jacob[1,2] (georginjacob@gmail.com), SP Arun[1,2]; [1]Centre for Neuroscience, Indian Institute of Science, Bengaluru, INDIA, [2]Department of Electrical Comminication Engineering, Indian Institute of Science, Bengaluru, INDIA

Talk 3, 11:15 am, 42.13

The development of attention to social interactions in naturalistic scenes

Ioana Mihai[1] (sepafb@bangor.ac.uk), Simona Skripkauskaite[2], Kami Koldewyn[1]; [1]Bangor University, [2]University of Oxford

Talk 4, 11:30 am, 42.14

Incorrect Computer Aided Detection (CAD) marks lead to early quitting: A potential mechanism for poor CAD performance in clinical practice

Trafton Drew[1] (trafton.drew@psych.utah.edu), Anna Carissa Delos Reyes[1], Jeff Moher[2]; [1]University of Utah, [2]Connecticut College

Talk 5, 11:45 am, 42.15

The reduced fidelity of selective sensory information processing in the elderly with mild cognitive impairment

Kanyarat Benjasupawan[1,2] (kbenjasu@gmail.com), Panchalee Sookprao[1,2], Thiparat Chotibut[4], Itti Chatnuntawech[5], Sirawaj Itthipuripat[1,6], Chaipat Chunharas[2,3]; [1]Neuroscience Center for Research and Innovation, Learning Institute, King Mongkut's University of Technology Thonburi, Bangkok, 10140, Thailand, [2]Cognitive Clinical and Computational Neuroscience lab, Faculty of Medicine, Chulalongkorn University, Bangkok, 10330, Thailand, [3]Chula Neuroscience Center, King Chulalongkorn Memorial Hospital, Bangkok, 10330, Thailand, [4]Department of Physics, Faculty of Science, Chulalongkorn University, Bangkok 10330, Thailand, [5]National Nanotechnology Center, National Science and Technology Development Agency, Pathum Thani, 12120, Thailand, [6]Big Data Experience Center, King Mongkut's University of Technology Thonburi,10140, Bangkok, Thailand

Talk 6, 12:00 pm, 42.16

Neural correlates associated with a virtual reality based dynamic visual search in Cerebral Visual Impairment

Zahide Pamir[1] (zahide_pamir@meei.harvard.edu), Corinna M. Bauer[1], Claire E. Manley[1], Daniel D. Dilks[2], Lotfi B. Merabet[1]; [1]The Laboratory for Visual Neuroplasticity. Department of Ophthalmology, Massachusetts Eye and Ear, Harvard Medical School. Boston, MA USA, [2]Department of Psychology, Emory University, Atlanta, GA 30322, USA

Color, Light and Materials: Mechanisms and models of visual processing

Talk Session: Monday, May 16, 2022, 10:45 am – 12:15 pm EDT, Talk Room 2
Moderator: David Brainard, U Penn

Talk 1, 10:45 am, 42.21

Color appearance match can be performed among custom-made five-dimensional metamers

Akari Kagimoto[1] (kagimoto-akari-wx@ynu.jp), Katsunori Okajima[1]; [1]Yokohama National University, JAPAN

Talk 2, 11:00 am, 42.22

Perceptual scaling of suprathreshold chromatic increments and decrements using Maximum Likelihood Difference Scaling

Yangyi Shi[1] (shi.yang@northeastern.edu), Rhea T. Eskew, Jr.[1]; [1]Psychology Department, Northeastern University

Talk 3, 11:15 am, 42.23

Do identical percepts from multiple ambiguous neural representations depend on the suppressed competing representations?

Emily Slezak[1] (easlezak@uchicago.edu), Steven K Shevell[2]; [1]University of Washington, [2]University of Chicago

Talk 4, 11:30 am, 42.24

Optimal sensitivity to a combination of color and luminance contrast between background and stimulus assessed with pupil orienting responses

Marnix Naber[1] (marnixnaber@gmail.com), Saskia Imhof[2], Giorgio Porro[3], Brendan Portengen[4]; [1]Experimental Psychology, Helmholtz Institute, Utrecht University, The Netherlands, [2]Ophthalmology Department, University Medical Center Utrecht, The Netherlands

Talk 5, 11:45 am, 42.25

Reconstructing attended and unattended colors from human scalp electroencephalography

Angus Chapman[1], Viola Störmer[2]; [1]University of California San Diego, [2]Dartmouth College

Talk 6, 12:00 pm, 42.26

Isolating Saturation and Hue for Equally Bright Colors

Hao Xie[1] (hao.xie@mail.rit.edu), Mark D. Fairchild[1]; [1]Rochester Institute of Technology

Multisensory Processing

Talk Session: Tuesday, May 17, 2022, 8:15 – 9:45 am EDT, Talk Room 1

Moderator: Abigail Noyce, Carnegie Mellon

Talk 1, 8:15 am, 51.11

Early visual cortex represents human sounds more distinctly than non-human sounds.

Giusi Pollicina[1] (giusi.pollicina@gmail.com), Polly Dalton[1], Petra Vetter[2]; [1]Royal Holloway, University of London, [2]University of Fribourg

Talk 2, 8:30 am, 51.12

Measuring EEG correlates of individual differences in visual and auditory top-down attention

Jasmine Kwasa[1] (jkwasa@andrew.cmu.edu), Abigail Noyce[1], Barbara Shinn-Cunningham[1]; [1]Carnegie Mellon University Neuroscience Institute

Talk 3, 8:45 am, 51.13

Thinking outside the box in the study of visual preferences: External elements determine 'goodness' judgments for a dot within a square frame

Jiangxue Valentina Ning[1] (ningj@newschool.edu), Benjamin van Buren[1]; [1]The New School

Talk 4, 9:00 am, 51.14

Greater sensitivity to Visual-Vestibular Conflict Correlates with Lower VR Sickness

Savannah Halow[1] (savvyhalow@gmail.com), Allie Hamilton[2], Eelke Folmer[3], Paul MacNeilage[4]; [1]University of Nevada, Reno

Talk 5, 9:15 am, 51.15

Multisensory processing supports deep encoding of visual objects

Shea E. Duarte[1] (seduarte@ucdavis.edu), Joy J. Geng[1]; [1]University of California, Davis

Talk 6, 9:30 am, 51.16

EEG evoked activity suggests amodal evidence integration in multisensory decision-making

Thomas Schaffhauser[1], Alain De Cheveigné[1], Yves Boubenec[1], Pascal Mamassian[1]; [1]CNRS & Ecole Normale Supérieure, Paris, France

Eye movements: Perception, cognition

Talk Session: Tuesday, May 17, 2022, 8:15 – 9:45 am EDT, Talk Room 2

Moderator: Julie Golomb, Ohio State University

Talk 1, 8:15 am, 51.21

Stimulus blanking improves orientation discrimination of foveal and peripheral stimuli

Lukasz Grzeczkowski[1] (lukasz.grzeczkowski@gmail.com), Martin Rolfs[1]; [1]Humboldt-Universität zu Berlin, Germany

Talk 2, 8:30 am, 51.22

Visual stability in naturalistic scenes

Jessica Parker[1] (jparke87@vols.utk.edu), A. Caglar Tas[1]; [1]University of Tennessee-Knoxville

Talk 3, 8:45 am, 51.23

Dynamic saccade context triggers spatiotopic object-location binding

Zitong Lu[1] (lu.2637@osu.edu), Julie D Golomb[1]; [1]Department of Psychology, The Ohio State University

Talk 4, 9:00 am, 51.24

Different goals for oculomotor control and perception

Alexander Goettker[1] (alexander.goettker@psychol.uni-giessen.de), Emma E.M. Stewart[1]; [1]Justus Liebig University Giessen

Talk 5, 9:15 am, 51.25

Sensory tuning in neuronal movement commands: neurophysiological evidence

Matthias P. Baumann[1] (matthias-philipp.baumann@student.uni-tuebingen.de), Amarender R. Bogadhi[1], Anna Denninger[1], Ziad M. Hafed[1]; [1]University of Tübingen

Talk 6, 9:30 am, 51.26

Measuring the cost function of saccadic decisions reveals stable individual gaze preferences

Tobias Thomas[1] (tobias.thomas@tu-darmstadt.de), David Hoppe[1], Constantin A. Rothkopf[1]; [1]Centre for Cognitive Science, Technische Universität Darmstadt

Attention: Features, objects, endogenous

Talk Session: Tuesday, May 17, 2022, 10:45 am – 12:30 pm EDT, Talk Room 1

Moderator: Martin Rolfs, Humboldt-University

Talk 1, 10:45 am, 52.11

Decoding Visual Feature Versus Visual Spatial Attention Control with Deep Neural Networks

Yun liang[1], Sreenivasan Meyyappan[2], Mingzhou Ding[1]; [1]J. Crayton Pruitt Family Department of Biomedical Engineering, University of Florida, Gainesville, FL, [2]Center for Mind and Brain, University of California, Davis, CA

Talk 2, 11:00 am, 52.12

Effects of Spatial Attention on Spatial and Temporal Acuity Explained by Parvo-Magno Interactions: A Computational Account

Boris Penaloza[1,2] (bpenaloz@ur.rochester.edu), Haluk Ogmen[1]; [1]Department of Electrical & Computer Engineering, University of Denver, [2]Universidad Tecnológica de Panamá, Panamá

Talk 3, 11:15 am, 52.13

Post-inhibition deficits are shaped by task-irrelevant feature similarity

Samoni Nag[1] (samoninag@gwu.edu), Patrick Cox[1], Dwight Kravitz[1], Stephen Mitroff[1]; [1]The George Washington University

Talk 4, 11:30 am, 52.14

Eye movement characteristics reflect object-based attention

Olga Shurygina[1,2], Martin Rolfs[1,2]; [1]Humboldt-Universität zu Berlin, [2]Exzellenzcluster Science of Intelligence, Technische Universität Berlin

Talk 5, 11:45 am, 52.15

Attending to future objects

Chenxiao Guan[1] (chenxiao@jhu.edu), Chaz Firestone[1]; [1]Johns Hopkins University

Talk 6, 12:00 pm, 52.16

Exogenous attention effects persist into Visual Working Memory

Luke Huszar[1] (ldh319@nyu.edu), Tair Vizel[2], Marisa Carrasco[1]; [1]New York Unviersity, [2]Tel Aviv University

Talk 7, 12:15 pm, 52.17

Roles of goal-directed performance optimization vs. stimulus-driven salience in determining attentional control strategy

Walden Y. Li[1] (li.6942@osu.edu), Andrew B. Leber[1]; [1]The Ohio State University

Plasticity

Talk Session: Tuesday, May 17, 2022, 10:45 am – 12:30 pm EDT, Talk Room 2

Moderator: Krystel Huxlin, Rochester

Talk 1, 10:45 am, 52.21

Attributes of preserved motion discrimination inside perimetrically-blind fields early after V1 damage

Matthew Cavanaugh[1] (matthew_cavanaugh@urmc.rochester.edu), Jingyi Yang[1], Berkeley Fahrenthold[1], Elizabeth Saionz[1], Michael Melnick[1], Marisa Carrasco[2], Duje Tadin[1], Krystel Huxlin[1]; [1]University of Rochester, [2]New York University

Talk 2, 11:00 am, 52.22

Neurochemistry in hMT+ underlies residual vision in visual loss after stroke

Hanna E. Willis[1] (hanna.willis@ndcn.ox.ac.uk), I. Betina Ip[1], Archie Watt[1], Saad Jbabdi[1], William Clarke[1], Matthew R. Cavanaugh[2], Krystel R. Huxlin[2], Kate E. Watkins[4], Marco Tamietto[3], Holly Bridge[1]; [1]Wellcome Centre for Integrative Neuroimaging, Nuffield Department of Clinical Neuroscience, University of Oxford, Oxford, United Kingdom, OX3 9DU, [2]Flaum Eye Institute and Center for Visual Science, University of Rochester, Rochester, NY 14642, USA, [3]Department of Psychology, University of Torino, 10123 Torino, Italy, [4]Wellcome Centre for Integrative Neuroimaging, Department of Experimental Psychology, University of Oxford, Oxford, United Kingdom, OX2 6GG

Talk 3, 11:15 am, 52.23

Plasticity of visual cortex following large cortical resections

Tina T. Liu[1] (tong.liu2@nih.gov), Michael C. Granovetter[2,3,4], Anne Margarette S. Maallo[2,3], Jason Z Fu[1], Christina Patterson[5], Marlene Behrmann[2,3]; [1]Laboratory of Brain and Cognition, National Institutes of Mental Health, NIH, [2]Department of Psychology, Carnegie Mellon University, [3]Carnegie Mellon Neuroscience Institute, [4]School of Medicine, University of Pittsburgh, [5]Department of Pediatrics, University of Pittsburgh

Talk 4, 11:30 am, 52.24

Short-Term Monocular Deprivation in Adult Humans Alters Functional Brain Connectivity Measured With Ultra-High Field Magnetic Resonance Imaging

Miriam Acquafredda[1,2] (miriam.acquafredda@unifi.it), Francesco Scarlatti[2], Laura Biagi[3], Michela Tosetti[3,4], Maria Concetta Morrone[2], Paola Binda[2]; [1]University of Florence, Italy, [2]University of Pisa,Italy, [3]IRCCS Stella Maris, Calambrone, Pisa, Italy, [4]IMAGO Center, Pisa, Italy

Talk 5, 11:45 am, 52.25

How do early blind individuals experience auditory motion?

Woon Ju Park[1] (woonju.park@gmail.com), Ione Fine[1]; [1]Department of Psychology, University of Washington

Talk 6, 12:00 pm, 52.26

Motor and visual plasticity interact in adult humans

Izel Sari[1] (izeldilan@gmail.com), Claudia Lunghi[1]; [1]Laboratoire des systèmes perceptifs, Département d'études cognitives, École normale supérieure, PSL University, CNRS, Paris, France.

Talk 7, 12:15 pm, 52.27

Visually guided reaching requires early-life experience with an arm, evidence from artificial arm use

Roni Maimon-Mor[1] (r.maimon@ucl.ac.uk), Hunter Schone[1,2], David Henderson Slater[1], A Aldo Faisal[4], Tamar Makin[1]; [1]University College London, [2]University of Oxford, [3]Nuffield Orthopaedic Centre, Oxford, UK, [4]Imperial College London

Binocular Vision

Talk Session: Tuesday, May 17, 2022, 2:30 – 4:15 pm EDT, Talk Room 1

Moderator: Jenny Read, Newcastle

Talk 1, 2:30 pm, 54.11

A binocular synaptic network supports interocular response alignment in visual cortical neurons

Benjamin Scholl[1], Clara Tepohl[2], Connon Thomas[2], Melissa Ryan[3], Naomi Kamasawa[2], David Fitzpatrick[2]; [1]University of Pennsylvania, [2]Max Planck Florida Institute, [3]Baylor College of Medicine

Talk 2, 2:45 pm, 54.12

Opponency versus normalization as the cause of interocular suppression in dichoptic masking

Frederick Kingdom[1] (fred.kingdom@mcgill.ca), Aridj Bouragbi[2], Timothy Meese[3]; [1]McGill University, [2]McGill University, [3]Aston University

Talk 3, 3:00 pm, 54.13

Human stereovision is affected by adaptation in the monocular channels

Cherlyn Ng[1] (cjng@uh.edu), Martin Banks[2], Randolph Blake[3], Duje Tadin[4], Geunyoung Yoon[1]; [1]University of Houston, Texas, [2]University of California (Berkeley), California, [3]Vanderbilt University, Tennessee, [4]University of Rochester, New York

Talk 4, 3:15 pm, 54.14

Neurophysiology and psychophysical studies of the stereo contrast paradox

Laura Palmieri[1] (l.palmieri2@newcastle.ac.uk), Jenny Read[2], Bruce Cumming[1]; [1]NIH and Newcastle University, [2]Newcastle University, [3]NIH

Talk 5, 3:30 pm, 54.15

Primate monocular vision is intrinsically unstable: a side-effect of binocular homeostasis

Alexandre Reynaud[1] (alexandre.reynaud@mail.mcgill.ca), Kévin Blaize[2], Fabrice Arcizet[3], Pierre Pouget[4], Serge Picaud[3], Frédéric Chavane[2], Robert Hess[1]; [1]McGill University, [2]Institut de

Neurosciences de la Timone (INT) - CNRS, Aix-Marseille Université, [3]INSERM, CNRS, Institut de la Vision, Sorbonne Université, [4]INSERM, CNRS, Institut du Cerveau et de la Moelle épinière, Sorbonne Université

Talk 6, 3:45 pm, 54.16

Discomfort associated with the (un)natural statistics of VR gaming headsets

Avi M. Aizenman[1] (avigael_aizenman@berkeley.edu), George A. Koulieris[2], Agostino Gibaldi[1], Vibhor Sehgal[1], Dennis M. Levi[1], Martin S. Banks[1]; [1]Herbert Wertheim School of Optometry & Vision Science at the University of California, Berkeley, [2]Department of Computer Science at Durham University

Talk 7, 4:00 pm, 54.17

Binocular viewing geometry shapes neural processing of slanted planes: Results from theoretical V1 modeling and human psychophysics

Stephanie M. Shields[1] (smshields@utexas.edu), Alexander C. Huk[1], Lawrence K. Cormack[1]; [1]The University of Texas at Austin

Object Recognition: Neural mechanisms

Talk Session: Tuesday, May 17, 2022, 2:30 – 4:15 pm EDT, Talk Room 2

Moderator: Martin Hebart, Max Planck Institute of Human Cognitive and Brain Sciences

Talk 1, 2:30 pm, 54.21

Context effects on object recognition in real world environments

Victoria Nicholls[1] (vn295@cam.ac.uk), Kyle Alsbury-Nealy[2], Alexandra Krugliak[1], Alex Clarke[1]; [1]University of Cambridge, [2]University of Toronto

Talk 2, 2:45 pm, 54.22

Forming 3-dimensional multimodal object representations relies on integrative coding

Aedan Y. Li[1] (aedanyue.li@utoronto.ca), Natalia Ladyka-Wojcik[1], Chris B. Martin[2], Heba Qazilbash[1], Ali Golestani[1], Dirk B. Walther[1,3], Morgan D. Barense[1,3]; [1]Department of Psychology, University of Toronto, [2]Florida State University, [3]Rotman Research Institute, Baycrest Health Sciences

Talk 3, 3:00 pm, 54.23

Functionally distinct sub-regions of the parahippocampal place area revealed by model-based neural control

Apurva Ratan Murty[1,2] (ratan@mit.edu), Alex Abate[1,2], Frederik Kamps[1,2], James DiCarlo[1,2], Nancy Kanwisher[1,2]; [1]McGovern Institute for Brain Research, Massachusetts Institute of Technology, [2]Department of Brain and Cognitive Sciences, Massachusetts Institute of Technology

Talk 4, 3:15 pm, 54.24

Recapitulation of cortical visual hierarchy in the human pulvinar

Michael Arcaro[1], Daniel Guest[2], Emily Allen[2], Kendrick Kay[2]; [1]University of Pennsylvania, [2]University of Minnesota

Talk 5, 3:30 pm, 54.25

Precise and generalizable cartography of functional topographies in individual brains

Ma Feilong[1] (feilong.ma@dartmouth.edu), Samuel A. Nastase[2], Guo Jiahui[1], Yaroslav O. Halchenko[1], M. Ida Gobbini[1,3], James V. Haxby[1]; [1]Dartmouth College, [2]Princeton University, [3]Università di Bologna

Talk 6, 3:45 pm, 54.26

Temporal dynamics of shape-invariant real-world object size processing

Simen Hagen[1] (simen.hagen@donders.ru.nl), Yuan-Fang Zhao[1], Marius V. Peelen[1]; [1]Donders Institute for Brain, Cognition and Behaviour, Radboud University, Nijmegen, The Netherlands

Talk 7, 4:00 pm, 54.27

Detectability of optogenetic stimulation of inferior temporal cortex depends significantly on visibility of visual input

Rosa Lafer-Sousa[1] (rosa.lafer-sousa@nih.gov), Karen Wang[1], Arash Afraz[1]; [1]NIMH

Motion: Models, neural mechanisms

Talk Session: Tuesday, May 17, 2022, 5:15 – 7:15 pm EDT, Talk Room 1

Moderator: Joo-Hyun Song, Brown

Talk 1, 5:15 pm, 55.11

Predictive neural representations of sensory input revealed by a novel dynamic RSA approach

Ingmar Engbert Jacob de Vries[1] (i.e.j.de.vries@gmail.com), Moritz Franz Wurm[1]; [1]Center for Mind/Brain Sciences, University of Trento

Talk 2, 5:30 pm, 55.12

Decoding of binocular motion extends the hierarchy of motion processing in the human brain

Puti Wen[1] (pw1246@nyu.edu), Michael Landy[2], Bas Rokers[3]; [1]Psychology, New York University Abu Dhabi, [2]Psychology and Center for Neural Science, New York University, [3]Psychology, New York University Abu Dhabi, Psychology and Center for Neural Science, New York University

Talk 3, 5:45 pm, 55.13

Causal inference underlies hierarchical motion perception

Sabyasachi Shivkumar[1,2] (sshivkum@ur.rochester.edu), Boris Penaloza[1,2], Gabor Lengyel[1,2], Gregory C. DeAngelis[1,2], Ralf M. Haefner[1,2]; [1]Brain and Cognitive Sciences, University of Rochester, [2]Center for Visual Science, University of Rochester

Talk 4, 6:00 pm, 55.14

Effects of optical material properties on detection of deformation of non-rigid rotating objects

Mitchell J.P. van Zuijlen[1], Jan Jaap R. van Assen[2], Shin'ya Nishida[1,3]; [1]Cognitive Informatics Lab, Dept. of Intelligence Science and Technology, Graduate School of Informatics, Kyoto University., [2]Perceptual Intelligence Lab, Industrial Design Engineering, Delft University of Technology., [3]NTT Communication Science Labs, Nippon Telegraph and Telephone Corp.

Talk 5, 6:15 pm, 55.15

Properties of V1 and MT motion tuning emerge from unsupervised predictive learning

Katherine Storrs[1], Onno Kampman[2], Reuben Rideaux[3], Guido Maiello[1], Roland Fleming[1]; [1]Department of Experimental Psychology, Justus Liebig University Giessen, Germany, [2]Department of Psychology, University of Cambridge, UK, [3]Queensland Brain Institute, University of Queensland, Australia

Talk 6, 6:30 pm, 55.16

The speed of a moving object is underestimated behind an occluder in action and perception tasks

Melisa Menceloglu[1] (melisa_menceloglu@brown.edu), Diyarhi Roy[1], Joo-Hyun Song[1]; [1]Brown University

Talk 7, 6:45 pm, 55.17

Laminar Organization of Pre-Saccadic Attention in Marmoset Area MT

Shanna H Coop[1] (shannahcoop@gmail.com), Gabriel H Sarch[2], Amy Bucklaew[1], Jacob L Yates[3], Jude F Mitchell[1]; [1]University of Rochester, [2]Carnegie Mellon University, [3]University of Maryland College Park

Talk 8, 7:00 pm, 55.18

Effects of simulated and perceived motion on cognitive task performance

Onoise G. Kio[1] (ogkio@eecs.yorku.ca), Robert S. Allison[1]; [1]York University

Scene Perception

Talk Session: Tuesday, May 17, 2022, 5:15 – 7:15 pm EDT, Talk Room 2

Moderator: Caroline Robertson, Dartmouth College

Talk 1, 5:15 pm, 55.21

Coarse-to-fine processing drives the efficient coding of natural scenes in mouse visual cortex

Rolf Skyberg[1] (rskyberg@gmail.com), Seiji Tanabe[1], Hui Chen[1], JC Cang[1]; [1]Department of Biology and Department of Psychology, University of Virginia, Charlottesville, VA, 22904, USA

Talk 2, 5:30 pm, 55.22

The influence of spatial frequency and luminance on early visual processing: A fixation-related potentials approach

Anna Madison[1,2], Jon Touryan[1], Michael Nonte[3], Anthony Ries[1,2]; [1]DEVCOM Army Research Laboratory, Aberdeen Proving Ground, MD USA, [2]Warfighter Effectiveness Research Center; U.S. Air Force Academy, CO USA, [3]DCS Corp., Alexandria, VA USA

Talk 3, 5:45 pm, 55.23

Relationship between spatial frequency selectivity and receptive field size for scene perception

Charlotte Leferink[1], Claudia Damiano[2], Dirk Walther[1]; [1]University of Toronto, [2]KU Leuven

Talk 4, 6:00 pm, 55.24

Full-field fMRI: a novel approach to study immersive vision

Jeongho Park[1] (jpark3@g.harvard.edu), Edward Soucy[1], Jennifer Segawa[1], Talia Konkle[1]; [1]Harvard University

Talk 5, 6:15 pm, 55.25

A cortical network representing spatial context of visual scenes in posterior cerebral cortex

Brenda Garcia[1], Adam Steel[1], Anna Mynick[1], Kala Goyal[1], Caroline Robertson[1]; [1]Dartmouth College

Talk 6, 6:30 pm, 55.26

Dynamic neural representations reveal flexible feature use during scene categorization

Michelle Greene[1] (mgreene2@bates.edu), Bruce Hansen[2]; [1]Bates College, [2]Colgate University

Talk 7, 6:45 pm, 55.27

The dynamics of scene understanding

Daniel Harari[1] (hararid@weizmann.ac.il), Alex Mars[1], Hanna Benoni[2], Shimon Ullman[1]; [1]Weizmann AI Center, Department of Computer Science and Applied Mathematics, Weizmann Institute of Science, [2]Department of Psychology, The College of Management Academic Studies

Talk 8, 7:00 pm, 55.28

Category learning biases in real-world scene perception

Gaeun Son[1] (gaeun.son@mail.utoronto.ca), Dirk B. Walther[1], Michael L. Mack[1]; [1]University of Toronto

Attention: Prioritization, suppression, lapses

Talk Session: Wednesday, May 18, 2022, 8:15 – 10:00 am EDT, Talk Room 1

Moderator: Yaffa Yeshurun, University of Haifa

Talk 1, 8:15 am, 61.11

Pinging the brain to reveal a hidden attentional priority map

Docky Duncan[1,2] (dockyd@gmail.com), Dirk van Moorselaar[1,2], Jan Theeuwes[1,2]; [1]Vrije Universiteit Amsterdam, [2]Institute Brain and Behavior Amsterdam (iBBA)

Talk 2, 8:30 am, 61.12

Distinguishing anticipatory visual cortical dynamics during temporal attention and expectation

Karen Tian[1,2] (ktian@bu.edu), David Heeger[2], Marisa Carrasco[2], Rachel Denison[1,2]; [1]Boston University, [2]New York University

Talk 3, 8:45 am, 61.13

Two Target Templates for Attentional Guidance and Decision-Making: Relational and Optimal

Stefanie Becker[1] (s.becker@psy.uq.edu.au), Zachary Hamblin-Frohman[1]; [1]The University of Queensland, Brisbane, Australia

Talk 4, 9:00 am, 61.14

Evidence against the signal suppression hypothesis in the capture-probe paradigm

Matt Oxner[1] (matt.oxner@vuw.ac.nz), Jasna Martinovic[2], Norman Forschack[1], Romy Lempe[1], Christopher Gundlach[1], Matthias Mueller[1]; [1]Universität Leipzig, [2]University of Edinburgh

Talk 5, 9:15 am, 61.15

Single unit recordings in the human brain track sustained attention dynamics

Nicole Hakim[1] (nhakim@uchicago.edu), Megan deBettencourt[1], Tao Xie[2], Mahesh Padmanaban[3], Edward Awh[4], Edward Vogel[5], Peter Warnke; [1]Stanford University, [2]University of Chicago

Talk 6, 9:30 am, 61.16

Development of the attentional blink from early infancy to adulthood

Jean-Remy HOCHMANN[1,2] (jr.hochmann@gmail.com), Sid Kouider[3]; [1]CNRS UMR5229 - Institut des Sciences Cognitives Marc Jeannerod, 67 Boulevard Pinel, 69675, Bron, France., [2]Université Lyon 1 Claude Bernard, France, [3]Laboratoire de Sciences Cognitives et Psycholinguistique, EHESS/CNRS/ENS-DEC, 75005 Paris, France

Talk 7, 9:45 am, 61.17

The predictive power of internal noise when considering attentional effects

Felipe Luzardo[1], Yaffa Yeshurun[1]; [1]University of Haifa

Object Recognition: Features, categories, preferences

Talk Session: Wednesday, May 18, 2022, 8:15 – 10:00 am EDT, Talk Room 2
Moderator: Afraz Arash, NIMH

Talk 1, 8:15 am, 61.21

Perceptual anisotropies across the central fovea

Samantha Jenks[1] (sjenks8@ur.rochester.edu), Martina Poletti[1,2,3]; [1]Department of Brain and Cognitive Sciences, University of Rochester, Rochester, NY, USA, [2]Department of Neuroscience, University of Rochester, Rochester, NY, USA, [3]Center for Visual Science, University of Rochester, Rochester, NY, USA

Talk 2, 8:30 am, 61.22

Understanding the invariances of visual features with separable subnetworks

Christopher Hamblin[1] (chrishamblin@fas.harvard.edu), Talia Konkle[1], George Alvarez[1]; [1]Harvard University

Talk 3, 8:45 am, 61.23

Low and high spatial frequencies contribute equally to rapid threat detection when contrast is normalized

Claudia Damiano[1] (claudia.damiano@kuleuven.be), Chrissy Engelen[1], Johan Wagemans[1]; [1]KU Leuven

Talk 4, 9:00 am, 61.24

Efficiently-generated object similarity scores predicted from human feature ratings and deep neural network activations

Martin N Hebart[1], Philipp Kaniuth[1], Jonas Perkuhn[1]; [1]Max Planck Institute for Human Cognitive & Brain Sciences

Talk 5, 9:15 am, 61.25

Human visual cortex as a texture basis set for object perception

Akshay Vivek Jagadeesh[1,2], Justin L Gardner[1,2]; [1]Department of Psychology, Stanford University, [2]Wu Tsai Neurosciences Institute, Stanford University

Talk 6, 9:30 am, 61.26

Categorization-dependent dynamic representation, selection and reduction of stimulus features in brain networks

Yaocong Duan[1] (y.duan.1@research.gla.ac.uk), Robin Ince[1], Joachim Gross[12], Philippe Schyns[1]; [1]School of Psychology and Neuroscience, University of Glasgow, [2]Institute for Biomagnetism and Biosignalanalysis, University of Muenster, Germany

Talk 7, 9:45 am, 61.27

Similarities and differences in the spatio-temporal neural dynamics underlying the recognition of natural images and line drawings

Johannes Singer[1,2] (johannes.singer@arcor.de), Radoslaw Martin Cichy[2], Martin N Hebart[1]; [1]Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany, [2]Free University Berlin, Germany

Visual Memory: Capacity, encoding

Talk Session: Wednesday, May 18, 2022, 10:45 am – 12:30 pm EDT, Talk Room 1

Moderator: Wilma Bainbridge, University of Chicago

Talk 1, 10:45 am, 62.11

Evidence of perceptual history propagation from decoding of visual evoked potentials

Giacomo Ranieri[1], Alessandro Benedetto[2], Hao Tam Ho[2], David C. Burr[1], Maria Concetta Morrone[2]; [1]University of Florence, [2]University of Pisa

Talk 2, 11:00 am, 62.12

Lest we forget: Does remembering new information help improve forgetting?

Edyta Sasin[1] (edytasasin@gmail.com), Yuri Markov[2], Daryl Fougnie[1]; [1]New York University Abu Dhabi, [2]HSE University, Russia

Talk 3, 11:15 am, 62.13

Spatial Massive Memory

Jeremy Wolfe[1,2] (jwolfe@bwh.harvard.edu), Wanyi Lyu[1]; [1]Brigham and Womens Hospital, [2]Harvard Medical School

Talk 4, 11:30 am, 62.14

Semantics, not Atypicality Reflect Memorability Across Concrete Objects

Max A. Kramer[1] (mkramer@mkramerpsych.com), Martin N. Hebart[2], Chris I. Baker[3], Wima A. Bainbridge[1]; [1]University of Chicago, [2]Max Planck Institute, [3]National Institute of Mental Health

Talk 5, 11:45 am, 62.15

Worse remembering of a dog when viewed in a sequence of dogs is dominated by changes in memory mechanisms as opposed to sensory adaptation

Catrina M. Hacker[1] (cmhacker@pennmedicine.upenn.edu), Barnes G.L. Jannuzi[1], Travis Meyer[1], Madison L. Hay[1], Nicole C. Rust[1]; [1]University of Pennsylvania

Talk 6, 12:00 pm, 62.16

Images that are harder to reconstruct are more memorable and benefit more from additional encoding times

Qi Lin[1] (qi.lin@yale.edu), Zifan Li[1], John Lafferty[1], Ilker Yildirim[1]; [1]Yale University

Talk 7, 12:15 pm, 62.17

Serial dependence to prior stimuli and past responses

Timothy Sheehan[1] (timothysheehanc@gmail.com), Ben Carfano[1], John Serences[1,2]; [1]UC San Diego, [2]Kavli Institute for Brain and Mind

Human Vision and Neural Networks: General considerations

Talk Session: Wednesday, May 18, 2022, 10:45 am – 12:30 pm EDT, Talk Room 2
Moderator: Felix Wichmann, University of Tübingen

Talk 1, 10:45 am, 62.21

Lack of experience with blurry visual input may cause CNNs to deviate from biological visual systems

Hojin Jang[1,2] (hojin.jang@vanderbilt.edu), Frank Tong[1,2]; [1]Vanderbilt University, [2]Vanderbilt Vision Research Center

Talk 2, 11:00 am, 62.22

A neural network family for systematic analysis of RF size and computational-path-length distribution as determinants of neural predictivity and behavioral performance

Benjamin Peters[1], Lucas Stoffl[4], Nikolaus Kriegeskorte[1,2,3]; [1]Zuckerman Mind Brain Behavior Institute, Columbia University, [2]Department of Psychology, Columbia University, [3]Department of Neuroscience, Columbia University, [4]Brain Mind Institute, Ecole polytechnique fédérale de Lausanne, Switzerland

Talk 3, 11:15 am, 62.23

Shape bias at a glance: Comparing human and machine vision on equal terms

Katherine L. Hermann[1] (hermannk@stanford.edu), Chaz Firestone[2]; [1]Stanford University, [2]Johns Hopkins University

Talk 4, 11:30 am, 62.24

The bittersweet lesson: data-rich models narrow the behavioural gap to human vision

Robert Geirhos[1,2] (robert.geirhos@uni-tuebingen.de), Kantharaju Narayanappa[1], Benjamin Mitzkus[1], Tizian Thieringer[1], Matthias Bethge[1], Felix A. Wichmann[1], Wieland Brendel[1]; [1]University of Tübingen, [2]International Max Planck Research School for Intelligent Systems

Talk 5, 11:45 am, 62.25

Latent dimensionality scales with the performance of deep learning models of visual cortex

Eric Elmoznino[1] (eric.elmoznino@gmail.com), Michael Bonner[1]; [1]Johns Hopkins University

Talk 6, 12:00 pm, 62.26

Global information processing in feedforward deep networks

Ben Lonnqvist[1] (ben.lonnqvist@epfl.ch), Alban Bornet[1], Adrien Doerig[2], Michael H. Herzog[1]; [1]Laboratory of Psychophysics, Brain Mind Institute, École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland, [2]Donders Institute for Brain, Cognition & Behaviour, Nijmegen, Netherlands

Talk 7, 12:15 pm, 62.27

Brain-optimized neural networks reveal evidence for non-hierarchical representation in human visual cortex

Ghislain St-Yves[1], Emily Allen[1], Yihan Wu[1], Kendrick Kay[1], Thomas Naselaris[1]; [1]University of Minnesota

VSS Poster Sessions

Saturday Morning Posters, May 14, 8:30 am

Banyan Breezeway

Perceptual Organization: General aspects

Perceptual Organization: Grouping, segmentation, hierarchies

Object Recognition: Categories

Scene Perception: Categorization and memory

Scene Perception: Virtual environments

Scene perception: Spatiotemporal statistics

Binocular Vision

Pavilion

Attention: Reward, capture

Visual Search: Features, cueing, suppression

Visual Memory: Objects

Perception and Action: Models

Perception and Action: Neural mechanisms

Saturday Afternoon Posters, May 14, 2:45 pm

Banyan Breezeway

Perception and Action: Reaching, pointing, grasping

Eye Movements: Transaccadic, perisaccadic

Plasticity and Learning: Typical function

Motion: Object motion, biological motion

Face Perception: Models

Face Perception: Wholes and parts

Pavilion

Color, Light and Materials: Lightness and brightness

Attention: Features

Attention: Objects

Visual Memory: Interference

Visual Memory: Working memory and attention

Sunday Morning Posters, May 15, 8:30 am

Banyan Breezeway

Object Recognition: Models, reading

Attention: Ensemble and summary statistics

Visual Search: Disorders, individual differences, strategy

Color, Light and Materials: Individual differences, disorders

Color, Light and Materials: Materials, categories, concepts, preferences

Temporal Processing: Models, neural mechanisms

Pavilion

Visual Memory: Representations

Visual Memory: Space, time and features

Scene Perception: Neural mechanisms

Scene Perception: Models

Perception and Action: Decision making

Sunday Afternoon Posters, May 15, 2:45 pm

Banyan Breezeway

Attention: Spatiotemporal

Pavilion

3D Perception: Virtual Environments

Perceptual Organization: Preference, aesthetics, art
Object Recognition: Neural mechanisms
Object Recognition: Features and parts
Spatial Vision: Models
Eye Movements: Saccades and gaze patterns
Plasticity and Learning: Disorders and restoration
Attention: Neural, top-down and bottom-up

Monday Morning Posters, May 16, 8:30 am

Banyan Breezeway

Face Perception: Emotion
Face Perception: Neural mechanisms
Perceptual Organization: Awareness, rivalry
Perception and Action: Affordances
Perception and Action: Navigation

Pavilion

Spatial Vision: Neural Mechanisms
Eye Movements: Perception
3D Perception: Shape
Attention: Neural, decision making, models
Attention: Search and salience

Tuesday Morning Posters, May 17, 8:30 am

Banyan Breezeway

Face Perception: Social cognition
Face Perception: Experience, learning, and expertise
Perceptual Organization: Models, neural mechanisms
Object Recognition: Neural models
Object Recognition: Perceptual similarity

Pavilion

Visual Search: Serial, temporal
Visual Memory: Neural mechanisms
Visual Memory: Strategy, individual differences
Motion: Models, mechanisms, illusions
Perception and Action: Virtual environments
Temporal Processing: Timing perception, duration

Tuesday Afternoon Posters, May 17, 2:45 pm

Banyan Breezeway

Face Perception: Individual differences
Face Perception: Development and Disorders
Spatial Vision: Across the visual field
Development
Eye Movements: Neural, fixation, instrumentation

Pavilion

Visual Search: Eye movements, memory, knowledge
Visual Memory: Encoding, retrieval
Visual Memory: Models and mechanisms
Color, Light and Materials: Neural mechanisms, models, dimensions
Attention: Awareness

Wednesday Morning Posters, May 18, 8:30 am

Banyan Breezeway

Multisensory Processing
Binocular Vision: Clinical and amblyopia
Spatial Vision: Crowding
Motion: Optic flow
Visual Search: Real-world stimuli and factors

Saturday Morning Posters in Banyan Breezeway

Perceptual Organization: General aspects

Saturday, May 14, 8:30 am – 12:30 pm, Banyan Breezeway

23.301 Contour erasure increases the target threshold in a 2AFC contrast discrimination task
Yih-Shiuan Lin[1] (yihshiuan.lin@gmail.com), Chien-Chung Chen[2,3], Mark W Greenlee[1]; [1]Institute of Psychology, University of Regensburg, [2]Department of Psychology, National Taiwan University, [3]Neurobiology and Cognitive Science Center, National Taiwan University

23.302 Central Tendency Bias a Key Factor in Explaining Distractor Interference
Sandarsh Pandey[1] (sandarshpand@umass.edu), Kyle Cave[1]; [1]University of Massachusetts Amherst

23.303 Distortions of spatial perception index perceptual organization
Timothy Vickery[1] (tvickery@udel.edu), Anton Lebed[1], Catherine Scanlon[1]; [1]University of Delaware

23.304 A Person with Multiple Failures of Perceptual Inference
Allan C. Dobbins[1] (adobbins@uab.edu), Elizabeth G. Dobbins[2]; [1]UAB, [2]Samford University, Birmingham, AL, USA

23.305 Luminance contrast impacts ability of watercolor illusion to serve as figure cue in ambiguous images
Patsy Folds[1] (pefold8941@ung.edu), Erin Conway[1], Ralph Hale[1], Benjamin McDunn[2]; [1]University of North Georgia, [2]University of Idaho

23.306 V1 contribution to contextual modulation in simple and complex stimuli
Mehmet Umut Canoluk[1] (umut.canoluk@uclouvain.be), Pieter Moors[2], Valerie Goffaux[1,3]; [1]UCLouvain, Belgium, [2]KULeuven, Belgium, [3]Maastricht University, Netherlands

23.307 Camouflage detection: experiments and a principled theory
Abhranil Das[1] (abhranil@abhranil.net), Wilson Geisler[1]; [1]University of Texas at Austin

23.308 How do perceptual grouping cues affect image memorability?
Seohee Han[1] (seohee.han@mail.utoronto.ca), Morteza Rezanejad[1], Dirk B. Walther[1]; [1]University of Toronto

23.309 Optimizing the classification of observers into distinct and diverse categories
Nicolaas Prins[1] (prins.nicolaas@gmail.com); [1]University of Mississippi

23.310 Spontaneous Perception of Numerosity Revealed by Continuous Tracking
Pierfrancesco Ambrosi[1] (pfa2804@gmail.com); [1]Università di Firenze

Perceptual Organization: Grouping, segmentation, hierarchies

Saturday, May 14, 8:30 am – 12:30 pm, Banyan Breezeway

23.311 A model of perceptual grouping and selection strategies in texture segmentation tasks
Maria Kon[1] (mkon@purdue.edu), Gregory Francis[1]; [1]Purdue University

23.312 Performance on a Contour Integration task as a function of Contour Shapes: A comparison study between individuals with schizophrenia and Neurotypical Individuals
Samyukta Jayakumar[1] (samyukta.jayakumar@email.ucr.edu), Kimia C. Yaghoubi[1], Anthony O. Ahmed[2], Pamela D. Butler[3], Steven Silverstein[4], Judy L. Thompson[4], Aaron R. Seitz[1]; [1]University of California, Riverside, [2]Weill Cornell Medicine, [3]Nathan S. Kline Institute for Psychiatric Research, [4]University of Rochester Medical Center

23.313 Global interference and field independence in hierarchical visual processing
Gaojie Fan[1], Melissa Beck[1]; [1]Louisiana State University

23.314 Can multiple repeated exposures reduce the influence of irrelevant global information in hierarchical letters?
Jong Han Lee[1] (lee84@usf.edu), Thomas Sanocki[1]; [1]University of South Florida

23.315 Visual event boundaries promote cognitive reflection over gut intuitions

Joan Danielle K. Ongchoco[1] (joan.ongchoco@yale.edu), Robert Walter-Terrill[1], Brian Scholl[1]; [1]Yale University

23.316 Automatic detection of shape parts using maximal inscribed disks

Morteza Rezanejad[1] (morteza.rezanejad@utoronto.ca), Kaleem Siddiqi[2], Dirk B. Walther[3]; [1]University of Toronto, [2]McGill University, [3]University of Toronto

Object Recognition: Categories

Saturday, May 14, 8:30 am – 12:30 pm, Banyan Breezeway

23.317 A Personalized Cortical Atlas for High Level Vision

M. Fiona Molloy[1] (mfionamolloy@gmail.com), David E. Osher[1]; [1]Department of Psychology, The Ohio State University

23.318 Investigating the temporal dynamics of visual categorization in the human brain using fast periodic visual stimulation

Xiaoqian Yan[1,2] (xqyan@stanford.edu), Yulan Diana Chen[1,2], Anthony M. Norcia[1,2], Kalanit Grill-Spector[1,2,3]; [1]Department of Psychology, Stanford University, [2]Wu Tsai Neurosciences Institute, Stanford University, [3]Neurosciences Program, Stanford University

23.319 Representation of naturalistic food categories in the human brain

Jason Avery[1] (jason.avery@nih.gov), Madeline Carrington[1], Alexander Liu[1], Alex Martin[1]; [1]Laboratory of Brain and Cognition, National Institute of Mental Health

23.320 THINGS+: new norms and metadata for the THINGS database of 1,854 object concepts and 26,107 natural object images

Laura Stoinski[1], Jonas Perkuhn, Martin Hebart; [1]Max Planck Institute for Human Cognitive & Brain Sciences

23.321 Representations of object-dissimilarity before and after concept learning

Jonathan K. Doyon[1] (jdoyon@gwu.edu), Sarah Shomstein[1], Gabriela Rosenblau[1]; [1]George Washington University

23.322 Scene hierarchy structures object representations while flexibly adapting to varying task demands

Jacopo Turini[1] (turini@psych.uni-frankfurt.de), Melissa Vo[1]; [1]Goethe Universität

23.323 A General Ability for Ensemble Perception

Ting-Yun Chang[1] (ting-yun.chang@vanderbilt.edu), Oakyoon Cha[2], Rankin W. McGugin[1], Andrew J. Tomarken[1], Isabel Gauthier[1]; [1]Vanderbilt University, [2]Sungshin Women's University

23.324 Individual differences in object category learning: Steep versus shallow learners

James Tanaka[1] (jtanaka@uvic.ca), Michaella Trites, Jose Barrios, Buyun Xu, Stuart MacDonald; [1]University of Victoria

23.325 Individual differences in the recognition of prepared food

Isabel Gauthier[1] (isabel.gauthier@vanderbilt.edu), Giselle Fiestan[1]; [1]Vanderbilt University

23.326 Learned interpretations of ambiguous drawings affect response times in a familiar-size Stroop task

Diana Kollenda[1] (diana.kollenda@psychol.uni-giessen.de), Filipp Schmidt[1,2], Benjamin de Haas[1,2]; [1]Experimental Psychology, Justus Liebig University, Giessen, Germany, [2]Center for Mind, Brain and Behavior (CMBB), Marburg and Giessen, Germany

23.327 Domain-General Object Recognition Ability Predicts Supervised Category Learning in a Medical Imaging Task.

Conor J. R. Smithson[1], Quentin Eichbaum[1,2], Isabel Gauthier[1]; [1]Vanderbilt University, [2]Vanderbilt University Medical Center

23.328 Visual and semantic factors in object recognition

Inga María Ólafsdóttir[1] (ingamaria@hi.is), Sunneva Líf Albertsdóttir[1], Unnur Andrea Ásgeirsdóttir[1], Tim C. Kietzmann[2], Heida Maria Sigurdardottir[1]; [1]University of Iceland, [2]Radboud University

23.329 Do Visual Aids on Medication Packages Make Your Drug Use Safer?

Lea Laasner Vogt[1] (laas@zhaw.ch), Swen J. Kühne[1], Ester Reijnen[1]; [1]ZHAW Zurich University of Applied Sciences

23.330 Motion- and shape-based body-selectivity in macaque anterior inferotemporal cortex

Rajani Raman[1,2] (rajani.raman@kuleuven.be), Anna Bognár[1,2], Nick Taubert[3], Beatrice de Gelder[4,5], Martin A. Giese[3], Rufin Vogels[1,2]; [1]Department of Neuroscience, KU Leuven, Leuven, Belgium, [2]Leuven Brain Institute, KU Leuven, Leuven, Belgium, [3]Department of

Cognitive Neurology, University of Tuebingen, Tuebingen, Germany, [4]Faculty of Psychology and Neuroscience, Maastricht University, Maastricht, Netherlands, [5]Department of Computer Science, University College London, London, United Kingdom

Scene Perception: Categorization and memory

Saturday, May 14, 8:30 am – 12:30 pm, Banyan Breezeway

23.331 Bayesian Analysis of the Vertical Saliency Bias for Objects and Scenes

Matthew Langley[1] (mdlangle@asu.edu), Michael McBeath[1,2]; [1]Arizona State University, [2]Max Planck Institute for Empirical Aesthetics

23.332 Robust Boundary Extension effects with different picture sets, set sizes, and presentation times

Carmela Gottesman[1] (cvgottesman@sc.edu); [1]University of South Carolina Salkehathie

23.333 Visual memory for causal and coincidental events

Siddharth Suresh[1,2] (siddharth.suresh@wisc.edu), Emily J. Ward[1,2]; [1]University of Wisconsin Madison, Department of Psychology, [2]McPherson Eye Research Institute

23.334 Aging attenuates the memory advantage for schema incongruent objects embedded in real-world scenes

Lena Klever[1,2] (lena.klever@psychol.uni-giessen.de), Alexander Goettker[1], Melissa Võ[3], Jutta Billino[1,2]; [1]Justus Liebig University Giessen, [2]Center of Mind, Brain, and Behavior (CMBB), University of Marburg and Justus Liebig University Giessen, [3]Goethe University Frankfurt

23.335 Visual recognition of single body parts in natural images

Ziwei Liu[1], Daniel Kersten[1]; [1]University of Minnesota

Scene Perception: Virtual environments

Saturday, May 14, 8:30 am – 12:30 pm, Banyan Breezeway

23.336 Familiar objects affect size and distance judgements differently when viewing an object in a 2D

John Jong-Jin Kim[1] (johnk84@yorku.ca), Laurence Harris[1]; [1]Center for Vision Research, York University, Canada

23.337 Slow global representation of scene layout impacts fast local reconstruction of image elements

Peter Neri[1] (neri.peter@gmail.com); [1]Ecole Normale Superieure

23.338 The equidistance tendency is not responsible for the effect of room width on distance judgments

Lindsay Houck[1] (lindsayhouck@gwmail.gwu.edu), John Philbeck[1]; [1]The George Washington University

23.339 Adaptation to the slope of the amplitude spectrum in modified reality

Bruno Richard[1] (bruno.richard@rutgers.edu), Patrick Shafto[1]; [1]Rutgers University - Newark

23.340 Does it fit? The impact of scene context on temporal and spatial characteristics of the object manipulation in a pick-and-place task

Olga Lukashova-Sanz[1,2] (olga.lukashova@uni-tuebingen.de), Siegfried Wahl[1,2]; [1]ZEISS Vision Science Lab, Institute for Ophthalmic Research, University of Tübingen, Tübingen, Germany, [2]Carl Zeiss Vision International GmbH, Aalen, Germany

Scene perception: Spatiotemporal statistics

Saturday, May 14, 8:30 am – 12:30 pm, Banyan Breezeway

23.341 Neuronal bases of efficient coding of natural scenes in rat visual cortex

Riccardo Caramellino[1] (riki-93-@hotmail.it), Eugenio Piasini, Valeriya Zelenkova, Daria Ricci, Vijay Balasubramanian, Davide Zoccolan; [1]SISSA, [2]SISSA, University of Pensilvanya, [3]SISSA, [4]SISSA, [5]University of Pensilvanya, [6]SISSA

23.342 Spatial and temporal variations in natural scene statistics

Daniel Joyce[1], Zoey Isherwood[1], Michael Webster[1]; [1]University of Nevada, Reno

23.343 Locally available achromatic cues can reliably distinguish occlusion boundaries from cast shadows

Christopher DiMattina[1,2,4] (cdimattina@fgcu.edu), Lauren Anderson[1,2], Josiah Burnham[1,3], Michelle DeAngelis[1,2], Betul Guner[1,2]; [1]Computational Perception Laboratory, [2]Department of Psychology, Florida Gulf Coast University, [3]Department of Software Engineering, Florida Gulf Coast University, [4]FGCU Computational Facility

23.344 Role of low level and high level factors during task-based scene viewing

Kerri Walter[1] (walter.ker@northeastern.edu), Michelle Freeman[1], Peter Bex[1]; [1]Northeastern University

23.345 Surface Attitude Judgements in synthetic textures and real-world images: a method evaluation

Stella Qian[1], James Elder[2], Wendy Adams[3], Andrew Schofield[1]; [1]Aston University, [2]York University, [3]Southampton University

23.346 PCA Reveals Common Spatial Patterns of Motion Energy in Diverse Stimulus Sets and in Scene-Selective Area Voxel Tuning

Yu Zhao[1] (josephzhao@nevada.unr.edu), Matthew W. Shinkle[1], Arnab Biswas[1], Mark D. Lescroart[1]; [1]University of Nevada, Reno

23.347 Interpretable mid-level encoding models of human visual cortex reveal associations between feature and semantic tuning for natural scene images

Margaret Henderson[1,2,3,4], Michael Tarr[2,3,4], Leila Wehbe[1,2,4]; [1]Machine Learning Department, Carnegie Mellon University, [2]Neuroscience Institute, Carnegie Mellon University, [3]Psychology Department, Carnegie Mellon University, [4]Center for the Neural Basis of Cognition (CNBC), Carnegie Mellon University

23.348 High-order local image statistics are used in radiographic judgments of breast density

Jonathan Victor[1] (jdvicto@med.cornell.edu), Margarita Zuley[2], Craig Abbey[3]; [1]Weill Cornell Medical College, [2]University of Pittsburgh, [3]University of California, Santa Barbara

23.349 Effects of Blur on Duration Thresholds for Road Hazard Detection

Silvia Guidi[1] (s.guidi@mail.utoronto.ca), Chandandeep Ghuman[1], Anna Kosovicheva[1], Benjamin Wolfe[1]; [1]University of Toronto Mississauga

23.350 Temporal and Spatial Properties of Orientation Summary Statistic Representations

Jacob Zepp[1] (jacobzepp@usf.edu); [1]University of South Florida

23.351 Sequential construction of visual relations

Alon Hafri[1] (ahafri1@jhu.edu), Chaz Firestone[1]; [1]Johns Hopkins University

23.352 Time marches on: impaired detection of spatiotemporal discontinuities during film viewing

Aditya Upadhyayula[1] (aditya.usa8@gmail.com), John M. Henderson[1,2]; [1]Center for Mind and Brain, University of California, Davis, [2]Department of Psychology, University of California, Davis

Binocular Vision

Saturday, May 14, 8:30 am – 12:30 pm, Banyan Breezeway

23.353 Blur disrupts sustained, not transient, global form-from-disparity mechanisms

Milena Kaestner[1] (milenak@stanford.edu), Alex Hodges, Yulan Chen, Anthony Norcia; [1]Stanford University

23.354 Effects of disparity contrast on binocular disparity discrimination with natural stereo-images

David White[1] (davey@autistici.org), Johannes Burge[1,2]; [1]Department of Neuroscience, University of Pennsylvania, [2]Department of Psychology, University of Pennsylvania

23.355 Consistent monocular cues eliminate the influence of perceptual grouping on stereopsis

Kristina Issa[1] (kissa10@yorku.ca), Aishwarya Sudhama-Joseph[1], Brittney Hartle[1], Laurie. M Wilcox[1]; [1]York University

23.356 Hemifield Asymmetry of Pattern VEPs Simultaneously Extracted from Two Visual Fields by Bideconvolution

Ozcan Ozdamar[1] (oozdamar@miami.edu), Jonathon Toft-Nielsen[2]; [1]University of Miami, [2]JORVEC Corp.

23.357 Interocular differences in temporal integration drive anomalous Pulfrich percepts

Benjamin Chin[1] (bechin@sas.upenn.edu), Johannes Burge[1]; [1]University of Pennsylvania

23.358 Interocular transfer across ocular dominance columns of primate V1

Brock Carlson[1] (brock.m.carlson@vanderbilt.edu), Blake Mitchell[1], Jacob Westerberg[1], Alexander Maier[1]; [1]Vanderbilt University

23.359 Role of V1 ocular dominance for binocular integration

Blake Mitchell[1] (blake.a.mitchell@vanderbilt.edu), Brock Carlson[1], Kacie Dougherty[2], Jacob Westerberg[1], Michele Cox[3], Alexander Maier[1]; [1]Department of Psychology, College of Arts and Science, Vanderbilt Vision Research Center, Vanderbilt University, Nashville, TN 37235, USA, [2]Princeton Neuroscience Institute, Princeton University, Princeton, NJ 08544, USA., [3]Department of Brain and Cognitive Sciences, University of Rochester, Rochester, NY 14627, USA

23.360 The Multifaceted Appearance of Dichoptic Gratings and Noise Stimuli

Minqi Wang[1], Jian Ding[1], Dennis Levi[1], Emily Cooper[1]; [1]University of California, Berkeley

23.362 Encoding fidelity of binocular receptive fields with internal noise in the presence of external variability from natural scenes

Long Ni[1], Johannes Burge[1]; [1]The University of Pennsylvania

23.363 Visual orienting to beyond field of view targets in 3D space: Effects of cue modality, eccentricity, and distractor presence

Ryan Pfaffenbichler[1] (rjpfaff42@gmail.com), Andreas Garcia[1], Anna Madison[1,2], Chloe Callahan-Flintoft[2], Christian Barentine[1,2], Anthony Ries[1,2]; [1]Warfighter Effectiveness Research Center; U.S. Air Force Academy, CO USA, [2]DEVCOM Army Research Laboratory, Aberdeen Proving Ground, MD USA

Saturday Morning Posters in Pavilion

Attention: Reward, capture

Saturday, May 14, 8:30 am – 12:30 pm, Pavilion

23.401 The influence of large and small reward associations on Stroop performance in rewarded and nonrewarded contexts

Brent Pitchford[1] (bp11lj@brocku.ca), Karen M. Arnell[1]; [1]Brock University

23.402 The reduced distractibility to the low-valued and non-rewarding stimuli underlies the neural development of value-based attention

Praewpiraya Wiwatphonthana[1] (praewpiwwpt@gmail.com), Panchalee Sookprao[1,2], Patdanai Puvacharoonkul[1,3], Chaipat Chunharas[2,4], Kanda Learladaluck[1,5], Sirawaj Itthipuripat[1,6]; [1]Neuroscience Center for Research and Innovation, Learning Institute, King Mongkut's University of Technology Thonburi, Bangkok, 10140, Thailand, [2]Cognitive Clinical and Computational Neuroscience lab, Faculty of Medicine, Chulalongkorn University, Bangkok, 10330, Thailand, [3]School of Liberal Arts, King Mongkut's University of Technology Thonburi, Bangkok, 10140, Thailand, [4]Chula Neuroscience Center, King Chulalongkorn Memorial Hospital, Bangkok, 10330, Thailand, [5]Gifted Education Office, Learning Institute, King Mongkut's University of Technology Thonburi,10140, Thailand, [6]Big Data Experience Center, King Mongkut's University of Technology Thonburi, Bangkok, 10140, Thailand

23.403 Learned color regularities enable suppression of spatially-overlapping stimuli

Daniel Thayer (danielthayer@ucsb.edu), Maggie Miller[1], Barry Giesbrecht[1], Thomas Sprague[1]; [1]University of California, Santa Barbara

23.404 Distraction and Top-Down Attentional Control After Adolescent Concussion

Charles Folk[1] (charles.folk@villanova.edu), Anne Mozel[6], Christina Master[2,3], Meltem Izzetoglu[4], Andrew Leber[5], Matthew Grady[6], Brian Vernau[6]; [1]Department of Psychological and Brain Sciences, Villanova University, [2]Center for Injury Research and Prevention, Children's Hospital of Philadelphia, [3]University of Pennsylvania Perelman School of Medicine, [4]Department of Electrical and Computer Engineering, Villanova University, [5]Department of Psychology, Ohio State University, [6]Sports Medicine and Performance Center, Children's Hospital of Philadelphia

23.405 Response bias contributes to distractor suppression in Gaspelin et al.'s (2015) probe letter task

Dirk Kerzel[1] (dirk.kerzel@unige.ch), Olivier Renaud[1]; [1]Faculté de Psychologie et des Sciences de l'Education

23.407 Preparatory template activation during feature versus singleton search

Anna Grubert[1] (anna.k.grubert@durham.ac.uk), Ella Williams[1], Martin Eimer[2]; [1]Durham University, [2]Birkbeck, University of London

23.408 Swapping and repulsion errors reveal independent temporal dynamics of attentional capture and disengagement
Lasyapriya Pidaparthi[1] (pidaparthi.3@osu.edu), Jiageng Chen[1], Andrew B Leber[1], Julie D Golomb[1]; [1]The Ohio State University

23.409 Rewarded Stimuli Do Not Capture Attention at Task-Irrelevant Locations
Xiaojin Ma[1] (xiaojinma@wustl.edu), Richard A. Abrams[1]; [1]Washington University in St. Louis

23.410 Effects of distractor interference cannot be mitigated by predictive cues
Samantha Joubran[1] (sjoubran@uoguelph.ca), Blaire Dube[2], Alison Dodwell[3], Naseem Al-Aidroos[1]; [1]University of Guelph, [2]The Ohio State University, [3]Queen's University

23.411 Pupil size is sensitive to stimulus features independent of effects of arousal
June Hee Kim[1], Tenzin Yin[1], Elisha P. Merriam[1], Zvi N. Roth[1]; [1]Laboratory of Brain and Cognition, National Institute of Mental Health, NIH, Bethesda, Maryland, United States of America

23.412 Psychological ownership captures visual attention
Xiuyuan Zhang[1] (flora.zhang@yale.edu), Sami Yousif[1]; [1]Yale University

23.413 Attentional prioritization by absent parts
Jorge Morales[1,2] (jorgemlg@gmail.com), Chaz Firestone[1]; [1]Johns Hopkins University, [2]Northeastern University

23.414 The orienting response drives pseudoneglect: Evidence from a new pupillometry-based test.
Christoph Strauch[1] (c.strauch@uu.nl), Romein Christophe[1], Marnix Naber[1], Stefan Van der Stigchel[1], Antonia F Ten Brink[1]; [1]Utrecht University

23.415 Saccades' trajectories deviate away from different kinds of salient visual features
Serena Castellotti[1] (serena.castellotti@gmail.com), Martin Szinte[2], Anna Montagnini[2], Maria Michela Del Viva[1]; [1]University of Florence, Department of Neurofarba, Florence, Italy, [2]Institut de Neurosciences de la Timone, CNRS and Aix-Marseille Université, Marseilles, France

23.416 Search for a fixed target or a varying target: Does the precision of the target template influence distractor location learning?
Aylin A. Hanne[1] (aylin.hanne@uni-marburg.de), Jan Tünnermann[1], Anna Schubö[1]; [1]Philipps University Marburg

Visual Search: Features, cueing, suppression

Saturday, May 14, 8:30 am – 12:30 pm, Pavilion

23.417 Distractor heterogeneity as the cause of the linear separability effect
Zoe (Jing) Xu[1] (jingxu9@illinois.edu), Alejandro Lleras[1], John E. Hummel[1], Simona Buetti[1]; [1]University of Illinois, Urbana Champaign

23.418 Spatiotemporal information can be biased in attentional templates
Sage E.P. Boettcher[1], Patrick Kirwan[1], Anna C. Nobre[1]; [1]University of Oxford

23.419 Visual search and quantitative stimulus similarity
Brett Bahle[1] (brettbahle@gmail.com), Steven J. Luck[1]; [1]University of California - Davis

23.420 Categorical distractor suppression is robust to variance
Jessica N. Goetz[1] (jngoetz@knights.ucf.edu), Mark B. Neider[1]; [1]University of Central Florida

23.421 Electrophysiological Evidence for Attentional Suppression of Highly Salient Distractors
Brad T. Stilwell[1], Howard Egeth[2], Nicholas Gaspelin[1]; [1]State University of New York (SUNY) at Binghamton, [2]Johns Hopkins University

23.422 The relationship between emotional valence, anxiety, and attentional bias
Helena P. Bachmann[1] (lanie.bachmann@nih.gov), Shruti Japee[1], Elisha P. Merriam[1], Tina T. Liu[1]; [1]Laboratory of Brain and Cognition, National Institute of Mental Health, Bethesda, MD

23.423 Real-world object size inferred from pictorial depth cues contributes to object recognition.
Surya Gayet[1,2] (surya.gayet@gmail.com), Mariska Peeters[1], Marco Gandolfo[1], Marius Peelen[1]; [1]Donders Institute, Radboud University, [2]Helmholtz Institute, Utrecht University

23.424 Temporal dynamics of target selection and distractor suppression in the right Frontal Eye Field

Eleonora Baldini[1] (eleonora.baldini@univr.it), Mattia Marangon[1], Sonia Mele[1], Carlotta Lega[2], Carola Dolci[1], Elisa Santandrea[1], Sena Biberci[1], Leonardo Chelazzi[1]; [1]University of Verona, [2]University of Milano-Bicocca

23.425 Contextual Effects on Size Perception of Semantic Objects

Ellie Robbins[1], Dick Dubbelde[1], Kira Wegner-Clemens[1], Sarah Shomstein[1]; [1]The George Washington University

23.427 Representations of Predicted Uncertainty in Prefrontal and Sensory Cortex Prior to Search

Phillip Witkowski[1,2] (pwitkowski@ucdavis.edu), Joy Geng[1,2]; [1]Department of Psychology, University of California, [2]Center for Mind and Brain, University of California

23.428 Object-substitution masking disrupts feature processing for color and tilt

Ryan Lange[1,2], Steven Shevell[1,2,3]; [1]University of Chicago Department of Psychology, [2]University of Chicago Institute for Mind and Biology, [3]University of Chicago Department of Ophthalmology and Visual Science

23.430 The effect of contextual-cueing induced attentional guidance on context-free trials

Jumpei Mizuno[1] (mizuno.jumpei.4x@kyoto-u.ac.jp), Yoshiyuki Ueda[2], Nobuhiro Hagura[3], Matthew de Brecht[1], Jun Saiki[1]; [1]Graduate School of Human and Environmental Studies, Kyoto University, [2]Kokoro Research Center, Kyoto University, [3]Center for Information and Neural Networks

Visual Memory: Objects

Saturday, May 14, 8:30 am – 12:30 pm, Pavilion

23.431 Evidence for object-based encoding into visual working memory

William Ngiam[1] (wngiam@uchicago.edu), Krystian Loetscher[1], Edward Vogel[1], Edward Awh[1]; [1]University of Chicago

23.432 Greater Visual Working Memory for Real-world Objects is Related to Recollection

Rosa E. Torres[1] (rt18dk@brocku.ca), Mallory S. Duprey[1], Karen L. Campbell[1], Stephen M. Emrich[1]; [1]Brock University

23.433 Relationship Between Object and Scene Defines the Effects of Context on Episodic Memory Over Time

Karla K. Evans[1] (karla.evans@york.ac.uk), Emily V. Madden[2], Scott A. Cairney[3]; [1]University of York

23.435 Visual working memory following naturalistic versus artificial object disappearance: a virtual reality study

Babak Chawoush[1] (b.chawoush94@hotmail.com), Freek van Ede[1]; [1]Institute for Brain and Behavior Amsterdam, Vrije Universiteit Amsterdam

23.436 Stimulus complexity impacts visual short-term memory accuracy in a change/no-change paradigm

Erin Conway[1] (erin.conway2015@gmail.com), Jennifer Lopez[1], Shelby Wilson[1], Patsy Folds[1], Ralph Hale[1]; [1]University of North Georgia

Perception and Action: Models

Saturday, May 14, 8:30 am – 12:30 pm, Pavilion

23.437 A dedicated mental resource for intuitive physics

Alex Mitko[1] (amitko1@jh.edu), Jason Fischer[1]; [1]Johns Hopkins University

23.438 Neurobiologically inspired robotics model: Underlying mechanisms for target selection biases from a recent experience of goal-directed action

Fan Zhang[1] (vanzh89@gmail.com), Mukesh Makwana[2], Joo-Hyun Song[2], Dietmar Heinke[1]; [1]University of Birmingham, [2]Brown University

23.439 ReproStim: automated collection of audio/visual stimuli “as presented”

Yaroslav O. Halchenko[1] (yoh@dartmouth.edu), Andrew C. Connolly[1]; [1]Dartmouth College

23.440 Sensory and motor sources of delay in visuomotor tracking: a model for continuous psychophysics

Joshua Ryu[1] (jhryu25@stanford.edu), Justin Gardner[1]; [1]Stanford University

23.441 System Identification for Visuomotor Adaptation: Evaluating the Architecture of the Physical Plant under Uncertainty

Priscilla Balestrucci[1] (priscilla.balestrucci@uni-ulm.de), Marc Ernst[1]; [1]Ulm University

Perception and Action: Neural mechanisms

Saturday, May 14, 8:30 am – 12:30 pm, Pavilion

23.442 Exploring the effects of spontaneous body movements on activity in the macaque visual cortex

Incheol Kang[1] (incheollkang@gmail.com), Adam Lazere[1], Laura Palmieri[1], Katrina Quinn[2], Hendrikje Nienborg[1]; [1]National Eye Institue, NIH, [2]University of Tübingen, Tübingen, Germany

23.443 Perceptography: behavior guided graphical reconstruction of phosphenes induced by electrical stimulation of the primary visual cortex.

Timothy Ma[1] (timothy.ma@nih.gov), Elia Shahbazi[1], Archer Bowman[2], Arash Afraz[1]; [1]NIH, [2]University of Arizona

23.444 Saccade trajectories reflect subliminal priming

Tyler Marks[1] (tmarks@caltech.edu), Shao-Min (Sean) Hung[1], Daw-An Wu[1], Sara Adams[1], Shinsuke Shimojo[1]; [1]California Institute of Technology

23.445 Where is it going? Using prediction to probe the double drift illusion

Nicholas M. Dotson[1], Zachary W. Davis[1], Jared M. Salisbury[2], Stephanie E. Palmer[2], Patrick Cavanagh[3,4], John H. Reynolds[1]; [1]The Salk Institute for Biological Studies, [2]University of Chicago, [3]Glendon College, [4]Dartmouth College

23.446 White matter tracts traveling between cortical regions associated with the dorsal and ventral visual streams predict learning a perceptual-motor task

Sophia Vinci-Booher[1] (svincibo@iu.edu), Elizabeth Berquist[2], Franco Pestilli[3]; [1]Indiana University, [2]Indiana University, [3]University of Texas at Austin, Indiana University

23.447 Temporal Hierarchy of observed Goal-Directed Actions

Shahar Aberbach-Goodman[1], Roy Mukamel[1]; [1]Sagol School of Neuroscience and School of Psychological Sciences, Tel Aviv University

23.448 The impact of acute asymmetric hearing loss on multisensory integration

Sanne Böing[1] (s.boing@uu.nl), Stefan Van der Stigchel[1], Nathan Van der Stoep[1]; [1]Helmholtz Institute, Utrecht University

Saturday Afternoon Posters in Banyan Breezeway

Perception and Action: Reaching, pointing, grasping

Saturday, May 14, 2:45 – 6:45 pm, Banyan Breezeway

26.301 Common coordinate systems for perception and action

Sami Yousif[1] (sami.yousif@yale.edu), Samuel McDougle[1]; [1]Yale University

26.302 Cortical Integration of Multimodal Cues for Reach / Grasp planning

Gaelle Luabeya[1,2,3], Ada Le[1,4], Erez Freud[1,2,3], Simona Monaco[5], J. Douglas Crawford[1,2,3]; [1]York University, Toronto, Canada, [2]Centre for Vision Research, Toronto, Canada, [3]Vision Science to Applications (VISTA), Toronto, Canada, [4]BeWorks, Toronto, Canada, [5]University of Trento, Trento, Italy

26.303 Early kinematic information and Machine Learning methods allow to detect visual reaching impairments in a patient with Parieto-Occipital lesion

Patrizia Fattori[1] (patrizia.fattori@unibo.it), Caterina Bertini[1], Matteo Filippini[1], Caterina Foglino[1], Annalisa Bosco[1]; [1]University of Bologna, Italy

26.304 Evaluating individual differences in selection history bias for goal-directed reaching movements

Mukesh Makwana[1] (mukesh_makwana@brown.edu), Fan Zhang[2], Dietmar Heinke[2], Joo-Hyun Song[1]; [1]Brown University, [2]University of Birmingham

26.305 Kinematic readout of intention primes action prediction

Eugenio Scaliti[1,2] (eugenio.scaliti@iit.it), Kiri Pullar[1], Giulia Borghini[1], Andrea Cavallo[1,2], Stefano Panzeri[3,1], Cristina Becchio[1]; [1]Center for Human Technologies, Fondazione Istituto Italiano di Tecnologia, Genova, Italy, [2]Department of Psychology, Università degli Studi di Torino, Torino, Italy, [3]Department of Excellence for Neural Information Processing, Center for Molecular Neurobiology (ZMNH), University Medical Center Hamburg-Eppendorf (UKE), Hamburg, Germany

26.306 Kinematics predictions in static and perturbed 3D reaching by recurrent neural networks.

Annalisa Bosco[1] (annalisa.bosco2@unibo.it), Matteo Filippini[1], Davide Borra[1], Claudio Galletti[1], Patrizia Fattori[1]; [1]University of Bologna

26.307 Multiple-object tracking (MOT) and visually guided touch: Distractor inhibition or target excitation?

Mallory E. Terry[1] (terry@uoguelph.ca), Lana M. Trick[2]; [1]University of Guelph

26.308 Task-evoked pupil diameter reveals working memory-based strategy modulation in visuomotor adaptation

Sean R. O'Bryan[1] (sean_obryan@brown.edu), Joshua Liddy[1], Joo-Hyun Song[1]; [1]Brown University

26.309 The effects of perceptual uncertainty on reach to grasp movements

William Chapman[1] (will.chapman@bristol.ac.uk), Casimir Ludwig[1]; [1]University of Bristol

26.310 Visual illusions modulate perception and action in autism spectrum disorder

Zoha Ahmad[1] (zohahmad@my.yorku.ca), Noam Karsh[2], Tzvi Ganel[3], Bat-Sheva Hadad[2], Erez Freud[1]; [1]York University, [2]University of Haifa, [3]Ben-Gurion University of the Negev

26.311 Visually-guided reaching in children with deprivation amblyopia

Krista Kelly[1,2] (kkelly@rfsw.org), Jeffrey Hunter, Jr[1], Reed Jost[1], Eileen Birch[1,2], Serena Wang[2,3], Mina Nouredanesh[4], James Tung[4], Ewa Niechwiej-Szwedo[4]; [1]Retina Foundation of the Southwest, [2]UT Southwestern Medical Center, [3]Children's Medical Center, [4]University of Waterloo

Eye Movements: Transaccadic, perisaccadic

Saturday, May 14, 2:45 – 6:45 pm, Banyan Breezeway

26.312 Sensory tuning in neuronal movement commands: potential perceptual consequences

Ziad M. Hafed[1] (ziad.m.hafed@cin.uni-tuebingen.de), Matthias P. Baumann[1], Anna Denninger[1]; [1]University of Tübingen

26.313 A bias in transsaccadic perception of spatial frequency changes

Nino Sharvashidze[1] (sharvasn@staff.uni-marburg.de), Carolin Hübner[2], Alexander C. Schütz[1]; [1]Philipps-Universität Marburg, [2]Humboldt-Universität zu Berlin

26.314 Cortical correlates of transsaccadic object orientation vs. shape change discrimination: an fMRI study

Bianca Baltaretu[1,2] (b.baltaretu@gmail.com), W. Dale Stevens[2], Erez Freud[2], J. Douglas Crawford[2]; [1]Justus Liebig University Giessen, [2]York University

26.315 Pre-saccadic information interacts with post-saccadic processing in V1

Grace Edwards[1] (gcaedwards1@gmail.com), Elisha P. Merriam[1], Chris I. Baker[1]; [1]National Institutes of Health

26.316 Instructed but not spontaneous pre-saccadic attention improves face discrimination performance

Olga Kreichman[1], Yoram Bonneh[1], Sharon Gilaie-Dotan[1,2]; [1]Bar Ilan University, [2]UCL Institute of Cognitive Neuroscience

26.317 Pre-movement enhancement of sensitivity ahead of saccade endpoints

Tong Zhang[1,2] (zhangtongdora@hotmail.com), Ziad Hafed[1,2]; [1]Werner Reichardt Centre for Integrative Neuroscience, [2]Hertie Institute for Clinical Brain Research

26.318 Temporal dynamics of peri-microsaccadic and saccadic perception

Zoe Stearns[1,2] (zstearn2@ur.rochester.edu), Martina Poletti[1,2]; [1]The University of Rochester, [2]The Center for Visual Science

26.319 The sources of peri-saccadic mislocalization: Evidence from the perception of intra-saccadic motion streaks

Richard Schweitzer[1,2] (richard.schweitzer@hu-berlin.de), Tamara Watson[4], Tarryn Balsdon[5,6], Martin Rolfs[1,2,3]; [1]Department of

Psychology, Humboldt-Universität zu Berlin, Berlin, Germany, [2]Cluster of Excellence Science of Intelligence, Technische Universität Berlin, Berlin, Germany, [3]Bernstein Center for Computational Neuroscience Berlin, Berlin, Germany, [4]School of Psychology, Western Sydney University, Sydney, Australia, [5]Laboratoire des systèmes perceptifs, Département d'études cognitives, École normale supérieure, PSL University, CNRS, Paris, France, [6]Laboratoire de neurosciences cognitives et computationelles, Département d'études cognitives, École normale supérieure, PSL University, INSERM, Paris, France

26.320 The effect of stimulus regularity on peri-saccadic perception

Yong Min Choi[1] (choi.1696@osu.edu), Julie D Golomb[1]; [1]Department of Psychology, The Ohio State University

26.321 Brain-electric correlates of the trans-saccadic preview effect: An analysis across studies

Olaf Dimigen[1]; [1]Humboldt-Universität zu Berlin

26.322 Sensorimotor adaptation and its transfer to motor command is altered in high autistic tendency

Antonella Pomè[1] (antonella.pom@gmail.com), Sandra Tyralla[1], Eckart Zimmermann[1]; [1]Heinrich Heine University Düsseldorf

Plasticity and Learning: Typical function

Saturday, May 14, 2:45 – 6:45 pm, Banyan Breezeway

26.323 Across-trial statistical learning of target locations in serial search

Aisu Li[1,2] (a2.li@vu.nl), Louisa Bogaerts[1,2], Jan Theeuwes[1,2]; [1]Vrije Universiteit Amsterdam, Amsterdam, the Netherlands, [2]Institute Brain and Behavior Amsterdam, Amsterdam, the Netherlands

26.324 The effect of emerging structural representation on spatial visual statistical learning

Dominik Garber[1] (garber_dominik@phd.ceu.edu), József Fiser[1]; [1]Central European University, Vienna, Austria.

26.325 Temporal dependencies in sequences of perceptual learning stimuli impact choice behavior in Gabor orientation discrimination task

Lauren E. Anthony[1] (leanthony2@wisc.edu), Aaron Cochrane[2], Mohan Ji[1], C. Shawn Green[1]; [1]Department of Psychology, University of Wisconsin-Madison, [2]Faculty of Psychology and Education Sciences, University of Geneva, Geneva, Switzerland

26.326 Drift diffusion models of perceptual learning indicate long-term improvements in sensitivity and short-term fluctuations in caution.

Aaron Cochrane[1] (aaron.cochrane@unige.ch), Chris Sims[3], Vikranth Bejjanki[2], C. Shawn Green[4], Daphne Bavelier[1]; [1]University of Geneva, [2]Hamilton College, [3]Rensselaer Polytechnic Institute, [4]University of Wisconsin - Madison

26.327 The effect of confidence on visual perceptual learning

Nadia Hosseinizaveh[1] (n.hosseinizade@gmail.com), Pascal Mamassian[1]; [1]CNRS & École Normale Supérieure, Paris, France

26.328 Shared and distinct representations of visual regularities across levels of abstraction

Brynn E. Sherman[1] (brynn.sherman@yale.edu), Ayman Aljishi[1], Kathryn N. Graves[1], Imran H. Quraishi[1], Adithya Sivaraju[1], Eyiyemisi C. Damisah[1], Nicholas B. Turk-Browne[1]; [1]Yale University

26.329 Neural mechanisms underlying reactivation-induced perceptual learning

Taly Kondat[1] (talykondat@mail.tau.ac.il), Shachar Gal[1], Haggai Sharon[2], Ido Tavor[1], Nitzan Censor[1]; [1]Tel-Aviv University, [2]Tel Aviv Sourasky Medical Center

26.330 Rapid statistical learning of object part co-occurrence in humans and monkeys

JHILIK DAS[1] (jhilik.das.94@gmail.com), SP ARUN[1]; [1]Centre for Neuroscience, Indian Institute of Science

26.331 Color and shape learning in macaque monkeys

Shriya M. Awasthi[1], Daniel J. Garside[1], Bruno B. Averbeck[2], Bevil R. Conway[1]; [1]National Eye Institute (NEI), National Institutes of Health, [2]National Institute of Mental Health (NIMH), National Institutes of Health

26.332 Training pitch discrimination using colors

Aurore Zelazny[1,2] (aurore@hum.aau.dk), Thomas Alrik Sørensen[1,2]; [1]Centre for Cognitive Neuroscience, Aalborg University, [2]Sino-Danish College (SDC), University of Chinese Academy of Sciences

26.333 Rapid adaptation to color change can be learned from once-daily experience

Yanjun Li[1] (li000611@umn.edu), Katherine Tregillus[1], Gregory Miller[1], Yuchen Liu[1], Stephen Engel[1]; [1]UNIVERSITY OF MINNESOTA

26.334 Sequence learning of equiluminant and cluttered visual stimuli

Yi Ni Toh[1] (tohxx011@umn.edu), Vanessa G. Lee[1]; [1]University of Minnesota

26.335 Proactive modulation of the priority map in the presence of target and distractor regularities

Changrun Huang[1,2] (c.huang@vu.nl), Mieke Donk[1,2], Jan Theeuwes[1,2,3]; [1]Vrije Universiteit Amsterdam, Amsterdam, the Netherlands, [2]Institute Brain and Behavior (iBBA), Amsterdam, the Netherlands, [3]William James Center for Research, ISPA-Instituto Universitario, Lisbon, Portugal

26.336 Examining the effect of regularity learning on object-substitution masking

Abbey Nydam[1] (a.s.nydam@gmail.com), Jay Pratt[1]; [1]University of Toronto

26.337 Modulation of microsaccade rate and directionality in visual perceptual learning

Shao-Chin Hung[1] (sch462@nyu.edu), Antoine Barbot[1], Marisa Carrasco[1]; [1]New York University

Motion: Object motion, biological motion

Saturday, May 14, 2:45 – 6:45 pm, Banyan Breezeway

26.338 Time & Dynamics: Temporally Updated Relative Mass Perception

Abdul Deeb[1] (abdul-rahim_deeb@brown.edu), Dustin Wu[1], Fulvio Domini[1]; [1]Brown University

26.339 Representation of object motion in the macaque ventral visual stream

Kohitij Kar[1] (kohitij@mit.edu), Lynn K. A. Sörensen[2], James J. DiCarlo[1]; [1]Massachusetts Institute of Technology, [2]University of Amsterdam

26.340 The double ring illusion: Object solidity is used to disambiguate ambiguous motion

Dawei Bai[1], Brent Strickland[1,2]; [1]École Normale Supérieure, Département d'études cognitives, PSL Research University, Institut Jean Nicod (ENS, EHESS, CNRS), Paris, France, [2]Africa Business School; School of Collective Intelligence - UM6P - Rabat, Morocco

26.341 How slow can you go?: Domain-specific psychophysical limits on the perception of animacy in slow-moving displays

Merve Erdogan[1] (merve.erdogan@yale.edu), Brian Scholl[1]; [1]Yale University

26.342 Building a video database of animal and background movements to investigate naturalistic camouflage breaking by animal motion

Hollie Carter[1] (hc220@st-andrews.ac.uk), Justin Ales[1], Julie Harris[1]; [1]University of St Andrews

26.343 Do subjective judgements of grasp movements reflect objective kinematic information?

Leah Ettensohn[1] (ettensohnlj@nih.gov), Chris I Baker, Maryam Vaziri-Pashkam; [1]National Institute of Mental Health

26.344 Visual impressions of social avoidance from moving shapes

Shuhao Fu[1] (fushuhao@ucla.edu), Yi-Chia Chen[1], Clara Colombatto[2], Hongjing Lu[1]; [1]University of California, Los Angeles, [2]Yale University

26.345 Identifying the behavioural cues of collective flow perception

Jan Jaap R. van Assen[1], Sylvia C. Pont[1]; [1]Perceptual Intelligence Lab, Delft University of Technology

Face Perception: Models

Saturday, May 14, 2:45 – 6:45 pm, Banyan Breezeway

26.346 Convolutional neural networks optimized for face recognition reveal a computational basis for holistic face processing

Frank Tong[1,2] (frank.tong@vanderbilt.edu), Hojin Jang; [1]Vanderbilt University

26.347 Representation of Face Shape and Surface Reflectance in Deep Convolutional Neural Networks

Matthew Hill[1] (matthew.hill@utdallas.edu), Carlos Castillo[2], Alice O'Toole[1]; [1]The University of Texas at Dallas, [2]Johns Hopkins University

26.348 Comparing Human and Deep Convolutional Neural Network Performance on Twin Identification

Connor J. Parde[1] (cxp126030@utdallas.edu), Ginni Strehle[1], Vivekjyoti Banerjee[2], Ying Hu[1], Jacqueline G. Cavazos[3], Carlos D. Castillo[4], Alice J. O'Toole[1]; [1]The University of Texas at Dallas, [2]University of Maryland, [3]University of California Irvine, [4]Johns Hopkins University

26.349 Deepfake Caricatures: Human-guided Motion Magnification Improves Deepfake Detection by Humans and Machines

Camilo Fosco[1], Emilie Josephs[1], Alex Andonian[1], Aude Oliva[1]; [1]MIT

26.350 Machines lack the causal knowledge people use to visually interpret modified bodies

Necdet Gurkan[1] (ngurkan@stevens.edu), Jordan W. Suchow[1]; [1]Stevens Institute of Technology

26.351 Robust face detection with limited visual input does not elicit saccadic response

Alison Campbell[1] (alison.candice.campbell@gmail.com), James W. Tanaka[1]; [1]University of Victoria

26.352 A Visual Psychophysics Approach to Assess the Independence of Shape and Motion in Face Processing

Emily Martin[1] (emart459@fiu.edu), Fabian Soto[1]; [1]Florida International University

Face Perception: Wholes and parts

Saturday, May 14, 2:45 – 6:45 pm, Banyan Breezeway

26.354 The age-related effect of face masks on face identity and emotion perception.

Jamie G.E. Cochrane[1] (cochrj1@mcmaster.ca), M. Eric Cui[2,3], Eugenie Roudaia[2], Björn Herrmann[2,3], Allison B. Sekuler[1,2,3], Patrick J. Bennett[1]; [1]McMaster University, [2]Rotman Research Institute Baycrest Health Sciences, [3]University of Toronto

26.355 Reducing the perceptual field of view does not cause the face inversion effect

Guillaume Lalonde-Beaudoin[1] (lbeaudoin.guillaume@gmail.com), Pierre-Louis Audette[1], Justin Duncan[1], Jessica Royer[2], Caroline Blais[1], Daniel Fiset[1]; [1]Université du Québec en Outaouais, [2]McGill University

26.356 Facing Distortion

Bliss Cui[1], Peter Bex[1]; [1]Northeastern University

26.358 FaReT 2.0: An updated free and open-source toolkit of three-dimensional models and software to study face perception

Jason Hays[1] (jhays006@fiu.edu), Fabian Soto[2]; [1]Florida International University, [2]Florida International University

Saturday Afternoon Posters in Pavilion

Color, Light and Materials: Lightness and brightness

Saturday, May 14, 2:45 – 6:45 pm, Pavilion

26.401 Effect of background color on object lightness perception

Devin Reynolds[1] (djreynolds@aggies.ncat.edu), Vanessa Jones[1], Vijay Singh[1]; [1]North Carolina Agricultural and Technical State University

26.402 A novel asymmetry between brightness induction for increments and decrements

Osman B. Kavcar[1], Michael A. Crognale[1,2], Michael E. Rudd[1,2]; [1]University of Nevada, Reno, [2]Center for Integrative Neuroscience

26.403 Characterizing perceptual brightness scales for White's effect using conjoint measurement

Guillermo Aguilar[1] (guillermo.aguilar@mail.tu-berlin.de), Marianne Maertens[1], Joris Vincent[1]; [1]Technische Universität Berlin

26.404 Perceptual Brightness Scales for White's Effect Constrain Computational Models of Brightness Perception

Joris Vincent[1] (joris.vincent@tu-berlin.de), Marianne Maertens[1], Guillermo Aguilar[1]; [1]Technische Universität Berlin

26.405 Heterochromatic brightness perception of illuminants

Shuchen Guan[1] (shuchen.guan@psychol.uni-giessen.de), Matteo Toscani[1], Karl Gegenfurtner[1]; [1]Justus-Liebig Universität, Gießen

26.406 Lightness and brightness characterized via decision spaces, in real and rendered scenes

Jaykishan Patel[1], Khushbu Patel[2], Emma Wiedenmann[3], Richard Murray[4]; [1]York University

26.407 Pupillary evidence reveals the influence of positive thoughts on brightness perception

Weiwei zhang[1] (weiwei.zhang@ucr.edu), Weizhen Xie[1,2]; [1]Dept. of Psychology, UC Riverside, [2]National Institute of Neurological Disorders and Stroke, National Institutes of Health

26.408 The effect of migraine diagnosis upon pupil responses to illusory brightness

Edda Briana Haggerty[1] (eddaha@alumni.upenn.edu), Geoffrey Aguirre[1]; [1]University of Pennsylvania

26.409 Lightness constancy in reality, in virtual reality, and on flat-panel displays

Khushbu Y. Patel[1], Laurie M. Wilcox[1], Laurence T. Maloney[2], Krista A. Ehinger[3], Jaykishan Y. Patel[1], Emma Wiedenmann[1,4], Richard F. Murray[1]; [1]York University, [2]New York University, [3]The University of Melbourne, [4]Carl Von Ossietzky Universitaet Oldenburg

Attention: Features

Saturday, May 14, 2:45 – 6:45 pm, Pavilion

26.410 Working Memory for Simple Features Benefits from Meaningful Stimuli

Yong Hoon Chung[1] (yong.hoon.chung.gr@dartmouth.edu), Timothy Brady[2], Viola Stoermer[1]; [1]Dartmouth College, [2]UC San Diego

26.411 Attention samples features in working memory rhythmically

Samson Chota[1] (samson.chota@googlemail.com), Stefan van der Stigchel[2]; [1]Utrecht University

26.412 Neural correlates of task-irrelevant feature processing in visual working memory

Stephanie Saltzmann[1] (ssaltz2@lsu.edu), Katherine Moen[1,2], Felicia Chaisson[1], Brandon Eich[1], Gaojie Fan[1], Melissa Beck[1], Heather Lucas[1]; [1]Louisiana State University, [2]University of Nebraska at Kearney

26.413 Inter-item interference in visual working memory occurs jointly in feature-specific and feature-general codes

Janna Wennberg[1] (jwennber@ucsd.edu), Kirsten Adam[1], John Serences[1]; [1]University of California, San Diego

26.414 Do the saliency features of a scene fade over time?

Mahboubeh Habibi[1,2] (mahbubeh.hb@gmail.com), Brian White[2], Wolfgang Oertel[1], Douglas Munoz[2,3]; [1]Philipps-University Marburg, [2]Centre for Neuroscience Studies, Queen's University, Kingston, Ontario, Canada, [3]Department of Biomedical and Molecular Sciences, Queen's University, Kingston Ontario, Canada

26.415 Exploring the distinct patterns of pupil dilation between space- and feature-based attention in a visual search task

Guangsheng Liang[1] (guangsheng.liang@ttu.edu), Miranda Scolari[1]; [1]Texas Tech University

26.416 Feature-based attention modulates pupil responses by target similarity in a rapid dynamic attention task

Steven Thurman[1], Russell Cohen Hoffing[1], Javier Garcia[1], Jean Vettel[1]; [1]US DEVCOM Army Research Laboratory

26.417 Divided attention impairs detection of simple visual features

Amelia Harrison[1,2], Sam Ling[2], Joshua Foster[2]; [1]University of California, Santa Barbara, [2]Boston University

26.418 Learned distractor locations can reduce feature interference

William Narhi-Martinez[1], Blaire Dube[1], Jiageng Chen[1], Andrew B Leber[1], Julie D Golomb[1]; [1]Ohio State University

26.419 Proactive suppression of learned distractor features

Douglas A. Addleman[1] (daddleman@dartmouth.edu), Viola S. Störmer[1]; [1]Dartmouth College

26.420 Testing feature boosting theories of visual attention in the color dimension using online experiments.

Howard Jia He Tan[1] (jiaheht2@illinois.edu), Simona Buetti[1], Zoe Jing Xu[1], Alejandro Lleras[1]; [1]University of Illinois at Urbana Champaign

26.421 Spatial Attention Exogenous Shift Resolution is Impacted by Stimulus Size and Spacing

Chris Reynolds[1] (reynol89@uwm.edu), Adam S. Greenberg[1,2]; [1]University of Wisconsin Milwaukee, [2]Medical College of Wisconsin and Marquette University

26.422 Serial Dependence, attention, and cardinal orientation biases

Christian Houborg[1], Ömer Dağlar Tanrıkulu[1,4], David Pascucci[2], Árni Kristjánsson[1,3]; [1]University of Iceland, Reykjavik, Iceland, [2]Laboratory of Psychophysics, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland., [3]National Research University, Higher School of Economics, Moscow, Russian Federation., [4]Cognitive Science, Williams College, Williamstown, USA

Attention: Objects

Saturday, May 14, 2:45 – 6:45 pm, Pavilion

26.423 Does semantic processing explain divided attention effects for judging multiple objects?

Dina Popovkina[1] (dina4@uw.edu), John Palmer[1], Cathleen Moore[2], Geoffrey Boynton[1]; [1]University of Washington, [2]University of Iowa

26.424 A continuous measure of object-based attention sheds new light on its underlying mechanisms

Yaffa Yeshurun[1] (yeshurun@research.haifa.ac.il), Felipe Luzardo[1], Wolfgang Einhäuser[2]; [1]University of Haifa, [2]Chemnitz University of Technology

26.425 Objects in Visual Working Memory are Indexed by a Single Feature

Garry Kong[1] (kong.garry@aoni.waseda.jp); [1]Waseda University

26.426 Domain-Generality of Object-Based Attention: the Same-Object Advantage in Vision and Audition

Gennadiy Gurariy[1] (ggurariy@mcw.edu), Adam Greenberg[1]; [1]Medical College of Wisconsin

26.427 The Flickering Spotlight of Visual Attention: Characterizing Abnormal Object-Based Attention in Schizophrenia

Eric Reavis[1,2] (ereavis@ucla.edu), Jonathan Wynn[2,1], Michael Green[1,2]; [1]University of California, Los Angeles, [2]VA Greater Los Angeles Healthcare System

26.428 A reliable paradigm for measuring object file updating

Mor Sasi[1] (mor.sasi1992@gmail.com), Shani Friedman[1], Dominique Lamy[1]; [1]Tel-Aviv University

26.429 Tracking the Fate of Distracting Visual Stimuli from Decoding of Attended and Ignored Visual Information in EEG

Sean Noah[1] (seannoah@gmail.com), Sreenivasan Meyyappan[2], Mingzhou Ding[3], George R. Mangun[2]; [1]University of California, Berkeley, [2]University of California, Davis, [3]University of Florida

26.430 Fovea and Attentional Noise Bias the Perception of Object Feature Locations

Cristina Ceja[1] (crceja@u.northwestern.edu), Steven Franconeri[1]; [1]Northwestern University

26.431 The effect of object features on target and identity localization in multiple identity tracking

Rachel A. Eng[1] (engr@uoguelph.ca), Lana M. Trick[1]; [1]University of Guelph, Guelph, Canada

26.432 Predictable object motion is extrapolated to support visual working memory for surface features

Anna Heuer[1] (anna.heuer@hu-berlin.de), Martin Rolfs[1]; [1]Department of Psychology, Humboldt-Universität zu Berlin, Germany

Visual Memory: Interference

Saturday, May 14, 2:45 – 6:45 pm, Pavilion

26.433 A shift to proactive interference with increased set size for dual-task working memory consolidation

Brandon J Carlos[1] (bjcarlos@uh.edu), Lindsay A Santacroce[1], Benjamin J Tamber-Rosenau[1]; [1]University of Houston

26.434 Encoded Chunks in Visual Working Memory are Vulnerable to Proactive Interference

Logan Doyle[1,] (logan.doyle@mail.utoronto.ca), Susanne Ferber[2,], Katherine Duncan[3]; [1]University of Toronto

26.435 Pupillary response indicates the resolution of proactive interference in a visual working memory task

Jamie Beshore[1] (jamie.beshore001@umb.edu), Erik Blaser[1], Zsuzsa Kaldy[1]; [1]University of Massachusetts Boston

26.436 Distractor influences on working memory encoding and usage in natural behavior.

Dejan Draschkow[1], Leah Kumle[2], Melissa Võ[2], Kia Nobre[1]; [1]University of Oxford, [2]Goethe University Frankfurt

26.437 Attentional filters that gate visual working memory encoding are temporarily disrupted by eye movements

Blaire Dube[1] (dube.25@osu.edu), Jacqueline Y Bao[1,2], Julie D Golomb[1]; [1]Department of Psychology, The Ohio State University, [2]Department of Psychology, Michigan State University

26.438 Rumination reduces processing efficiency in visual working memory.

Max Owens[1] (mjowens@usf.edu), Melissa Cloutier[2], Ashly Healy[3]; [1]University of South Florida St. Petersburg campus, [2]Rice University, [3]University of South Florida St. Petersburg campus

26.439 The role of encoding history in visual working memory encoding: Evidence from attribute amnesia

Niya Yan[1] (yanniya@tamu.edu), James Grindell[1], Brian Anderson[1]; [1]Texas A&M University

Visual Memory: Working memory and attention

Saturday, May 14, 2:45 – 6:45 pm, Pavilion

26.440 Action signatures of selective attention inside visual working memory: from eye and head to hand movement biases

Freek van Ede[1] (freek.van.ede@vu.nl), Anne Zonneveld[1]; [1]Institute for Brain and Behavior Amsterdam, Vrije Universiteit Amsterdam

26.441 Dynamics of Attentional Guidance by Multiple Working Memory Items: A Mouse Trajectory Analysis

Hyung-Bum Park[1] (hpark053@ucr.edu), Weiwei Zhang[1]; [1]University of California, Riverside

26.442 Examining the effect of saliency on EEG markers of attention allocation and maintenance in a visual-working-memory task.

Martin Constant[1,2] (martin.constant@uni-bremen.de), Heinrich René Liesefeld[1,2]; [1]University of Bremen, [2]Graduate School of Systemic Neurosciences, LMU München

26.443 Competition for Guidance of Attention by Visual Working Memory and Long-term Memory

Ariel Kershner[1] (ariel-kershner@uiowa.edu), Andrew Hollingworth[1]; [1]University of Iowa

26.444 Long-Term Memories can bypass Working Memory to Direct Attention

Julia Pruin[1] (jpruin21@gmail.com), Geoffrey Woodman[1]; [1]Vanderbilt University

26.445 Implicit memory guides the allocation of attention

Sisi Wang[1], Maggie Xu[1], Geoffrey F. Woodman[1]; [1]Vanderbilt University

26.446 Overlapping neural representations for selection in attention and working memory

Ying Zhou[1,2] (yz5725@nyu.edu), Clayton E Curtis[2,3], Kartik Sreenivasan[1,2], Daryl Fougnie[1,2]; [1]New York University Abu Dhabi, Abu Dhabi, UAE, [2]Department of Psychology, New York University, New York, NY 10003, [3]Center for Neural Science, New York University, New York, NY 10003

26.447 Sampling the external world despite useful information in visual working memory

Andre Sahakian[1] (a.sahakian@uu.nl), Surya Gayet[1], Chris Paffen[1], Stefan Van der Stigchel[1]; [1]Experimental Psychology, Helmholtz Institute, Utrecht University, Utrecht, The Netherlands

26.448 Perceptual redundancy and semantic grouping effects among real-world objects in visual working memory come from different processes

Hanane Ramzaoui[1] (hanane.ramzaoui@univ-cotedazur.fr), Fabien Mathy[1], Candice C. Morey[2]; [1]Université Côte d'Azur, BCL, CNRS, [2]School of Psychology, Cardiff University

Sunday Morning Posters in Banyan Breezeway

Object Recognition: Models, reading

Sunday, May 15, 8:30 am – 12:30 pm, Banyan Breezeway

33.301 The capacity limit for recognizing multiple words depends on their visual field positions and varies across individuals

Amritha Anupindi[1], Alex L. White[1]; [1]Barnard College, Columbia University

33.302 Using Object Reconstruction as a Dynamic Attention Window to Improve Recognition Robustness

Seoyoung Ahn[1] (seoyoung.ahn@stonybrook.edu), Hossein Adeli[1], Gregory Zelinsky[1,2]; [1]Department of Psychology, Stony Brook University, NY 11790, USA, [2]Department of Computer Science, Stony Brook University, NY 11790, USA

33.303 Detection of Targets in Complex Backgrounds: Partial Whitening, Reliability Weighting, and Intrinsic Position Uncertainty

Anqi Zhang[1,2] (anqizhang@utexas.edu), Wilson Geisler[1,3]; [1]Center for Perceptual Systems, University of Texas at Austin, [2]Department of Physics, University of Texas at Austin, [3]Department of Psychology, University of Texas at Austin

33.304 Capacity limits on multiple word recognition: the case of letter identification

Maya S Campbell[1], Alex L White[1]; [1]Barnard College, Columbia University

33.305 Probing the extent of parallel processing in word recognition with redundant targets

Genevieve Sanders[1], John Palmer[2], Alex White[1]; [1]Barnard College, Columbia University, [2]University of Washington

33.306 Predicting reading speed based on eye movement features

Haojue Yu[1] (yu.haoj@northeastern.edu), Foroogh Shamsi[1], MiYoung Kwon[1]; [1]Northeastern University

33.307 Foveal Splitting of Compounds and Pseudocompounds using Anaglyphs

Kyan Salehi[1], Roberto G. de Almeida[1]; [1]Concordia University

33.308 Are models trained on temporally-continuous data streams more adversarially robust?

Nathan C. L. Kong[1] (nclkong@stanford.edu), Anthony M. Norcia[1]; [1]Stanford University

33.309 The influence of background scenes on spatial congruency bias

Zihan Bai[1] (bai.419@osu.edu), Yong Min Choi[1], Julie D Golomb[1]; [1]The Ohio State University

33.311 Isolating Global Form Processing Using Shape Metamers

George Alvarez[1] (alvarez@wjh.harvard.edu), Talia Konkle[1]; [1]Harvard University

33.312 Automatic generation of semantic feature norms of objects using GPT-3

Hannes J. Hansen[1] (hansen@cbs.mpg.de), Martin N. Hebart[1]; [1]Max Planck Institute for Human Cognitive & Brain Sciences

33.313 Omit Needless Words: Sentence Length Perception

Nestor Matthews[1] (matthewsn@denison.edu); [1]Denison University

33.314 Inherent representations of contextual associations in neural networks and human behavior

Elissa Aminoff[1] (eaminoff@fordham.edu), Shira Baror[1,2], Eric Roginek[1], Daniel Leeds[1]; [1]Fordham University, [2]New York University

Attention: Ensemble and summary statistics

Sunday, May 15, 8:30 am – 12:30 pm, Banyan Breezeway

33.315 Ensemble perception explained: A population response model of ensemble perception

Igor Utochkin[1] (isutochkin@inbox.ru), Jeunghwan Choi[2], Sang Chul Chong[2,3]; [1]HSE University, Russia, [2]Graduate Program in Cognitive Science, Yonsei University, [3]Department of Psychology, Yonsei University

33.317 Face Masks: Implications for Identity Face Processing in Ensemble Perception.

Natalia Pallis-Hassani[1] (npallish@ucsd.edu), Hayden Schill[1], Timothy Brady[1]; [1]University of California, San Diego

33.318 Limitations in the flexibility of multisensory ensemble coding

Greer Gillies[1,2] (greer.gillies@mail.utoronto.ca), Keisuke Fukuda[1], Jonathan S. Cant[2]; [1]University of Toronto, Scarborough, [2]University of Toronto, Mississauga

33.319 Segmenting local features using global ensemble statistics is a discrete, all-or-none process

Marshall L. Green[1,2] (marshall.l.green@outlook.com), Michael S. Pratte[1]; [1]Mississippi State University, [2]Georgia Institute of Technology

33.320 We do not have to see what we look at: Foveal input can be ignored in ensemble emotion perception

Dandan Yu[1] (dandan.yu@univ-lille.fr), Bilge Sayim[1,2]; [1]SCALab-Sciences Cognitives et Sciences Affectives, CNRS, UMR 9193, University of Lille, Lille, France, [2]Institute of Psychology, University of Bern, Bern, Switzerland

33.321 Which characteristics can observers use to select a relevant subset for ensemble calculations?

Vladislav Khvostov[1], Aleksei Iakovlev[1], Jeremy Wolfe[2,3], Igor Utochkin[1]; [1]HSE University, Moscow, Russia, [2]Brigham & Women's Hospital, Cambridge, MA, USA, [3]Harvard Medical School, Boston, MA, USA

33.322 Does attention prioritize task relevant features in ensemble processing?

Kristina Knox[1] (kristina.knox@mail.utoronto.ca), Jay Pratt[2], Jonathan S. Cant[1]; [1]University of Toronto Scarborough, [2]University of Toronto St. George

33.323 Imperfect feature-based selection: Ensemble representations are biased towards task-irrelevant information under conditions of high feature similarity

Kevin Ortego[1], Viola Stoermer[1]; [1]Dartmouth College

33.324 Does computation of summary statistic require attention? An inattentional blindness (IB) study.

Maruti Mishra[1,2], David Melcher[3,4], Narayanan Srinivasan[2,5]; [1]Department of Psychology, University of Richmond, VA, USA., [2]Center of Behavioural and Cognitive Sciences, University of Allahabad, India., [3]CiMeC, University of Trento, Italy., [4]New York University, Abu Dhabi., [5]Department of Cognitive Science, Indian Institute of Technology, Kanpur, India.

33.325 Numerosity influences Go/No-go control task performance based on Subitizing/Estimation Judgment but not Numerosity Comparison Judgment

Srishti Jain[1,2] (jainnsrishti@gmail.com), P.V. Raja Shekar[2], Rakesh Sengupta[2]; [1]University of Rajasthan, Jaipur, India, [2]SR University, Warangal, India, [3]SR University, Warangal, India

33.326 Examining a Hybrid Account of Salience-Based Amplification during Perceptual Average Judgments

Ryan S. Williams[1] (ryanscott.williams@mail.utoronto.ca), Susanne Ferber[1], Jay Pratt[1]; [1]University of Toronto

Visual Search: Disorders, individual differences, strategy

Sunday, May 15, 8:30 am – 12:30 pm, Banyan Breezeway

33.327 Performance on classic and real-world visual search tasks in individuals with and without autism

Thomas L. Botch[1] (thomas.l.botch@dartmouth.edu), Yeo Bi Choi[1], Brenda D. Garcia[1], Caroline E. Robertson[1]; [1]Dartmouth College

33.328 Identification of 2D Images in Cerebral Visual Impairment (CVI) Based on Features and Gaze Behavior

Claire E. Manley[1] (cemanley@meei.harvard.edu), Emily Cantillon[2], Matthew Tietjen[3], Kerri Walter[4], Peter J. Bex[4], Lotfi B. Merabet[1]; [1]Department of Ophthalmology, Massachusetts Eye and Ear, Harvard Medical School, [2]Perkins School for the Blind, [3]Bureau of Education and Services for the Blind, State of Connecticut, [4]Department of Psychology, Northeastern University

33.329 Are You Really Satisfied? How Overall Prevalence and Relative-prevalence of Single-to-Dual Target Trials Affects Multiple-target Search Misses

Stephen Adamo[1] (sadamo13@gmail.com), Archi Patel[1], Mariana Ortiz[1]; [1]University of Central Florida

33.330 Using Multiple-Target Visual Search to Assess Maximizing Behavior

Elisabeth Slifkin[1] (eslifkin@knights.ucf.edu), Mark Neider[1]; [1]University of Central Florida

33.331 Attentional strategy and effort avoidance: the role of environmental appraisal

Tianyu Zhang[1] (zhang.11476@osu.edu), Molly McKinney[1], Andrew Leber[1]; [1]The Ohio State University

33.332 Irrelevant visual properties induce dramatic changes in search efficiency

Anna Nowakowska[1], Alasdair Clarke[2], Josephine Reuther[1], Amelia Hunt[1]; [1]University of Aberdeen, [2]University of Essex

33.333 Stability of individual differences in distractor suppression driven by statistical learning

Yavor Ivanov[1] (yivanov94@gmail.com), Jan Theeuwes[1], Louisa Bogaerts[1,2]; [1]Vrije Universiteit Amsterdam, [2]Ghent University

Color, Light and Materials: Individual differences, disorders

Sunday, May 15, 8:30 am – 12:30 pm, Banyan Breezeway

33.334 Comparison of False Colors Perceived by Normal versus Colorblind Viewers

Michael K. McBeath[1,2] (michael.mcbeath@asu.edu), R. Chandler Krynen[1,3]; [1]Arizona State University, [2]Max Planck Institute for Empirical Aesthetics, [3]Facebook

33.335 Long-term and short-term influence of color vision type on impressions of complex images

Chihiro Hiramatsu[1] (chihiro@design.kyushu-u.ac.jp), Tatsuhiko Takashima[1], Hiroaki Sakaguchi[1], Satohiro Tajima[2], Takeharu Seno[1], Shoji Kawamura[3]; [1]Kyushu University, [2]JST Sakigake / PRESTO, [3]University of Tokyo

33.336 Color saliency and attention change represented by neural processing in individuals with various color visions

Naoko Takahashi[1], Xu Chen[1], Masataka Sawayama[2], Yuki Motomura[1], Chihiro Hiramatsu[1]; [1]Kyushu University, [2]Inria

33.337 Enhanced blue-yellow sensitivity in individuals with depressive symptoms

Jiwon Song[1] (ssongjw0909@gmail.com), Sang-Wook Hong[2], Chai-Youn Kim[1]; [1]Korea University, [2]Florida Atlantic University

33.338 Sensitivity to chromaticity separation – Is it helpful?

Sarah Haigh[1] (shaigh@unr.edu), Xortia Ross[1]; [1]University of Nevada, Reno

33.339 Effect of EnChroma glasses on HRR and FInD Color discrimination task in anomalous trichromats

Jingyi He[1], Jan Skerswetat[1], Nicole C. Ross[2], Peter J. Bex[1]; [1]Northeastern University, [2]New England College of Optometry

Color, Light and Materials: Materials, categories, concepts, preferences

Sunday, May 15, 8:30 am – 12:30 pm, Banyan Breezeway

33.340 Material perception across different media, comparing perceived glossiness and softness on paintings and engravings

Yuguang Zhao[1] (y.zhao-5@tudelft.nl), Huib de Ridder[1], Jeroen Stumpel[2], Maarten Wijntjes[1]; [1]Delft University of Technology, Perceptual Intelligence Lab, [2]Utrecht University, Department of Humanities

33.341 Pixel-wise color constancy in a Deep Neural Network

Hamed Heidari-Gorji[1] (hamed.h@live.com), Karl R. Gegenfurtner[1]; [1]Department of Experimental Psychology, Giessen University, Germany

33.342 Color categorization in macaques

Audrey LY Chang*[1] (audrey.chang@nih.gov), Hannah M Selwyn*[1], Daniel Garside[1], Joshua Fuller-Deets[1], Shriya M Awasthi[1], Bevil R Conway[1]; [1]National Eye Institute, National Institutes of Health *Equal Contribution

33.343 Color-concept associations reveal an abstract conceptual space

Kushin Mukherjee[1,2] (kmukherjee2@wisc.edu), Karen Schloss[1,2], Laurent Lessard[3], Michael Gleicher[4], Timothy Rogers[1,2]; [1]Department of Psychology, University of Wisconsin-Madison, Madison, WI, [2]Wisconsin Institute for Discovery, Madison, WI, [3]Department of Mechanical and Industrial Engineering, Northeastern University, Boston, MA, [4]Department of Computer Sciences, University of Wisconsin-Madison, Madison, WI

33.344 Squares vs. Maps: effects of configuration on the dark-is-more bias?

Clementine Zimnicki[1] (clemzimnicki@gmail.com), Karen B. Schloss[1]; [1]University of Wisconsin-Madison

33.345 Perceptual scale for transparency: Common fate overrides geometrical and color cues

Zhehao Huang[1] (allensholmes@gmail.com), Qasim Zaidi[1]; [1]State University of New York, Graduate Center for Vision Research

Temporal Processing: Models, neural mechanisms

Sunday, May 15, 8:30 am – 12:30 pm, Banyan Breezeway

33.346 Slower visual perception and alpha oscillation as a potential neural markers of visual hallucination in Parkinson's Disease

Chaipat Chunharas[1,2] (chaipat.c@chula.ac.th), Natchawan Tantithanarat[1,2], Sirawaj Itthipuripat[3], Thitisa Sudayuworn[1,2], Roongroj Bhidayasiri[4]; [1]Chulalongkorn Cognitive Clinical and Computational Neuroscience, Neurology Unit, Department of Medicine, Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital, Thai Red Cross Society, Bangkok, Thailand, [2]Chula Neuroscience Center, KCMH, Bangkok, Thailand, [3]Neuroscience Center for Research and Innovation, Learning Institute, King Mongkut's University of Technology Thonburi, Bangkok, Thailand, [4]Chulalongkorn Centre of Excellence for Parkinson's Disease & Related Disorders, Department of Medicine, Faculty of Medicine, Chulalongkorn University and King Chulalongkorn Memorial Hospital, Thai Red Cross Society, Bangkok, Thailand

33.347 Prestimulus alpha phase modulates serial dependence at delta rhythms

Yuki Murai[1,2,3] (ymurai@berkeley.edu), Mauro Manassi[4], Bill Prinzmetal[1], Kaoru Amano[5], David Whitney[1]; [1]University of California, Berkeley, [2]Osaka University, [3]Japan Society for the Promotion of Science, [4]University of Aberdeen, [5]The University of Tokyo

33.348 The effect of stimulus size on the detection and discrimination of the Transient Twinkle

Chang Yeong Han[1] (hcy0515@unist.ac.kr), Seonggyu Choe[1], Hyosun Kim[2], Oh-Sang Kwon[1]; [1]Department of Biomedical Engineering, Ulsan National Institute of Science and Technology, South Korea, [2]R&D center, Samsung Display, South Korea

33.349 Prediction errors transiently modulate visual processing resources

Michael Grubb[1] (michael.grubb@trincoll.edu), Alex White[2], Nicole Massa[1], Nick Crotty[1]; [1]Trinity College, [2]Barnard College, Columbia University

33.350 Inter-items similarity and its effects on masking and temporal crowding

Ilanit Hochmitz[1], Yaffa Yeshurun[1]; [1]University of Haifa

33.351 Investigating limits and time scales of a perceptual confirmation bias

Xuan Wen[1] (xwen5@u.rochester.edu), Ankani Chattoraj[1], Ralf Haefner[1]; [1]University of Rochester

33.352 Short-term adaptation differences across the human visual cortex during natural image processing.

Amber Brands[1] (a.m.brands@uva.nl), Sasha Devore[2], Orrin Devinsky[2], Werner Doyle[2], Adeen Flinker[2], Jonathan Winawer[3], Iris Groen[1,3]; [1]University of Amsterdam, [2]New York University Grossman School of Medicine, [3]New York University

33.353 Visual timing-tuned responses in human association cortices and response dynamics in early visual cortex

Evi Hendrikx[1] (e.h.h.hendrikx@uu.nl), Jacob M. Paul[1,2], Martijn van Ackooij[1], Nathan van der Stoep[1], Ben M. Harvey[1]; [1]Utrecht University, [2]University of Melbourne

33.354 Effect of waveform and brightness on display flicker perception

Hyosun Kim[3] (hs0411.kim@samsung.com), Eunjung Lee Lee[4], Youra Kim[1], HyungSuk Hwang[2], Dong-Yeol Yeom[5]; [1]Samsung Display

Sunday Morning Posters in Pavilion

Visual Memory: Representations

Sunday, May 15, 8:30 am – 12:30 pm, Pavilion

33.401 Action intention strengthens visual working memory representations

Caterina Trentin[1] (c.trentin@vu.nl), Christian N.L. Olivers[1], Heleen A. Slagter[1]; [1]Vrije Universiteit

33.402 Awareness of the Relative Quality of Spatial Working Memory Representations

Yanming li[1], Thomas Sprague[1]; [1]University of California, Santa Barbara

33.404 Exploring how visual working memory performance differs with response type

Rachel Eddings[1] (redding2@vols.utk.edu), Aaron Buss[1]; [1]University of TN - Knoxville

33.405 Manipulating information in visual working memory
Maya Ankaoua[1] (mayaankaoua@gmail.com), Roy Luria[1]; [1]Tel-Aviv University

33.406 Does working memory decay constrain gaze location while walking and bicycling?
Omer Ashmaig[1] (oeashmaig@gmail.com), Karl Muller[1], Mary Hayhoe[1]; [1]University of Texas at Austin

33.407 Effort impacts neural representations of spatial working memory
Sarah Master[1] (sm4937@nyu.edu), Clayton Curtis[1,2]; [1]New York University, Department of Psychology, [2]New York University, Center for Neural Science

33.408 The allocation of working memory resources determines the efficiency of attentional templates in single- and dual-target search
Stanislas Huynh Cong[1] (stanislas.huynhcong@unige.ch), Dirk Kerzel[1]; [1]University of Geneva, Faculty of Psychology and Educational Sciences

Visual Memory: Space, time and features

Sunday, May 15, 8:30 am – 12:30 pm, Pavilion

33.409 Visual working memory for Depth is strictly limited
Adam Reeves[1] (reeves0@gmail.com), Jiehui Qian[2]; [1]Northeastern University, Boston MA, USA, [2]Sun Yat-Sen University, Guangzhou, China

33.410 Direct interactions between working memory and perception for color and motion
Simon Kaplan[1] (simonkaplan@gwu.edu), Chunyue Teng[2], Sanika Paranjape[1], Sarah Shomstein[1], Dwight Kravitz[1]; [1]The George Washington University, [2]The University of Wisconsin

33.411 Effects of masking and temporal order on visual working memory crowding
Harun Yörük[1] (harunyoruk42@gmail.com), Benjamin J. Tamber-Rosenau[1]; [1]University of Houston

33.412 Temporal expectations facilitate multitasking during visual working memory
Daniela Gresch[1], Sage E.P. Boettcher[1], Freek van Ede[2], Anna C. Nobre[1]; [1]University of Oxford, [2]Vrije Universiteit Amsterdam

33.413 Does using a diversity of graph types help your audience remember your data?
Madeline Awad[1] (madelineawad2025@u.northwestern.edu), Kylie Lin[1], Steven Franconeri[1]; [1]Northwestern University

33.414 Examining perceptual and categorical influences on visual working memory
Kara Lowery[1], Aaron T. Buss[1]; [1]University of Tennessee, Knoxville

33.415 Uncertainty in Visual Serial Dependence
Geoff Gallagher[1] (gg16048@bristol.ac.uk), Christopher P. Benton[2]; [1]University of Bristol, [2]University of Bristol

33.416 Context-dependent distractor location regularities: learned but not always applied
Jasper de Waard[1,2], Dirk van Moorselaar[1,2], Louisa Bogaerts[1,2], Jan Theeuwes[1,2,3]; [1]Department of Experimental and Applied Psychology, Vrije Universiteit Amsterdam, [2]Institute Brain and Behavior Amsterdam (iBBA), [3]William James Center for Research, ISPA-Instituto Universitario, Lisbon

Scene Perception: Neural mechanisms

Sunday, May 15, 8:30 am – 12:30 pm, Pavilion

33.417 Global and spatially specific representations of 3D scene surface configurations in scene-selective cortex
Anna Shafer-Skelton[1], Timothy F Brady[1], John T Serences[1]; [1]UC San Diego

33.418 How do behavioral goals shape the spatiotemporal evolution of the sparse code for scenes?
Bruce C. Hansen[1] (bchansen@colgate.edu), Michelle R. Greene[2], David J. Field[3], Isabel S. H. Gephart[1], Victoria E. Gobo[1]; [1]Colgate University, [2]Bates College, [3]Cornell University

33.419 Role of the Pulvinar in Visual Affective Scene Processing
Lihan Cui[1] (lihancui@ufl.edu), Yun Liang[1], Ke Bo[2], Andreas Keil[3], Mingzhou Ding[1]; [1]J Crayton Pruitt Family Department of Biomedical Engineering, University of Florida, [2]Department of Psychological and Brain Sciences, Dartmouth College, [3]Department of Psychology and NIMH Center for Emotion and Attention, University of Florida

33.420 You know the situation is dangerous within 200 ms: Neural signatures of road hazard detection

Jennifer Hart[1] (jhart2@bates.edu), Caitlyn McGlashan[1], Benjamin Wolfe[2], Michelle Greene[1]; [1]Bates College, [2]University of Toronto Mississauga

33.421 Persistent object signals in primate visual area V4

Tom P. Franken[1] (tfranken@salk.edu), John H. Reynolds[1]; [1]The Salk Institute for Biological Studies

33.422 Superior colliculus neurons detect dark stimuli earlier than bright ones, independently of their individual sensitivity preferences for either "darks" or "brights"

Tatiana Malevich[1,2] (tatiana.malevich@cin.uni-tuebingen.de), Tong Zhang[1,2], Matthias P. Baumann[1,2], Ziad M. Hafed[1,2]; [1]Werner Reichardt Centre for Integrative Neuroscience, [2]Hertie Institute for Clinical Brain Research

Scene Perception: Models

Sunday, May 15, 8:30 am – 12:30 pm, Pavilion

33.423 A Foveated Vision-Transformer Model for Scene Classification

Aditya Jonnalagadda[1] (aditya_jonnalagadda@ucsb.edu), Miguel Eckstein[1]; [1]UCSB

33.424 Meaning maps detect the removal of local scene content but deep saliency models do not

Taylor R. Hayes[1] (trhayes@ucdavis.edu), John M. Henderson[1]; [1]University of California, Davis

33.425 Images that humans rate as highly representative of their category serve as better training for machine learning

Pei-Ling Yang[1] (plyang2@illinois.edu), Diane M Beck[1,2]; [1]Department of Psychology, University of Illinois, [2]Beckman Institute, University of Illinois

33.426 What makes a scene? Investigating generated scene information at different visual processing stages.

Aylin Kallmayer[1], Melissa L.-H. Vo[1]; [1]Goethe-University Frankfurt Germany

33.427 A Novel Generalization between Verbal Judgments and Perceptual Discrimination of 3D Space

Prachi Mahableshwarkar[1] (pmahable@gwmail.gwu.edu), John Philbeck[1], Dwight Kravitz[1]; [1]George Washington University

33.428 Characterizing internal models for scene vision

Daniel Kaiser[1,2] (danielkaiser.net@gmail.com), Matthew Foxwell[3]; [1]Mathematical Institute, Justus-Liebig-University Giessen, [2]Center for Mind, Brain and Behavior, Justus-Liebig-University Giessen and Philipps-University Marburg, [3]Institute of Psychology, University of York

33.429 Which salient features attract our gaze in fast vision of natural scenes?

Maria Michela Del Viva[1] (maria.delviva@unifi.it), Serena Castellotti[1], Ottavia D'Agostino[1], Anna Montagnini[2]; [1]Department Neurofarba University of Florence, [2]Institute of Neuroscience of la Timone CNRS and Aix-Marseille Université

Perception and Action: Decision making

Sunday, May 15, 8:30 am – 12:30 pm, Pavilion

33.430 Changes in Bias and not Sensitivity Underlie Increases in the Accuracy of Perceptual Decisions After Errors and Uncertainty

Ali Pournaghdali[1] (apour005@fiu.edu), Craig McDonald[2], Fabian Soto[1], George Buzzell[1]; [1]Florida International University, [2]George Mason University

33.431 Confidence in perceptual estimation reflects behavioral variability, but not biases.

Jongmin Moon[1], Oh-Sang Kwon[1]; [1]Ulsan National Institute of Science and Technology

33.432 Detrended fluctuation analysis of enumeration reaction time shows different long range temporal correlations for subitization and estimation

Rakesh Sengupta[1] (qg.rakesh@gmail.com); [1]SR University, Warangal

33.433 Drift diffusion modeling informs how affective factors affect visuospatial decision making

Yaxin Liu[1] (yliu668@emory.edu), Stella F. Lourenco[1]; [1]Emory University

33.434 How does subitization interact with the numerical distance effect in a choice-reaching task?

Yi-Fei Hu[1] (yifei_hu1@brown.edu), David Sobel[1], Joo-Hyun Song[1,2]; [1]Department of Cognitive, Linguistic & Psychological Sciences, Brown University, [2]Carney Institute for Brain Science, Brown University

33.435 Impact of Affective Salience on Evidence Accumulation in Object Recognition

Daniel Levitas[1] (dlevitas@iu.edu), Thomas James[1]; [1]Indiana University, Bloomington

33.436 Moving toward a unifying framework for perceptual decision making that combines threshold and reaction time approaches

Ying Lin[1,2], Zhen Chen[1,2], Ralf Haefner[1,2], Duje Tadin[1,2]; [1]University of Rochester, Brain and Cognitive Sciences, [2]Center for Visual Science

33.437 Persistent effects of disease prevalence and feedback on decisions about images of skin lesions in a large online study

Wanyi Lyu[1] (wlu3@bwh.harvard.edu), Jeremy Wolfe[1,2]; [1]Brigham & Women's Hospital, [2]Harvard Medical School

33.438 Reducible and irreducible uncertainty in low-level visual representations

Dávid Magas[1,2] (magas_david@phd.ceu.edu), Ádám Koblinger[1,2], Máté Lengyel[1,2,3], József Fiser[1,2]; [1]Central European University, Vienna, Austria, [2]Center for Cognitive Computation, Vienna, Austria, [3]University of Cambridge, United Kingdom

33.439 Shared brain responses but idiosyncratic relations between brain activity and behavior

Johan Nakuci[1] (jnakuci3@gatech.edu), Jiwon Yeon[1], Ji-Hyun Kim[2], Sung-Phil Kim[2], Dobromir Rahnev[1]; [1]Georgia Institute of Technology, [2]Ulsan National Institute of Science and Technology

33.440 The push-pull of serial dependence effects: Every response is both an attraction to the prior response and a repulsion from the prior stimulus

David E. Huber[1] (dehuber@umass.edu), Patrick Sadil[1], Rosemary A. Cowell[1]; [1]University of Massachusetts, Amherst

33.441 Perceptual confirmation bias induces overconfidence in addition to a primacy bias during evidence integration

Ankani Chattoraj[1] (achattor@ur.rochester.edu), Martynas Snarskis[2], Ariel Zylberberg[1], Ralf Haefner[1]; [1]University of Rochester, [2]University of Chicago

33.442 Humans abandon the preferred grip axis in favor of low torques in precision grip grasping

Frieder Hartmann[1] (frieder.hartmann@psychol.uni-giessen.de), Guido Maiello[1], Roland W. Fleming[1,2]; [1]Justus Liebig University Gießen, [2]Centre for Mind, Brain and Behaviour (CMBB), University of Marburg and Justus Liebig University Giessen

Sunday Afternoon Posters in Banyan Breezeway

Attention: Spatiotemporal

Sunday, May 15, 2:45 – 6:45 pm, Banyan Breezeway

36.301 The dynamic allocation of visual attention in space through statistical learning

Zhenzhen Xu[1,2] (z.z.xu@vu.nl), Jan Theeuwes[1,2], Sander A. Los[1,2]; [1]Vrije Universiteit Amsterdam, [2]Institute Brain and Behavior Amsterdam (iBBA)

36.302 Isolating Interference and Facilitation Effects in the Flanker Task: A Mouse-tracking Approach

Kaleb T. Kinder[1] (kkinder5@vols.utk.edu), Aaron T. Buss[1], A. Caglar Tas[1]; [1]University of Tennessee, Knoxville

36.303 Does the classic flanker task miss the target? Adding spatial jitter reveals a doubling of effect size.

Sarah Kerns[1] (sarah.kerns@wellesley.edu), Tugral Awrang Zeb[2], Jeremy Wilmer[1]; [1]Wellesley College, [2]University of California, Irvine

36.304 Spatial attention is modulated by representational formats of spatial direction

Adam Barnas[1] (abarnas@ufl.edu), Natalie Ebner[1], Steven Weisberg[1]; [1]University of Florida

36.305 Attention rhythmically modulates the quality of sensory representations

Laurie Galas[1] (laurie.galas@etu.u-paris.fr), Ian Donovan[2], Laura Dugué[1,3]; [1]Université de Paris, INCC UMR 8002, CNRS, Paris, France, [2]Statespace Labs Inc, New York, NY, [3]Institut Universitaire de France (IUF), Paris, France

36.306 Does Involuntary Temporal Attention Improve Performance at Specific Moments in Time?

Aysun Duyar[1] (aysun@nyu.edu), Marisa Carrasco[1]; [1]New York University

36.307 Postdiction enhances temporal experience

Robert Walter-Terrill[1] (robert.walter@yale.edu), Brian Scholl[1]; [1]Yale University

36.308 Does attention to a point in time lead to temporal surround suppression?

Shira Tkacz-Domb[1], Yaffa Yeshurun[2], John K. Tsotsos[1]; [1]York University, [2]University of Haifa

36.309 How temporal attention affects microsaccades around the visual field

Helena Palmieri[1] (hp808@nyu.edu), Antonio Fernández[1], Marisa Carrasco[1]; [1]New York University

36.310 Eyes up! Presaccadic attention enhances contrast sensitivity, but not at the upper vertical meridian

Nina M. Hanning[1] (hanning.nina@gmail.com), Marc M. Himmelberg[1], Marisa Carrasco[1]; [1]New York University

36.311 Comparison of visual tuning and pre-saccadic attention modulation between area MT and MTC of the marmoset monkey

Amy Bucklaew[1], Shanna Coop[2], Jude Mitchell[2]; [1]Neuroscience Graduate Program, University of Rochester, [2]Brain and Cognitive Sciences, University of Rochester

36.312 The role of attention in apparent motion

Yara Mohiar[1] (yara.mohiar@umontreal.ca), Remy Allard[1]; [1]School of Optometry, University of Montreal

36.313 Visuospatial Attention Fluctuation is Modulated by Emotional State

Brooke Greiner[1] (bgreiner@mcw.edu), Gennadiy Gurariy[1], Christine Larson[2], Adam S. Greenberg[1,2]; [1]Medical College of Wisconsin, [2]University of Wisconsin-Milwaukee

Perceptual Organization: Preference, aesthetics, art

Sunday, May 15, 2:45 – 6:45 pm, Banyan Breezeway

36.314 Shared and Subjective Interpretation of Abstract Art

Celia Durkin[1] (ced2166@columbia.edu), Erin Nicole White[1], Chris Baldassano[1], Eric Kandel[1,2,3,4], Daphna Shohamy[1,3,4]; [1]Columbia University, [2]Howard Hughes Medical Institute, [3]Kavli Institute for Brain Science, [4]Zuckerman Mind, Brain Behavior Institute

36.315 Consistency in the paintings that people remember – The impact of memorability on art

Trent Davis[1] (trentdavis@uchicago.edu), Wilma A. Bainbridge[1]; [1]University of Chicago

36.316 Scene Contour Junctions Influence Visual Aesthetics

Delaram Farzanfar[1], Dirk B. Walther[1]; [1]Department of Psychology, University of Toronto

36.317 Categorization links Perceptual Fluency and Aesthetic Pleasure

Dirk B. Walther[1] (bernhardt-walther@psych.utoronto.ca), Delaram Farzanfar[1], Gaeun Son[1]; [1]University of Toronto

36.318 Effect of the 2D spectral distribution on visual aesthetic preference

Pei-Yin Chen[1] (d02227102@ntu.edu.tw), Chia-Ching Wu[2], Chien-Chung Chen[3]; [1]Kyoto University, Kyoto, Japan, [2]Fo Guang University, Yilan, Taiwan, [3]National Taiwan University, Taipei, Taiwan

36.319 Crowding kills beauty

Elizabeth Y. Zhou[1], Denis G. Pelli[1]; [1]New York University

36.320 Beauty perception is unaffected by the company of others

Mai Nguyen[1] (bmn264@nyu.edu), Anne Mai[1], Maria Pombo[1], Denis G. Pelli[1]; [1]New York University

36.321 Like the Virgin - Thurstonian scaling experiments on Holy Mary

Maarten Wijntjes[1] (m.w.a.wijntjes@tudelft.nl); [1]Delft University of Technology

36.322 The effect of stories on beauty judgment

Ashley Feng[1] (acf500@nyu.edu), Maria Pombo[1], Denis Pelli[1]; [1]New York University

36.323 Perceptual Exploration of Latent Space for Pictorial Composition

Pierre Lelièvre[1,2] (contact@plelievre.com), Peter Neri[1]; [1]Laboratoire des systèmes perceptifs, Département d'études cognitives, École normale supérieure, PSL University, CNRS, 75005 Paris, France, [2]Science Arts Création Recherche (EA 7410), École normale supérieure, PSL University, CNRS, 75005 Paris, France

36.324 The Mutual Information of Beauty Judgment

Maria Pombo[1] (mp5561@nyu.edu), Denis G. Pelli[1]; [1]New York University

Object Recognition: Neural mechanisms

Sunday, May 15, 2:45 – 6:45 pm, Banyan Breezeway

36.325 EasyEyes measures thresholds online

Denis Pelli[1] (denis.pelli@nyu.edu), Peiling Jiang[1], Augustin Burchell[1], Mai Nguyen[1], Francesca Hardy[1], Najib Majaj[1]; [1]New York University

36.326 Perceptography: Reconstruction of perceptual perturbations induced by stimulation of the inferior temporal cortex

Arash Afraz[4] (arash.afraz@nih.gov), Elia Shahbazi[1], Timothy Ma[2], Walter Scheirer[3]; [1]NIMH/NIH, [2]NIMH/NIH, [3]University of Noter Dame, [4]NIMH/NIH

36.328 Distributed representation of behaviorally-relevant object dimensions in the human brain

Oliver Contier[1,2], Martin N. Hebart[1]; [1]Max Planck Institute for Human Cognitive & Brain Sciences, [2]Max Planck School of Cognition

36.329 Evidence for full amodal completion of occluded images in low- and high-level ventral visual cortex.

David Coggan[1] (ddcoggan@gmail.com), Frank Tong[1]; [1]Vanderbilt University

36.330 Recurrent processing during visual object recognition in the human brain

Pablo Oyarzo[1], Kohitij Kar[2], Radoslaw Martin Cichy[1]; [1]Freie Universität Berlin, [2]Massachusetts Institute of Technology

36.331 Top-down predictions of visual features dynamically reverse their bottom-up processing in the occipito-ventral pathway to facilitate stimulus disambiguation and behavior

Yuening Yan[1] (y.yan.2@research.gla.ac.uk), Jiayu Zhan[1], Robin A.A. Ince[1], Philippe G. Schyns[1]; [1]University of Glasgow

36.332 Brief encounters with real objects alter their representation in the human brain

Susan Wardle[1] (susan.wardle@nih.gov), Beth Rispoli[1], Chris Baker[1]; [1]National Institutes of Health

36.333 Neural visual evidence accumulators demonstrate a mechanism for salience orienting

Kess Folco[1], Thomas James[1]; [1]Indiana University Bloomington

36.334 The dorsal visual pathway represents object-centered spatial relations for object recognition

Vladislav Ayzenberg[1] (vayzenb@cmu.edu), Marlene Behrmann[2]; [1]Carnegie Mellon University

36.335 Distributed population activity in the macaque inferior temporal cortex but not current deep neural networks predict the ponzo illusion

Vivian C. Paulun[1] (vpaulun@mit.edu), Kristine Zheng[1], Kohitij Kar[1]; [1]Massachusetts Institute of Technology

36.336 Visual input affects behavioral detection of optogenetic stimulation in macaque inferior temporal cortex

Emily Lopez[1], Simon Bohn[2], Reza Azadi[1], Arash Afraz[1]; [1]National Institutes of Health, [2]University of Pennsylvania

36.337 The neural response to graspable food items in tool-selective visual cortex

J. Brendan Ritchie[1] (j.brendan.w.ritchie@gmail.com), Spencer Andrews[1], Maryam Vaziri-Pashkam[1], Christopher Baker[1]; [1]National Institute of Mental Health

36.338 Mugs and Plants: Object Semantic Knowledge Alters Perceptual Processing with Behavioral Ramifications

Dick Dubbelde[1] (dubbelde@gwu.edu), Sarah Shomstein[1]; [1]The George Washington University

Object Recognition: Features and parts

Sunday, May 15, 2:45 – 6:45 pm, Banyan Breezeway

36.339 Do monkeys see what we see behind an occluder?

Thomas Cherian[1] (thomas2cherian@gmail.com), SP Arun[1]; [1]Indian Institute of Science

36.340 Subtle differences in the perceptual spaces of low-level features and objects

Suniyya A. Waraich[1] (suniyya.waraich@gmail.com), Jonathan D. Victor[2]; [1]Weill Cornell Graduate School of Medical Sciences, [2]Weill Cornell Medical College

36.341 Object-classifying neural networks have animate and inanimate feature subspaces with partially distinct representational geometries

Daniel Janini[1] (janinidp@gmail.com); [1]Harvard University

36.342 JURICS stimulus set - Joint Universal Real-world Images with Continuous States: Development and validation

Yuri Markov[1,2] (yuamarkov@gmail.com), Natalia Tiurina[1,2], Nikita Mikhalev[1], Igor Utochkin[1]; [1]HSE University, Moscow, Russia, [2]Laboratory of Psychophysics, Brain Mind Institute, École Polytechnique Fédérale de Lausanne (EPFL), Switzerland

36.343 Using deep image synthesis and behavior to investigate the format of visual representations

Laurent Caplette[1] (laurent.caplette@yale.edu), Nicholas B. Turk-Browne[1]; [1]Yale University

36.344 Visual processing of faces and objects in dyslexic and typical readers

Hélène Devillez[1] (hdevillez@hi.is), Heida Maria Sigurdardottir[1]; [1]University of Iceland

36.345 HEVA – A new basic visual processing test

Marie-Luise Kieseler[1] (mlk.gr@dartmouth.edu), Alison Dickstein[1], Anoush Krafian[1], Cathleen Li[1], Brad Duchaine[1]; [1]Dartmouth College

Sunday Afternoon Posters in Pavilion

3D Perception: Virtual Environments

Sunday, May 15, 2:45 – 6:45 pm, Pavilion

36.401 A Spatial Gist Phenomenon While Locomoting in an Immersive Virtual Environment

Emily E. Tighe[1], Morgan A. Saxon[1], Phillip Fernberg[2], Charisse N. Spencer[2], Scott I. Johnson[2], Sarah H. Creem-Regehr[1], Jeanine K. Stefanucci[1], Brent C. Chamberlain[2]; [1]University of Utah, [2]Utah State University

36.402 Edges and Textures: How do they contribute to depth perception?

Wei Hau Lew[1], Daniel R. Coates[1]; [1]University of Houston College of Optometry

36.403 Judging Distances to Virtual Objects Generated by Optical and Video See-Through Augmented Reality

Bobby Bodenheimer[1] (bobby.bodenheimer@vanderbilt.edu), Haley Adams Adams[1], Jeanine Stefanucci[2], Sarah Creem-Regehr[2]; [1]Vanderbilt University, [2]University of Utah

36.404 Role of Head Movement in Estimating Virtual Heights

Morgan A. Saxon[1] (u1207852@utah.edu), Sarah H. Creem-Regehr[1], Jeanine K. Stefanucci[1]; [1]University of Utah

36.405 Measuring Upright Perception and Torsional Eye Position in Virtual Reality

Josephine D'Angelo[1] (josephine_dangelo@berkeley.edu), Raul Rodriguez[1], Stephanie Reeves[1], Jorge Otero-Millan[1,2]; [1]Herbert Wertheim School of Optometry and Vision Science, University of California, Berkeley, [2]Department of Neurology, The Johns Hopkins University

36.406 The impact of conflicting ordinal and metric depth information on depth matching

Domenic Au[1] (domau@my.yorku.ca), Jonathan Tong[1], Robert Allison[1], Laurie Wilcox[1]; [1]York University

36.407 Closer lower visual field perceptual bias in 2D and 3D vision can be explained by statistics of naturalistic visual environments of a moving observer

Sharon Gilaie-Dotan[1,2] (shagido@gmail.com), Yoav Zilbertzan[1]; [1]Bar Ilan University, [2]UCL

36.408 Tracking Perceptual Depth Changes with Eye Vergence and Inter Pupillary Distance in a Virtual Reality Environment

Mohammed Safayet Arefin[1] (arefin@acm.org), J. Edward Swan II[2], Russell Cohen-Hoffing[3], Steven M. Thurman[4]; [1]Mississippi State University, USA, [2]Mississippi State University, USA, [3]DEVCOM Army Research Laboratory, [4]DEVCOM Army Research Laboratory

Spatial Vision: Models

Sunday, May 15, 2:45 – 6:45 pm, Pavilion

36.409 A Novel approach for estimating spatiotemporal population receptive fields in human visual cortex

Insub Kim[1], Eline Kupers[1], Garikoitz Lerma-Usabiaga[2], Won Mok Shim[3,4], Kalanit Grill-Spector[1,5]; [1]Stanford University, [2]Basque Center on Cognition, Brain and Language (BCBL), [3]Center for Neuroscience Imaging Research, Institute for Basic Science (IBS), [4]Sungkyunkwan University, [5]Wu Tsai Neurosciences Institute, Stanford University

36.410 Estimating receptive field profiles of specific visual fields

O. Batuhan Erkat[1,2], Dilara Erisen[3,4], Cemre Yilmaz[5], Funda Yildirim[6], Huseyin Boyaci[3,4,7]; [1]Behavioral and Neural Sciences Graduate Program, Rutgers University, NJ, USA, [2]Center for Molecular and Behavioral Neuroscience, Rutgers University, NJ, USA, [3]Neuroscience Graduate Program, Bilkent University, Ankara, Turkey, [4]Aysel Sabuncu Brain Research Center, Bilkent University, Ankara, Turkey, [5]Institute of Psychology, University of Graz, Graz, Austria, [6]Department of Computer Science, Yeditepe University, [7]Department of Psychology, Bilkent University, Ankara, Turkey

36.411 Factors affecting two-point discrimination thresholds in Argus II patients

Ezgi Yucel[1] (yucel@uw.edu), Michael Beyeler[2], Roksana Sadeghi[3], Arathy Kartha[4], Gislin Dagnelie[4], Ariel Rokem[1], Ione Fine[1]; [1]Department of Psychology, University of Washington, USA, [2]Department of Computer Science, UC Santa Barbara, Santa Barbara, USA, [3]Department of Biomedical Engineering, Johns Hopkins School of Medicine, Baltimore, MD, USA, [4]Department of Ophthalmology, Johns Hopkins School of Medicine, Baltimore, MD, USA

36.412 Image Reconstruction from Cone Excitations using the Implicit Prior in a Denoiser

Ling-Qi Zhang[1] (zlqzcc@gmail.com), Zahra Kadkhodaie[2], Eero P. Simoncelli[2,3], David H. Brainard[1]; [1]University of Pennsylvania, [2]New York University, [3]Flatiron Institute, Simons Foundation

36.413 Intra- and inter-session reproducibility of artificial scotoma pRF mapping results at ultra-high fields

David Linhardt[1] (david.linhardt@meduniwien.ac.at), Maximilian Pawloff[2], Allan Hummer[1], Michael Woletz[1], Martin Tik[1], Maria Vasileiadi[1], Markus Ritter[2], Garikoitz Lerma-Usabiaga[3], Ursula Schmidt-Erfurth[2], Christian Windischberger[1]; [1]High Field MR Center, Center for Medical Physics and Biomedical Engineering, Medical University of Vienna, Vienna, Austria, [2]Department of Ophthalmology and Optometry, Medical University Vienna, Vienna, Austria, [3]BCBL. Basque Center on Cognition, Brain and Language, San Sebastian, Gipuzkoa, Spain

36.414 The emergence of gamma oscillations as a signature of gain control during context integration.

Joseph Emerson[1] (emers245@umn.edu), Audrey Sederberg[1], Cheryl Olman[1]; [1]University of Minnesota

36.415 Unifying Different Psychometric Methods : Theory and Experiment

Jonathan Vacher[1] (jonathan.vacher@ens.fr), Ruben Coen-Cagli[3], Pascal Mamassian[1,2]; [1]Ecole Normale Supérieure, PSL University, [2]CNRS, [3]Albert Einstein College of Medicine

36.416 Whole-network activation maximization: a flexible method for exploring visual selectivity in the brain

Matthew W. Shinkle[1], Mark D. Lescroart[1]; [1]University of Nevada, Reno

36.417 A novel adaptative method for measuring point of subjective equality

Penghan Wang[1]; [1]McGill University

36.418 Identifying task-relevant features for human pattern recognition under blur: Insights from deep learning

MiYoung Kwon[1] (miyoungkwon02@gmail.com), Foroogh Shamsi[1]; [1]Northeastern University

36.419 Empirical validation of Quest+ in PSE and JND estimations in visual discrimination tasks

Céline Paeye[1], Adrien Paire[1], Anne Hillairet de Boisferon[1]; [1]Université de Paris, Vision Action Cognition, France

36.420 Long-term recordings from area V4 neurons and an accurately-predicting deep convolutional energy model reveal spatial, chromatic and temporal tuning properties under naturalistic conditions

Michele Winter[1], Tom Dupré la Tour[1], Michael Eickenberg[2], Michael Oliver[3], Jack Gallant[1]; [1]University of California, Berkeley, [2]Flatiron Institute, [3]Numerai

Eye Movements: Saccades and gaze patterns

Sunday, May 15, 2:45 – 6:45 pm, Pavilion

36.421 The latency of reflexive saccades is influenced by contrast and correlates over the horizontal and vertical visual field plane

Peter Essig[1] (peter.essig@uni-tuebingen.de), Yannick Sauer[1], Siegfried Wahl[1,2]; [1]Institute for Ophthalmic Research, University of Tübingen, Tübingen, Germany, [2]Carl Zeiss Vision International GmbH, Aalen, Germany

36.422 Visual and motor contributions to saccadic suppression in the fovea

Janis Intoy[1] (jintoy@bu.edu), Margaret Carpenter[1], Michele Rucci[1]; [1]University of Rochester

36.423 Microsaccade directions are not influenced by the orientation of natural scene tilt during fixation

Stephanie M. Reeves[1] (stephanie_reeves@berkeley.edu), Jorge Otero-Millan[1,2]; [1]Herbert Wertheim School of Optometry & Vision Science, University of California Berkeley, [2]Johns Hopkins University

36.424 Exploring the boundaries of target motion extrapolation. A functional perturbation study in the rhesus monkey.

Nicolas ORLANDO-DESSAINTS[1], Clara BOURRELLY, Laurent GOFFART[1]; [1]Aix Marseille Université, Centre National de la Recherche Scientifique, Institut de Neurosciences de la Timone

36.425 Saccade Control During Gaze Following with Real-World Videos

Nicole Han[1] (xhan01@ucsb.edu), Miguel Eckstein[1]; [1]University of California Santa Barbara

36.426 Interaction of dynamic error signals in saccade adaptation

Ilja Wagner[1] (ilja.wagner@uni-marburg.de), Alexander C. Schütz[1]; [1]University of Marburg

36.427 Saccadic "adaptation" at late target reappearance

Anne Hillairet de Boisferon[1], Céline Paeye[1]; [1]Université de Paris, Vision Action Cognition, France

36.428 Differential development of visual input required for navigating versus categorizing scenes

Rebecca Rennert[1] (rebecca.rennert@emory.edu), Andrew Persichetti[2], Daniel Dilks[1]; [1]Emory University, [2]National Institute of Mental Health, NIH

36.429 Knowledge about the recent past affects human gaze patterns

Marek A. Pedziwiatr[1] (m.pedziwiatr@qmul.ac.uk), Sophie Heer[1], Antoine Coutrot[2], Peter Bex[3], Isabelle Mareschal[1]; [1]School of Biological and Behavioural Sciences, Queen Mary University of London, London, UK, [2]LIRIS, CNRS, University of Lyon, Lyon, France, [3]Psychology Department, Northeastern University, Boston, USA

36.430 Using the DeepGaze III model to decompose spatial and dynamic contributions to fixation placement over time

Matthias Kümmerer[1] (matthias.kuemmerer@bethgelab.org), Thomas S.A. Wallis[2], Matthias Bethge[1]; [1]University of Tübingen, [2]Institute of Psychology and Centre for Cognitive Science, Technical University of Darmstadt

36.431 Saccadic Persistence of Vision: Horizontal, Vertical and Oblique Saccades

Elizabeth Shelto[1] (shelto_elizabeth@wheatoncollege.edu), Rolf Nelson[1]; [1]Wheaton College MA

36.432 Task-dependent target selection guides oculomotor learning

Frauke Heins[1,2], Markus Lappe[1,2]; [1]University of Muenster, [2]Otto-Creutzfeldt Center for Cognitive and Behavioral Neuroscience

36.433 Oculomotor Changes Following Learned use of an Eccentric Retinal Locus

Jason Vice[1] (jvice02@uab.edu), Mandy Biles[1], Marcello Maniglia[2], Kristina Visscher[1]; [1]University of Alabama at Birmingham, [2]University of California, Riverside

36.434 Lateralized EEG activity reflects retinotopic and screen-centered coordinates during visual short-term memory retention

Niko Busch[1] (niko.busch@gmail.com), Svea Schröder[1], Wanja Mössing[1]; [1]University of Münster

36.435 Oculomotor variability markers of autism and its severity in children

Inbal Ziv[1], Inbar Avni[2], Ilan Dinstein[2], Gal Meiri[2,3], Yoram Bonneh[1]; [1]Bar-Ilan University, [2]Ben Gurion University of the Negev, [3]Soroka Medical Center

Plasticity and Learning: Disorders and restoration

Sunday, May 15, 2:45 – 6:45 pm, Pavilion

36.436 Layer-specific functional changes associated with compensation for central vision loss due to macular degeneration

Pinar Demirayak[1,2] (pinarde@uab.edu), Dawn DeCarlo[3], Gopikrishna Deshpande[4,5], Thomas Denney[4,5], Kristina Visscher[1,2]; [1]Civitan International Research Center, University of Alabama at Birmingham, [2]Department of Neurobiology, University of Alabama at Birmingham, [3]Ophthalmology & Visual Sciences, University of Alabama at Birmingham, [4]Department of Electrical and Computer Engineering, Auburn University, [5]MRI Research Center, Auburn University

36.437 Blind-field and intact-field training differentially impact retinal thinning after V1 damage

Berkeley Fahrenthold[1] (berkeley_fahrenthold@urmc.rochester.edu), Matthew Cavanaugh[1], Madhura Tamhankar[2], Byron Lam[3], Steven Feldon[1], Krystel Huxlin[1]; [1]University of Rochester, [2]University of Pennsylvania, [3]University of Miami

36.438 Investigation of hemispheric functional organization after pediatric epilepsy surgery with naturalistic neuroimaging

Sophia Robert[1] (srobert@andrew.cmu.edu), Michael C. Granovetter[1,2], Christina Patterson[2], Marlene Behrmann[1]; [1]Carnegie Mellon University, [2]University of Pittsburgh

36.439 Relative efficacy of training with low-contrast Gabors in subacute versus chronic cortically-induced blindness

Jingyi Yang[1] (jingyi_yang@urmc.rochester.edu), Elizabeth L. Saionz[1], Michael D. Melnick[1], Berkeley K. Fahrenthold[1], Matthew R. Cavanaugh[1], Farran Briggs[1], Duje Tadin[1], Krystel R. Huxlin[1]; [1]University of Rochester

36.440 Video game training improves learning of abnormal on- off- cell population responses in sighted individuals

Rebecca Esquenazi[1] (resq@uw.edu), Kimberly Meier[2], Michael Beyeler[3], Geoffrey Boynton[4], Ione Fine[5]; [1]University of Washington, [2]University of California Santa Barbara

36.441 Perceptual learning can modify blur discrimination mechanisms directly and generalize to improvement of visual acuity.

Maria Lev[1,2], Dennis M. Levi[2]; [1]School of Optometry and Vision Science, The Mina & Everard Goodman Faculty of Life Sciences, Bar Ilan University, Ramat Gan, Israel, [2]Herbert Wertheim School of Optometry & Vision Science and Helen Wills Neuroscience Institute, University of California Berkeley, Berkeley, CA, 94720-2020, USA.

36.442 Individual differences of brain plasticity in early visual deprivation and sight restoration

Ella Striem-Amit[1] (striemit@gmail.com), Sriparna Sen[1], Ningcong Tong[2], Xiaoying Wang[3], Tapan Gandhi[4], Vidur Mahajan[5], Shlomit Ben-Ami[6], Sharon Gilad-Gutnick[6], Yanchao Bi[3], Pawan Sinha[6]; [1]Georgetown University, Washington, DC, USA, [2]Boston University, Boston, MA, USA, [3]Beijing Normal University, Beijing, China, [4]Indian Institute of Technology, New Delhi, India, [5]Mahajan Imaging Centre, New Delhi, India, [6]Massachusetts Institute of Technology, Cambridge, MA, USA

36.443 Characterization of training profiles between individuals with schizophrenia and healthy individuals on Contrast Detection and Contour Integration tasks

Kimia C. Yaghoubi[1] (kimia.yaghoubi@email.ucr.edu), Samyukta Jayakumar[1], Anthony O. Ahmed[2], Pamela D. Butler[3], Steven Silverstein[4], Judy L. Thompson[4], Aaron R. Seitz[1]; [1]University of California, Riverside, [2]Weill Cornell Medicine, [3]Nathan Kline Institute for Psychiatric Research, [4]University of Rochester Medical Center

36.444 Perceptual anomalies of cerebellar patients result from impaired visuomotor learning

Jana Masselink[1] (jana.masselink@uni-muenster.de), Alexis Cheviet[2], Caroline Froment-Tilikete[2,3], Denis Pélisson[2], Markus Lappe[1]; [1]Otto Creutzfeldt Center for Cognitive and Behavioral Neuroscience, University of Muenster, [2]Lyon Neuroscience Research Center, University Claude Bernard Lyon 1, [3]Hospices Civils de Lyon - Pierre-Wertheimer Hospital

36.445 Evaluating the ability of serious game intervention to alter visual processing strategies in autism during eye gaze processing using computational modeling

Jason Griffin[1] (jxg569@psu.edu), Janet Hsiao[2], Suzy Scherf[1]; [1]Pennsylvania State University, [2]University of Hong Kong

36.446 Learning to perceive the gist of cancer through perceptual training

Emma M. Raat[1] (emr554@york.ac.uk), Isabel Farr[1], Cameron Kyle-Davidson[1], Karla K. Evans[1]; [1]University of York

36.447 Preservation of conditioned behavior based on UV light sensitivity in dissected tail halves of planarians – a proof by DNN

Kensuke Shimojo[1] (kshimojo1@hwemail.com), Reiya Katsuragi[2], Eiko Shimojo[3], Takuya Akashi[2], Shinsuke Shimojo[3]; [1]Harvard-Westlake School, [2]Iwate University, Graduate School of Arts and Sciences, [3]California Institute of Technology, Division of Biology & Biological Engineering

36.448 Generalization in perceptual learning across stimuli and tasks in varied adaptation levels.

Ravit Kahalani[1], Maria Lev[1], Dov Sagi[2], Uri Polat[1]; [1]School of Optometry and Vision Science, Faculty of Life Science, Bar-Ilan University, Ramat-Gan, [2]The Weizmann Institute of Science, Rehovot, Israel

36.449 When experience is disadvantageous: a short exposure to one temporal regularity hinders adaptation to a new one

Orit Shdeour[1], Noam Tal-Perry[1], Moshe Glickman[2], Shlomit Yuval-Greenberg[1]; [1]Tel Aviv University, [2]University College London

Attention: Neural, top-down and bottom-up

Sunday, May 15, 2:45 – 6:45 pm, Pavilion

36.450 Transcranial magnetic stimulation to rFEF reduces endogenous attentional modulations

Antonio Fernandez[1] (af3036@nyu.edu), Nina M. Hanning[1,2], Marisa Carrasco[1]; [1]New York University, [2]Humboldt-Universität zu Berlin

36.451 Rapid (<160ms) control over attentional capture by long-term memory attentional control settings

Lindsay Plater[1] (lplater@uoguelph.ca), Maria Giammarco[1], Jack Hryciw[1], Naseem Al-Aidroos[1]; [1]University of Guelph

36.452 Suppression of single versus multiple salient distractors in visual search displays

Brandi Drisdelle[1] (b.drisdelle@bbk.ac.uk), Martin Eimer[1]; [1]Birkbeck, University of London

36.453 Horizontal attention shift efficiency underlies the object-based shift direction anisotropy: An fMRI study

David Hughes[1] (dhughes@mcw.edu), Adam Barnas[2], Adam Greenberg[1]; [1]Medical College of Wisconsin and Marquette University, Department of Biomedical Engineering, [2]University of Florida, Department of Psychology

36.454 Integrated effect of goal-directed and experience-dependent on attentional deployment

Carola Dolci[1] (carola.dolci@univr.it), Einat Rashal[4], Eleonora Baldini[1], Suliann Ben-Hamed[2], Emiliano Macaluso[3], Leonardo Chelazzi[1], C. Nico Boehler[4], Elisa Santandrea[1]; [1]University of Verona, [2]Institut des Sciences Cognitives Marc-Jeannerod, Lyon, France, [3]Lyon Neuroscience Research Center, Lyon, France, [4]Ghent University

36.455 Disentangling the impact of top-down spatial attention and bottom-up stimulus drive on voxel receptive fields in human cortex

Thomas Sprague[1] (tsprague@ucsb.edu), Daniel Thayer[1], Kelvin Vu-Cheung[1]; [1]UC Santa Barbara

36.456 Selective attentional modulation in early visual cortex

Payten B. Prescott[1] (paytenprescott@gmail.com), Mackenzie V. Wise[1], Osman B. Kavcar[1], Alex J. Richardson[1], Michael A. Crognale[1]; [1]University of Nevada, Reno

36.457 More but Less: Enhanced early sensory-evoked responses but reduced attentional focus and delayed sensory integration in healthy aging

Panchalee Sookprao[1,2] (sp.panchalee@gmail.com), Kanyarat Benjasupawan[1,2], Kanda Lertladaluck[1,3], Thiparat Chotibut[4], Itti Chatnuntawech[5], Chaipat Chunharas[2,7], Sirawaj Itthipuripat[1,6]; [1]Neuroscience Center for Research and Innovation, Learning Institute, King Mongkut's University of Technology Thonburi, Bangkok, 10140, Thailand, [2]Cognitive Clinical and Computational Neuroscience lab, Faculty of Medicine, Chulalongkorn University, Bangkok, 10330, Thailand, [3]Gifted Education Office, Learning Institute, King Mongkut's University of Technology Thonburi, Bangkok, 10140, Thailand, [4]Department of Physics, Faculty of Science, Chulalongkorn University, Bangkok 10330, Thailand, [5]National Nanotechnology Center, National Science and Technology Development Agency, Pathum Thani, 12120, Thailand, [6]Big Data Experience Center, King Mongkut's University of Technology Thonburi, Bangkok, 10140, Thailand, [7]Chula Neuroscience Center, King Chulalongkorn Memorial Hospital, Bangkok, 10330, Thailand

36.458 Decoding visual feature attention control from scalp topography of alpha oscillations

Sreenivasan Meyyappan[1] (smeyyappan@ucdavis.edu), Srivatsa S. Katta[1], Mingzhou Ding[2], George R. Mangun[1,3,4]; [1]Center for Mind and Brain, University of California Davis, [2]J. Crayton Pruitt Family Department of Biomedical Engineering, University of Florida, [3]Department of Psychology, University of California Davis, [4]Department of Neurology, University of California Davis

36.459 Evidence for bottom-up computation of pop-out in visual cortex which predicts behavior

Jacob A. Westerberg[1] (jacob.a.westerberg@vanderbilt.edu), Jeffrey D. Schall[2], Alexander Maier[1]; [1]Vanderbilt University, [2]York University

36.460 Facilitating frontal-occipital communication via closed-loop EEG -TMS enhances visual perception

Shira Klorfeld-Auslender[1] (shira.s147@gmail.com), Christoph Zrenner[2,3], Shlomit Yuval-Greenberg[1], Ulf Ziemann[2], Nitzan Censor[1]; [1]Tel-Aviv University, Tel-Aviv, Israel., [2]Eberhard Karls University, Tübingen, Germany., [3]University of Toronto, Toronto, Ontario, Canada.

36.461 Information Connectivity (IC) Reveals Signaling Pathways in Visual Spatial Attention Control and Selection

Qiang yang[1] (yang.qiang@ufl.edu), Sreenivasan Meyyappan[2], George Mangun[2], Mingzhou Ding[1]; [1]University of Florida, [2]University of California Davis

Monday Morning Posters in Banyan Breezeway

Face Perception: Emotion

Monday, May 16, 8:30 am – 12:30 pm, Banyan Breezeway

43.301 Smiles are Versatile Signals in Social Communication Across Cultures

Chaona Chen[1] (chaona.chen@glasgow.ac.uk), Fangeng Zeng[1], Oliver G. B. Garrod[1], Robin A. A. Ince[1], Philippe G. Schyns[1], Rachael E. Jack[1]; [1]School of Psychology & Neuroscience, University of Glasgow, Scotland, UK

43.302 Categorizing ambiguous facial expressions

Ilya Nudnou[1] (ilya.nudnou@ndsu.edu), Benjamin Balas[1]; [1]North Dakota State University

43.303 Complementary methodologies to investigate spatial frequencies in facial expression recognition

Isabelle Charbonneau[1], Joël Guérette[1], Caroline Blais[1], Fraser Smith[2], Daniel Fiset[1]; [1]Universite du Quebec en Outaouais, [2]School of Psychology, University of East Anglia

43.304 Context-based emotion recognition correlates with Autism-Spectrum Quotient Scores

Jefferson Ortega[1] (jefferson_ortega@berkeley.edu), Zhimin Chen[1], David Whitney[1,2,3]; [1]Department of Psychology, University of California, Berkeley, [2]Vision Science Program, University of California, Berkeley, [3]Helen Wills Neuroscience Institute, University of California, Berkeley

43.305 Dynamic binding of faces and bodies when recognizing emotional expression

Maeve M. Sargeant[1] (maeve.sargeant@nih.gov), Kunjan Rana[1], Jessica Taubert[1,2], Leslie G. Ungerleider[1], Elisha P. Merriam[1]; [1]National Institute of Mental Health, [2]University of Queensland

43.306 Factors Contributing to Facial Emotion Recognition Ability

Margaret Wise[1,2] (margaret.l.wise.ctr@mail.mil), Krystina Diaz[1,2], Sylvia Guillory[1,], Jeffrey Bolkhovsky[1], Chad Peltier; [1]Naval Submarine Medical Research Laboratory, [2]Leidos

43.307 Individual differences in facial expression recognition ability are linked to differences in the efficiency at using the diagnostic visual information
Marie-Claude Desjardins[1] (mc.desjardins00@gmail.com), Daniel Fiset[1], Jessica Limoges[1], Caroline Blais[1]; [1]Université du Québec en Outaouais

43.308 Pain facial expression decoding is tuned to same-race faces
Gabrielle Dugas[1] (dugg06@uqo.ca), Camille Saumure[2], Marie-Pier Plouffe-Demers[1,3], Roberto Caldara[2], Daniel Fiset[1], Caroline Blais[1]; [1]University of Quebec in Outaouais, [2]University of Fribourg, [3]University of Quebec in Montreal

43.309 Retrospective Revaluation of High-Conflict Stimuli Depends on Type of Task
Rebeka Almasi[1] (almasi@gwu.edu), Jini Tae[2], Myeong-Ho Sohn[1]; [1]The George Washington University, [2]Gwangju Institute of Science and Technology

43.310 See no evil: Rhesus monkey's bias in visual attention towards threat is abolished in aging
Anthony Santistevan[1,2], Olivia Fiske[1,2], Gilda Moadab[3,4], Derek Isaacowitz[5], Eliza Bliss-Moreau[1,2]; [1]UC Davis, [2]California National Primate Research Center, [3]Massachusetts Institute of Technology, [4]Division of Comparative Medicine, [5]Northeastern University

43.311 The relationship between recognition of one's own and others' non-emotional internal states in adolescence and early adulthood
Lara Carr[1] (lara.carr.2016@live.rhul.ac.uk), Federica Biotti[1], Dawn Watling[1], Rebecca Brewer[1]; [1]Royal Holloway, University of London

43.312 What's in gaze, what's in a face? Emotion expression modulates direct gaze processing
Robrecht van der Wel[1] (r.vanderwel@rutgers.edu), Anne Böckler[2], Christina Breil[2], Timothy Welsh[3]; [1]Rutgers University, [2]University of Würzburg, [3]University of Toronto

43.313 The Uncanniness of Face Swaps
Ethan Wilson[1] (ethanwilson@ufl.edu), Aidan Persaud[1], Nicholas Esposito[1], Sophie Joerg[2], Rohit Patra[1], Frederick Shic[3], Jenny Skytta[3], Eakta Jain[1]; [1]University of Florida, [2]Clemson University, [3]Seattle Children’s Research Institute

43.314 Occluding face parts impairs human social communication
Jelena Ristic[1] (jelena.ristic@mcgill.ca), Sarah McCrackin[2]; [1]Department of Psychology, McGill University, Montreal, Quebec, Canada

43.315 Temporal Dynamics of Positive and Negative Facial Expression Processing
Brian Edward Escobar[1] (bescobar2018@fau.edu), Sang Wook Hong[1]; [1]Florida Atlantic University

Face Perception: Neural mechanisms

Monday, May 16, 8:30 am – 12:30 pm, Banyan Breezeway

43.316 Coarse-to-fine processing of faces in the core face network and V1.
Jolien Schuurmans[1] (jolien.schuurmans@uclouvain.be), Matthew Bennett[1], Valérie Goffaux[1,2]; [1]UCLouvain, Louvain-la-Neuve, Belgium, [2]Maastricht University, Maastricht, the Netherlands

43.317 Dynamic, naturalistic faces embedded in a narrative elicit responses in the distributed face processing system
Vassiki Chauhan[1] (chauhan.vassiki@gmail.com), Rebecca Philip[1], Matteo Visconti di Oleggio Castello[2], Guo Jiahui[1], Ma Feilong[1], Tom Dupré la Tour[2], James Haxby[1], Maria Ida Gobbini[1,3]; [1]Dartmouth College, [2]University of California Berkeley, [3]University of Bologna

43.318 Early repetition suppression for face identity is caused by the eyes
Vicki Ledrou-Paquet[1] (ledv07@uqo.ca), Justin Duncan[1], Isabelle Charbonneau[1], Caroline Blais[1], Daniel Fiset[1]; [1]Département de Psychoéducation et de Psychologie, Université du Québec en Outaouais

43.319 Familiar face representations allow for effective and efficient recognition of identity: Neurophysiological evidence from repetition priming.
Holger Wiese[1] (holger.wiese@durham.ac.uk), Bartholomew Quinn[1], Tsvetomila Popova[1]; [1]Durham University

43.320 Gamma-band connectivity suggests a functional pathway from the amygdala to the anterior temporal lobe during face processing
Kunjan Rana[1] (kunjan.rana@nih.gov), Maeve Sargeant[1], Jessica Taubert[1,2], Leslie Ungerleider[1], Elisha Merriam[1]; [1]National Institute of Mental Health, [2]University of Queensland

43.321 Neural Correlates of Attentional Modulation on Encoding and Retrieval of Face-Scene Compound Images: An fMRI Study

Vivian T.-Y. Peng[1,2] (typeng@alum.ccu.edu.tw), Gary C.-W. Shyi[1,2], Peter K.-H. Cheng[2,3], Cody L.-S. Wang[1,2], S.-T. Tina Huang[1,2]; [1]Department of Psychology, National Chung Cheng University, Chiayi, Taiwan, [2]PhD Program in Cognitive Sciences, National Chung Cheng University, Chiayi, Taiwan, [3]Research Center for Education and Mind Sciences, National Tsing Hua University, Hsinchu, Taiwan

43.322 Orienting Attention Diminishes Automatic Binding and Context Shift Decrement between Faces and Scenes: An fMRI Study

Gary C.-W. Shyi[1,2] (cwshyi@gmail.com), Vivian T.-Y. Peng[1], Peter K.-H. Cheng[2,3], Cody L.-S. Wang[1,2], S.-T. Tina Huang[1,2]; [1]National Chung Cheng University, Taiwan, [2]PhD Program in Cognitive Sciences, National Chung Cheng University, Taiwan, [3]Research Center for Education and Mind Sciences, National Tsing Hua University, Taiwan

43.323 Saccadic Race to Neural Face Responses

Peter de Lissa[1] (peter.delissa@unifr.ch), Roberto Caldara[1]; [1]University of Fribourg, Switzerland

43.324 Visual imagery of faces vs. places involves different functional connectivity patterns through an extended brain network including occipital, parietal and frontal areas

Francesco Mantegna[1,4] (fm1672@nyu.edu), Emanuele Olivetti[2], Philipp Schwedhelm[3,4], Daniel Baldauf[4]; [1]New York University (NYU), [2]Bruno-Kessler Foundation (FBK), [3]German Primate Center (DPZ), [4]Center for Mind/Brain Sciences (CIMeC), University of Trento

43.325 Global feature arrangement and local features drive face-cell responses to pareidolia images

Saloni Sharma[1] (saloni_sharma@hms.harvard.edu), Kasper Vinken[1], Margaret Livingstone[1]; [1]Harvard Medical School

43.326 Mapping the Neural Mechanisms of the Own Species Bias in the Ventrovisual Pathway

Yiming Qian[1] (yxq5055@psu.edu), K. Suzanne Scherf[1]; [1]The Pennsylvania State University

Perceptual Organization: Awareness, rivalry

Monday, May 16, 8:30 am – 12:30 pm, Banyan Breezeway

43.327 Revealing robust neural correlates of conscious and unconscious visual processing: an activation likelihood estimation meta-analysis.

Michèle W. MacLean[1] (michele.maclean@umontreal.ca), Vanessa Hadid[2], Franco Lepore[1]; [1]Department of Psychology, Université de Montréal, [2]Department of Biomedical Sciences, Université de Montréal

43.328 EEG bifurcation dynamics in a no-report visual awareness paradigm

Cole Dembski[1], Kevin Ortego[2], Clay Steinhilber[1], Michael Cohen[3,4], Michael Pitts[1]; [1]Department of Psychology, Reed College, [2]Department of Psychological and Brain Sciences, Dartmouth College, [3]Department of Psychology and Program in Neuroscience, Amherst College, [4]McGovern Institute for Brain Research, Department of Brain and Cognitive Sciences, Massachusetts Institute of Technology

43.329 ERP Decoding of Visual Awareness During Binocular Rivalry

Lara C. Krisst[1] (lckrisst@ucdavis.edu), Steve J. Luck; [1]Center for Mind & Brain - University of California, Davis

43.330 InFoRM: Rivalry reveals new insights into the dynamics of perceptual changes during binocular rivalry

Jan Skerswetat[1] (j.skerswetat@northeastern.edu), Peter Bex[1]; [1]Northeastern University, USA

43.331 Multivariate pattern analysis of EEG data supports the role of adaptation in spontaneous perceptual reversals

Joseph Brooks[1] (j.l.brooks@keele.ac.uk), Kim Dundas[1]; [1]Keele University

43.332 Binocular rivalry under naturalistic viewing conditions

ShuiEr Han[1,2], Randolph Blake[3], Celine Aubuchon[4], Duje Tadin[1,5]; [1]Department of Brain and Cognitive Sciences and Center for Visual Science, University of Rochester, New York, [2]Institute for Infocomm Research, Agency for Science, Technology and Research, Singapore, [3]Department of Psychology, Vanderbilt University, Nashville, [4]Department of Cognitive Linguistic and Psychological Sciences, Brown University, Providence, R.I., [5]Department of Neuroscience and Department of Opthalmology, University of Rochester, New York

43.333 Pace of resting state alpha oscillations is associated with perceptual adaptation: An extension to psychotic psychopathology

Scott Sponheim[1,2] (sponh001@umn.edu), Joshua Stim[2], Victor Pokorny[3], Stephen Engel[3], Jennifer Zick[2]; [1]Minneapolis VA Health Care

System, [2]Department of Psychiatry and Behavioral Sciences, University of Minnesota, [3]Department of Psychology, University of Minnesota

43.334 A nasal visual field advantage in interocular competition

Chris Paffen[1] (c.l.e.paffen@uu.nl), Andre Sahakian[1], Stefan Van der Stigchel[1], Surya Gayet[1]; [1]Utrecht University

43.335 Seeing mixed percepts in apparent motion quartets during passive and volitional perception

Nathan H. Heller[1], Ananya Alleyne[1], Patrick Cavanagh[1,2], Peter U. Tse[1]; [1]Dartmouth College, [2]Glendon College

43.336 Investigating the relationship between blinks, saccades, and bistable percepts during a structure-from-motion task in patients with psychosis

Kyle W. Killebrew[1] (kkillebr@umn.edu), Hannah R. Moser[1], Andrea Grant[2], Scott R. Sponheim[3,1], Michael-Paul Schallmo[1]; [1]University of Minnesota, [2]Center for Magnetic Resonance Research, [3]Veterans Affairs Medical Center, Minneapolis, MN, USA

43.337 Object motion at saccadic speeds biases the ambiguous motion quartet

Melis Ince[1,2] (melis.ince@hu-berlin.de), Martin Rolfs[1,2]; [1]Department of Psychology, Humboldt-Universität zu Berlin, Germany, [2]Berlin School of Mind and Brain, Humboldt-Universität zu Berlin, Germany

43.338 An Investigation of Listening Effort with Concurrent fNIRS and Pupillometry

Jessica Defenderfer[1] (defenderfer@mac.com), Jubin Son[2], A. Caglar Tas[2], Aaron T. Buss[2]; [1]University of Tennessee Health Science Center, Knoxville, TN, [2]University of Tennessee, Knoxville, TN

Perception and Action: Affordances

Monday, May 16, 8:30 am – 12:30 pm, Banyan Breezeway

43.339 Affordance judgment for collision or bypass of objects by rotating panels

Balagopal Raveendranath[1] (braveen@clemson.edu), Christopher Pagano[1]; [1]Clemson University

43.340 Instability of Near-Hand Effects: Two OSF Pre-Registered Investigations of Visual Pathway Manipulations

Morgan Jacoby[1] (mjacoby4@huskers.unl.edu), Anne Schutte[1]; [1]University of Nebraska - Lincoln

43.341 Investigating the Mechanism Driving Near-Tool Visual Biases

Robert R. McManus[1], Laura E. Thomas[1]; [1]North Dakota State University

43.342 Looking tight: Visual judgments of knot strength reveal the limits of physical scene understanding

Sholei Croom[1] (scroom1@jhu.edu), Chaz Firestone[1]; [1]Johns Hopkins University

43.343 Object affordance modulates the near space advantage in 2D imagery

Tasfia Ahsan[1] (ahsant@my.yorku.ca), Laurie M. Wilcox[1], Erez Freud[1]; [1]York University

43.344 Sensory Metaphor and the Interface Theory of Perception

Frank Durgin[1] (fdurgin1@swarthmore.edu); [1]Swarthmore College

43.345 Social Factors Influence Indoor Virtual Navigation

Serena DeStefani[1] (sd911@rutgers.edu), Karin Stromswold[2], Jacob Feldman[3]; [1]Rutgers University, [2]Rutgers University, [3]Rutgers University

43.346 Human perception of navigational affordances in real-world environments relies on multiple scene properties

Clemens G. Bartnik[1] (c.g.bartnik@uva.nl), Iris I.A. Groen[1]; [1]University of Amsterdam

Perception and Action: Navigation

Monday, May 16, 8:30 am – 12:30 pm, Banyan Breezeway

43.347 A Bifurcation in Visually-Guided Behavior when Following a Crowd

William Warren[1] (bill_warren@brown.edu), Trenton Wirth[1,2]; [1]Brown University, [2]Northeastern University

43.348 Blurring Boundaries: Weakening 3rd-order Motion Reduces Locomotor Responses When Following A Crowd

Zhenyu Zhu[1] (zhenyu_zhu@brown.edu), William H. Warren[1]; [1]Brown University

43.349 Coding of head direction in the human visual system during dynamic navigation

Zhengang Lu[1] (zhengang@sas.upenn.edu), Joshua B. Julian[2], Russell A. Epstein[1]; [1]University of Pennsylvania, [2]Princeton University

43.350 OPA responds to visual information about walking, not crawling

Christopher M Jones[1] (christopher.jones2@emory.edu), Joshua Byland[1], Daniel D Dilks[1]; [1]Emory University

43.351 Percepts of a curved path of self-motion induced by biological motion

Anna-Gesina Hülemeier[1] (huelemeier@wwu.de), Markus Lappe[1]; [1]University of Münster

43.352 Tests of Visual Models of Collision Avoidance Based on Constant Bearing Angle

Jiuyang Bai[1] (jiuyang_bai@brown.edu), William H. Warren[1]; [1]Brown University

43.353 The visual control of gaze, steering, and obstacle avoidance in experienced quadcopter pilots

Nathaniel Powell[1] (poweln@rpi.edu), Xavier Marshall[1], Gabriel Diaz[2], Brett Fajen[1]; [1]Rensselaer Polytechnic Institute, [2]Rochester Institute of Technology

43.354 Visual Interaction Networks and Leadership in Walking Crowds

Kei Yoshida[1] (kei_yoshida@brown.edu), William H. Warren[1]; [1]Brown University

43.355 Effect of Binocular Disparity on Detecting Target Motion during Locomotion

Hongyi Guo[1] (hguo06@yorku.ca), Robert Allison[2]; [1]York University, Toronto, Canada, [2]York University, Toronto, Canada

Monday Morning Posters in Pavilion

Spatial Vision: Neural Mechanisms

Monday, May 16, 8:30 am – 12:30 pm, Pavilion

43.401 Attenuated perception of visual stimuli synthesized from subspace neural activity

Guohua Shen[1] (shen-gh@uec.ac.jp), Shu Fujimori[1], Gowrishankar Ganesh[2], Yoichi Miyawaki[1,3]; [1]Graduate School of Informatics and Engineering, The University of Electro-Communications, Tokyo, Japan., [2]Laboratoire d'Informatique, de Robotique et de Microelectronique de Montpellier (LIRMM), Univ. Montpellier, CNRS, Montpellier, France., [3]Center for Neuroscience and Biomedical Engineering, The University of Electro-Communications, Tokyo, Japan.

43.403 Early High-Gamma Activity in Human Visual Cortex Increases with Visual Awareness

Zhilin Zhang[1], Ping Sun[2], William Bosking[2], Michael Beauchamp[2], Daniel Yoshor[2], Tony Ro[1]; [1]City University of New York, [2]University of Pennsylvania

43.404 Enumeration and Perceptual Averaging Interact over different presentation duration

Sumit pareek[1,2] (sumitpareek652@gmail.com), Anjana Prusty[2], Anuj Shukla[3], Rakesh Sengupta[2]; [1]University of Rajasthan, Jaipur, India, [2]SR University, Warangal, India, [3]IIIT Hyderabad, India

43.405 Laminar organization and diversity of area MT receptive fields in the marmoset

Halle Hangen[1] (hallehangen@gmail.com), Shanna Coop[1], Jude Mitchell[1]; [1]Brain and Cognitive Sciences, University of Rochester

43.406 Reduced contrast surround suppression associated with schizophrenia depends on visual acuity and scene context

Cheryl Olman[1,2] (caolman@umn.edu), Victor Pokorny[1], Michael-Paul Schallmo[4], Scott Sponheim[3,4]; [1]Department of Psychology, University of Minnesota, Minneapolis, MN, USA, [2]Center for Magnetic Resonance Research, University of Minnesota, Minneapolis, MN, USA, [3]Minneapolis VA Healthcare System (MVAHCS), Minneapolis, Minnesota, USA, [4]Department of Psychiatry, University of Minnesota, Minneapolis, Minnesota, USA

43.407 Simultaneous Extraction of Transient Pattern ERG waveforms from Two Visual Fields Stimulated at Narrow Steady-State Rates

Jonathon Toft-Nielsen[1] (jtoftnielsen@jorvec.com), Özcan Özdamar[2]; [1]JÖRVEC Corp, [2]University of Miami

43.408 The capability of electroretinograms to detect a reduced detection of photons by photoreceptors

Asma Braham chaouche[1] (asma.brahamchaouche@gmail.com), Eléna Lognoné[1], Geneviève Rodrigue[1], Maryam Rezaei[1], Marie-Lou Garon[1], Rémy Allard[1]; [1]School of optometry, Université de Montréal

43.409 Studies of visual neurophysiology in the psychosis Human Connectome Project

Michael-Paul Schallmo[1] (schal110@umn.edu), Kimberly Weldon[1], Rohit Kamath[1], Hannah Moser[1], Samantha Montoya[1], Kyle Killebrew[1], Caroline Demro[1], Andrea Grant[1], Małgorzata Marjańska[1], Scott Sponheim[2,1], Cheryl Olman[1]; [1]University of Minnesota, Minneapolis, MN, [2]Veterans Affairs Medical Center, Minneapolis, MN

43.410 Topological specificity of VEP responses: a comparison of tripolar and traditional electrodes

Mackenzie V. Wise[1] (mackenziewise@nevada.unr.edu), Sean P. Kelly[2], Ryan E.B Mruczek[2], Gideon P. Caplovitz[1], Michael A. Crognale[1]; [1]University of Nevada, Reno, NV, USA, [2]College of the Holy Cross, Worcester, MA, USA

43.411 Identifying the layers in the human lateral geniculate nucleus using quantitative and functional MRI

Irem Yildirim[1] (yildirim@udel.edu), Khan Hekmatyar[1], Keith A. Schneider[1]; [1]University of Delaware

43.412 The appearance of tiny objects: How Snellen's symbols look like below, at and above threshold

Ângela Gomes Tomaz[1], Asieh Daneshi[2], Sabrina Hansmann-Roth[1], Wolf M. Harmening[2], Bilge Sayim[1,3]; [1]University of Lille, Lille, France, [2]Rheinische Friedrich-Wilhelms-Universität Bonn, Bonn, Germany, [3]University of Bern, Bern, Switzerland

43.413 Medium spatial frequencies mask edges most effectively

Lynn Schmittwilken[1] (l.schmittwilken@tu-berlin.de), Marianne Maertens[1]; [1]Science of Intelligence, Technische Universität Berlin

Eye Movements: Perception

Monday, May 16, 8:30 am – 12:30 pm, Pavilion

43.414 Foveal prediction of saccade target features alters visual resolution in the center of gaze

Lisa M. Kroell[1,2] (lisa.maria.kroell@hu-berlin.de), Martin Rolfs[1,2]; [1]Department of Psychology, Humboldt-Universität zu Berlin, Germany, [2]Berlin School of Mind and Brain, Humboldt-Universität zu Berlin, Germany

43.415 The influence of visibility on the extrafoveal preview effect

Xiaoyi Liu[1] (xl4251@nyu.edu), Christoph Huber-Huber[2], David Melcher[1]; [1]New York University Abu Dhabi, [2]Radboud University, Donders Institute for Brain

43.416 Rapid learning of systematic sensory delays around saccades

Wiebke Nörenberg[1,2] (wiebke.noerenberg@gmail.com), Richard Schweitzer[1,3], Martin Rolfs[1,2,3]; [1]Department of Psychology, Humboldt-Universität zu Berlin, Berlin, Germany, [2]Berlin School of Mind and Brain, Humboldt-Universität zu Berlin, Germany, [3]Cluster of Excellence 'Science of Intelligence', Technische Universität Berlin, Germany

43.417 Can illusory Tilt induce Optostatic Torsion?

Mihret Girum[1] (mihret_girum@berkeley.edu), Ariel Winnick[1], Jorge Otero-Millan[1,2]; [1]Herbert Wertheim School of Optometry and Vision Science, University of California, Berkeley, [2]Department of Neurology, The Johns Hopkins University

43.418 Strap in for a bumpy ride: pursuit of non-rigid motion

Krischan Koerfer[1] (krischan.koerfer@uni-muenster.de), Tamara Watson[2], Markus Lappe[1]; [1]University of Muenster, [2]Western Sydney University

43.419 Peripheral letter discrimination disrupted by delayed bandpass-filtered foveal noise

Nedim Goktepe[1] (goektepe@staff.uni-marburg.de), Alexander C. Schütz[1]; [1]Philipps-Universität Marburg, Germany

43.420 Saccade-amplitude dependent enhancement of visual sensitivity

Yuanhao H. Li[1], Michele A. Cox[1], Janis Intoy[1], Jonathan Victor[2], Bin Yang[1], Zhetuo Zhao[1], Michele Rucci[1]; [1]University of Rochester, [2]Weill Cornell Medical College

43.421 Comparison of human foveal contrast sensitivity during walking and standing

Brian Szekely[1] (bszekely@nevada.unr.edu), Bharath Shankar, Paul MacNeilage; [1]University of Nevada, Reno

43.422 The influence of eye movements on optic flow perception

Hiu Mei Chow[1] (dorischm@gmail.com), Miriam Spering[1]; [1]University of British Columbia, Vancouver, Canada

43.423 Measuring torsional optokinetic nystagmus in virtual reality

Raul Rodriguez[1] (raul.rodriguez@berkeley.edu), Jorge Otero-Millan[1]; [1]UC Berkeley

43.424 Why did Rubens add a parrot to Titian's "Fall of Man"? An eye tracking investigation reveals attentional focus while viewing Italian Renaissance paintings

Robert Alexander[1] (rgalexander.vision@gmail.com), Ashwin Venkatakrishnan[1], Jordi Chanovas[1], Sophie Ferguson[1], Stephen Macknik[1], Susana Martinez-Conde[1]; [1]SUNY Downstate Health Sciences University

43.425 Detecting changes in visual scenes during saccades: Replicating and extending John Grimes's experiments

Brian Odegaard[1] (bodegaard@ufl.edu), Alan Lee[2], Addison Sans[1], Isaac Lee[2], Leo Ng[2], Andrew Haun[3], Dana Chesney[4], David Rosenthal[5], Francis Fallon[4]; [1]University of Florida, [2]Lingnan University, [3]University of Wisconsin, [4]St. John's University, [5]City University of New York

43.426 Characterizing individual differences in task performance and task difficulty with gaze entropy

Naila Ayala[1] (nayala@uwaterloo.ca), Abdullah Zafar[2], Ewa Niechwiej-Szwedo[3]; [1]University of Waterloo

43.427 Splash - Eye movements during unexpected material behaviors

Doris Braun[1] (doris.braun@psychol.uni-giessen.de), Alexander Goettker[1], Karl Gegenfurtner[1], Katja Doerschner[1]; [1]Giessen University

43.428 The relationships between visual acuity, crowding and spatial attention in the selection of the PRL during simulated central vision loss

Marcello Maniglia[1,2] (mmanig@ucr.edu), Pinar Demirayak[2], Samyukta Jayakumar[1], Kristina Visscher[2], Aaron Seitz[1]; [1]University of California, Riverside, CA, USA, [2]University of Alabama at Birmingham, Birmingham, AL, USA

43.429 Numerosity modulates the gain of pupillary response

David Burr[1] (dcb492@gmail.com), Elisa Castaldi[1], Antonella Pomè[1], Giudo Cicchini[2], Paola Binda[3]; [1]University of Florence, [2]CNR Neuroscience Institute, Pisa, [3]University of Pisa

3D Perception: Shape

Monday, May 16, 8:30 am – 12:30 pm, Pavilion

43.430 Binocular perceptual distortions produced by retinal image magnification

Iona R. McLean[1], Ian M. Erkelens[2], Emily Cooper[1]; [1]University of California, Berkeley, [2]Meta Reality Labs

43.431 Cooperation Between Conflicting Disparity and Shading Cues for Surface Interpolation

Celine Aubuchon[1] (celine_aubuchon@brown.edu), Jovan Kemp[1], Fulvio Domini[1]; [1]Department of Cognitive Linguistic and Psychological Sciences, Brown University, Providence, R.I.

43.432 Viewpoint similarity of 3D objects predicted by image-plane position shifts

Emma E.M. Stewart[1] (emma.e.m.stewart@gmail.com), Frieder T. Hartmann[1], Roland W. Fleming[1]; [1]Justus-Liebig University Giessen, Germany

43.433 3D memory priors reflect efficient compression in view naming

Thomas Langlois[1] (tal3@princeton.edu), Nori Jacoby[2], Tom Griffiths[3]; [1]Princeton University, [2]Princeton University, [3]Max Planck Institute for Empirical Aesthetics

Attention: Neural, decision making, models

Monday, May 16, 8:30 am – 12:30 pm, Pavilion

43.434 Hierarchical Bayesian control of attention during decision making

F. Javier Domínguez-Zamora[1], Joy J. Geng[2], Guillermo Horga[1], Jacqueline Gottlieb[1]; [1]Columbia University, [2]University of California, Davis

43.435 The impact of analytic choices on detectability of behavioral oscillations in dense sampling studies

René Michel[1,2], Elio Balestrieri[1,2], Samuel Recht[3], Laura Dugué[4,5], Niko A. Busch[1,2]; [1]Institute of Psychology, University of Münster, Münster, Germany, [2]Otto Creutzfeldt Center for Cognitive and Behavioral Neuroscience, University of Münster, Münster, Germany, [3]Department of Experimental Psychology, University of Oxford, Oxford, UK, [4]Université de Paris, INCC UMR 8002, CNRS, F-75006 Paris, France, [5]Institut Universitaire de France (IUF), Paris, France

43.436 Stress differentially affects the sensory and decision-related processes related to the attended and unattended visual stimuli

Prapasiri Sawetsuttiapan[1,2,3] (s.prapasiribonus@gmail.com), Phond Phunchongharn[2,3], Praewpiraya Wiwatphonthana[1], Singh Intrachooto[4], Sarigga Pongsuwan[4], Kajornvut Ounjai[1,5], Sirawaj Itthipuripat[1,3]; [1]Neuroscience Center for Research and Innovation, Learning Institute, King Mongkut's University of Technology Thonburi, Bangkok, Thailand, [2]Computer Engineering Department, King Mongkut's University of Technology Thonburi, Bangkok, Thailand, [3]Big Data Experience Center, King Mongkut's University of Technology Thonburi, Bangkok, Thailand, [4]Research and Innovation for Sustainability Center, Bangkok, Thailand, [5]Biological Engineering Department, Faculty of Engineering, King Mongkut's University of Technology Thonburi, Bangkok, Thailand

43.437 Neuronal signatures of attention in mouse superior colliculus depend on learning

Rich Krauzlis[1] (richard.krauzlis@nih.gov), Kara Cover[1], Lupeng Wang[2]; [1]National Eye Institute, [2]National Institute on Aging

43.438 Spontaneous alpha-band oscillations modulate stimulus-specific features representation

Elio Balestrieri[1,2] (ebalestr@uni-muenster.de), Richard Schweitzer[3,4], Lisa Kroell[3,5], Martin Rolfs[3,4,5], Niko Busch[1,2]; [1]Department of Psychology, Muenster University, [2]Otto Creutzfeld Center for Cognitive Neuroscience, [3]Department of Psychology, Humboldt-Universität zu Berlin, Germany, [4]Cluster of Excellence 'Science of Intelligence', Technische Universität Berlin, Germany, [5]Berlin School of Mind and Brain, Humboldt-Universität zu Berlin, Germany

43.439 The neural cascading of early and late selection mechanisms in response to cognitive conflict

Sirawaj Itthipuripat[1] (itthipuripat.sirawaj@gmail.com), Panchalee Sookprao[1,5], Praewpiraya Wiwatphonthana[1], Kanda Learladaluck[1], Theerawit Wilaiprasitporn[2], Itti Chatnuntawech[3], John Serences[4], Chaipat Chunharas[5]; [1]King Mongkut's University of Technology Thonburi, Thailand, [2]Vidyasirimedhi Institute of Science and Technology, Thailand, [3]National Nanotechnology Center, National Science and Technology Development Agency, Thailand, [4]University of California, San Diego, USA, [5]King Chulalongkorn Memorial Hospital, Thailand

43.440 Functional Connectivity Fingerprints of Frontal Eye Field and Inferior Frontal Junction

Orhan Soyuhos[1] (orhan.soyuhos@studenti.unitn.it), Daniel Baldauf[1]; [1]University of Trento

43.441 The structural connectivity fingerprints of the frontal eye field and the inferior frontal junction

Marco Bedini[1], Emanuele Olivetti[1,2], Paolo Avesani[1,2], Daniel Baldauf[1]; [1]University of Trento, [2]Bruno Kessler Foundation

43.442 Why are predictive spatial cues sometimes ignored?

Hannah J. Ackley[1] (ackley.77@osu.edu), Tianyu Zhang[2], Walden Y. Li[3], Andrew B. Leber[4]; [1]Ohio State University

43.443 Statistical Characterization of a Convolutional Neural Network which learns Global Context During Search

Sudhanshu Srivastava[1] (sudhanshu@ucsb.edu), Miguel Eckstein[1]; [1]University of California at Santa Barbara

Attention: Search and salience

Monday, May 16, 8:30 am – 12:30 pm, Pavilion

43.444 Examining noise and motion in the Eriksen flanker task: A Bayesian comparison of drift-diffusion models.

Jordan Deakin[1], Dietmar Heinke[1]; [1]University of Birmingham

43.445 EZ Diffusion Modeling of Visual Search with Positive, Negative, and Neutral Cues

Nancy Carlisle[1] (nancy.carlisle@gmail.com), Ziyao Zhang[2]; [1]Lehigh University, [2]UT Austin

43.446 Statistical learning facilitates the strategic use of attentional control

Andrew Clement[1] (andrew.clement@tamu.edu), Brian Anderson[2]; [1]Texas A&M University, [2]Texas A&M University

43.447 Dynamically changing attention in complex visual stimuli

Hugo Hammond[1] (hugo.hammond@bristol.ac.uk), Graham Thomas[2], Iain D. Gilchrist[1]; [1]University of Bristol, [2]BBC Research and Development, UK

43.448 Meaningful information influences inhibition of return

Samantha Stranc[1] (sam.stranc@mail.utoronto.ca), Jay Pratt[1]; [1]University of Toronto

43.449 Give and take between proactive and reactive cognitive control during attentional suppression

Matthieu Chidharom[1] (maca21@lehigh.edu), Nancy Carlisle[1]; [1]Lehigh University

43.450 An active naturalistic navigation task induces large attentional shifts in semantic representation

Tianjiao Zhang[1] (t.zhang@berkeley.edu), Jack Gallant[1]; [1]UC Berkeley

43.451 Exploring the effects of posture in the Stroop, and visual search paradigms

Emilie Caron[1] (eecaron@uwaterloo.ca), Michael Reynolds, Jonathan Carriere, Daniel Smilek; [1]University of Waterloo, [2]Bishop's University

43.452 Attention to fire

Caroline Myers[1] (cmyers60@jhu.edu), Chaz Firestone[1], Justin Halberda[1]; [1]Johns Hopkins University

Tuesday Morning Posters in Banyan Breezeway

Face Perception: Social cognition

Tuesday, May 17, 8:30 am – 12:30 pm, Banyan Breezeway

53.301 The Influence of the Other-Race Effect on Morphed Face Identification

Snipta Mallick[1] (snipta.mallick@utdallas.edu), Géraldine Jeckeln[1], Connor J. Parde[1], Carlos D. Castillo[2], Alice J. O'Toole[1]; [1]The University of Texas at Dallas, [2]Johns Hopkins University

53.302 Other-Race Faces Are Not Homogeneous: Evidence from Action Inhibition

Viola Benedetti[1] (viola.benedetti@unifi.it), Peter De Lissa[2], Fabio Giovannelli[1], Gioele Gavazzi[1], Maria Pia Viggiano[1], Roberto Caldara[2]; [1]University of Florence, Florence, Italy, [2]University of Fribourg, Fribourg, Switzerland

53.303 Two's company, three's a crowd: Inverse other-race categorization advantage in a ternary categorization task

Marie-Pier Plouffe-Demers[1,2] (plom09@uqo.ca), Marie-Claude Desjardins[2], Justin Duncan[2], Daniel Fiset[2], Caroline Blais[2]; [1]University of Quebec in Montreal, [2]University of Quebec in Outaouais

53.304 Eye movement strategies do not predict recognition of own or other-race faces

Jason Haberman[1] (habermanj@rhodes.edu), Yavin Alwis[2]; [1]Rhodes College, [2]University of Tennessee Health Sciences Center

53.305 Occluding the eye-region impacts inferring and sharing a face's emotional state

Sarah McCrackin[1] (sarah.mccrackin@mail.mcgill.ca), Sabrina Provencher[2], Ethan Mendell[2], Jelena Ristic[3]; [1]McGill University

53.306 Attending to attention: Reverse correlation reveals how we perceive attentiveness in other people's faces

Clara Colombatto[1] (clara.colombatto@yale.edu), Brian Scholl[1]; [1]Yale University

53.307 An empirical comparison of online and in-lab data collection using a data-driven method on Pack&Go (VPixx Technologies)

Daniel Fiset[1] (daniel.fiset@uqo.ca), Caroline Blais[1]; [1]Université du Québec en Outaouais

53.309 Christian face representations are rated more positively than Muslim face representations

Maheen Shakil[1] (shakilm@mcmaster.ca), M.D. Rutherford[1]; [1]McMaster University

53.310 New Use of the Facial Adaptation Method: Understanding what Facial Expressions Evoke Social Signals

KAZUSA MINEMOTO[1], YOSHIYUKI UEDA[1], SAKIKO YOSHIKAWA[2]; [1]Kyoto University, [2]Kyoto University of the Arts

53.311 Perceptual Signaling of an Intelligence Stereotype

Ryno Kruger[1] (ryno.kruger@emory.edu), Stella Lourenco[1]; [1]Emory University

53.312 The presence of avatars provides benefits for rotating object recognition

Chifumi Sakata[1] (sakata.chifumi@gmail.com), Ryusei Ishii[1], Yu Jr Lan[1], Yoshiyuki Ueda[1], Yusuke Moriguchi[1]; [1]Kyoto University

53.313 A neuronal social trait space for first impressions in the human amygdala and hippocampus

Runnan Cao[1] (rncao90@gmail.com), Chujun Lin[2], Johnie Hodge[3], Xin Li[1], Alexander Todorov[4], Nicholas Brandmeir[3,5], Shuo Wang[1,5,6]; [1]Lane Department of Computer Science and Electrical Engineering, West Virginia University, Morgantown, WV 26506, USA, [2]Department of Psychological and Brain Sciences, Dartmouth College, Hanover, NH 03755, USA, [3]Department of Neurosurgery, West Virginia University, WV 26506, USA, [4]Booth School of Business, University of Chicago, Chicago, IL 60637, [5]Rockefeller Neurosciences Institute, West Virginia University, Morgantown, WV 26506, USA, [6]Department of Radiology, Washington University in St. Louis, St. Louis, MO 63110, USA

53.314 Naturalistic two-person social perception in the brain

Emalie McMahon[1] (emaliemcmahon@gmail.com), Michael Bonner[1], Leyla Isik[1]; [1]Johns Hopkins University

53.315 Auditory dyadic interactions through the 'eye' of the social brain: How visual is the posterior STS interaction region?

Julia Landsiedel[1] (j.landsiedel@bangor.ac.uk), Kami Koldewyn[1]; [1]School of Human and Behavioural Sciences, Bangor University

Face Perception: Experience, learning, and expertise

Tuesday, May 17, 8:30 am – 12:30 pm, Banyan Breezeway

53.316 Forgetting a face: Attribute amnesia for familiar identities

Y. Ivette Colón[1] (ycolon@wisc.edu), Emily J. Ward[1,2]; [1]University of Wisconsin - Madison, [2]McPherson Eye Research Institute

53.317 Hometown context and childhood activities predict face recognition performance

Spencer Andrews[1], Shruti Japee[2], Brendan Ritchie[3]; [1]NIMH, [2]NIMH, [3]NIMH

53.318 How many unique faces do we see in a typical day?

Anastasia Stolzenberg[1], Mahmoud Khademi[1], Todd Kamensek[1], Ipek Oruc[1]; [1]University of British Columbia

53.319 Investigating self-advantage in face processing using an adapted ABX procedure and face morphing

Tamaka Harada[1] (haradatamaka@gmail.com), Yuko Yotsumoto[1]; [1]University of Tokyo

53.320 Joint Sampling of the Full Spectrum of Spatial Frequencies and Orientations During Face Recognition

Francis Gingras[1,2] (francis.gingras16@gmail.com), Jessica Limoges[2], Duncan Justin[2], Frédéric Gosselin[3], Daniel Fiset[2], Caroline Blais[2]; [1]Université du Québec à Montréal, [2]Université du Québec en Outaouais, [3]Université de Montréal

53.321 Learning, adopting, and enforcing a psychophysical social norm

Jordan Suchow[1] (jws@stevens.edu), Necdet Gurkan[1]; [1]Stevens Institute of Technology

53.322 People can evaluate the correctness of their face-identification decisions using comparative confidence judgments

Geraldine Jeckeln[1] (gxj150130@utdallas.edu), Pascal Mamassian[2], Alice J. O'Toole[1]; [1]University of Texas at Dallas, [2]CNRS & École Normale Supérieure

53.323 Serial dependence as a stable attribute in Super-Recognizers

Mauro Manassi[1] (mauro.manassi@abdn.ac.uk), Fiammetta Marini[1], Meike Ramon[2]; [1]School of Psychology, University of Aberdeen, King's College, Aberdeen, UK, [2]Applied Face Cognition Lab, Switzerland

53.324 The conceptual encoding benefit for faces could be due to costs for perceptual encoding

Jisoo Sun[1], Isabel Gauthier[1]; [1]Vanderbilt University

53.325 The reliability, stability and consistency of individual differences across multiple face identification tasks.

Kristen A. Baker[1] (kb09gi@brocku.ca), Vincent J. Stabile[1], Catherine J. Mondloch[1]; [1]Brock University

Perceptual Organization: Models, neural mechanisms

Tuesday, May 17, 8:30 am – 12:30 pm, Banyan Breezeway

53.326 A drift diffusion model of figure-ground perception

Jingming Xue[1] (jingmingxue@email.arizona.edu), Mary A Peterson[1], Robert C Wilson[1]; [1]University of Arizona

53.327 A local probabilistic model of features and segmentation learned by optimizing prediction

Heiko Schütt[1,2] (heiko.schuett@nyu.edu), Wei Ji Ma[1]; [1]New York University, [2]Columbia University

53.328 Visual Relations in Humans and Deep Convolutional Neural Networks

Nicholas Baker[1] (nbaker9@ucla.edu), Patrick Garrigan[2], Austin Phillips[3], Philip Kellman[3]; [1]Loyola University of Chicago, [2]St. Joseph's University, [3]University of California, Los Angeles

53.329 Common fate based object learning in machines and humans

Matthias Tangemann[1] (matthias.tangemann@bethgelab.org), Matthias Kümmerer[1], Thomas S.A. Wallis[2], Matthias Bethge; [1]University of Tübingen, [2]Institute of Psychology and Centre for Cognitive Science, Technical University of Darmstadt

53.330 Compensatory brain network mechanisms of visual shape completion across the schizo-bipolar spectrum

Brian Keane[1,2] (brian.keane@gmail.com), Bart Krekelberg[2], Ravi Mill[2], Steven Silverstein[1,2], Judith Thompson[1,2], Megan Serody[1,2], Deanna Barch[3], Michael Cole[2]; [1]University of Rochester, [2]Rutgers, The State University of New Jersey, [3]Washington University in St. Louis

53.331 Impact of ketonic metabolism on cortical visual processing

Paola Binda[1] (paola1binda@gmail.com), Cecilia Steinwurzel[1,2], Giuseppe Andrea Daniele[1], Eleuterio Ferrannini[1], Francesca Frijia[3], Domenico Montanaro[4], Maria Concetta Morrone[1]; [1]University of Pisa (Pisa, Italy), [2]University of Florence (Firenze, Italy), [3]Fondazione Toscana Gabriele Monasterio (Pisa, Italy), [4]IRCCS Stella Maris (Pisa, Italy)

53.332 There is no such thing as a “Just Noticeable” Difference

Emily Sanford[1] (esanfor4@jhu.edu), Justin Halberda[1]; [1]Johns Hopkins University

53.333 Simultaneous Localization and Size Discrimination Modeling via Convolutional Neural Network

Rina Lu[1], Zhihang Ren[1], Zixuan Wang[1], Stella X. Yu[1], David Whitney[1]; [1]University of California, Berkeley

53.334 Ensemble perception, categorization, and high-level visual search

Shaul Hochstein[1] (shaulhochstein@gmail.com), Noam Khayat[1], Safa'a Abassi Abu Rukab[1]; [1]ELSC & Life Sci. Inst. Hebrew University, Jerusalem

53.335 High fidelity average orientation representation maintained across multiple time scales

Ava Mitra[1], Jason Haberman[1]; [1]Rhodes College

53.336 Visual disturbances in recent-onset psychosis and clinical high-risk state for psychosis

Rebekka Lencer[1,2] (rebekka.lencer@uni-luebeck.de), Johanna Schwarzer[2], Inga Meyhoefer[2], Linda A. Antonucci[3], Lana Kambeitz-Ilankovic[4], Marian Surmann[2], Olga Bienek[2], Georg Romer[2], Udo Dannlowski[2], Tim Hahn[2], Alexandra Korda[1], Dominic B. Dwyer[5], Anne Ruef[5], Shalaila S. Haas[6], Joseph Kambeitz[4], Raimo K.R. Salokangas[7], Christos Pantelis[8], Frauke Schultze-Lutter[9,12,13], Eva Meisenzahl[9], Paolo Brambilla[10], Alessandro Bertolino[3], Stefan Borgwardt[1], Rachel Upthegrove[11], Nikolaos Koutsouleris[5,14,15]; [1]University of Luebeck, [2]University of Muenster, [3]University of Bari Aldo Moro, [4]University of Cologne, [5]Ludwig Maximilian University Munich, [6]Icahn School of Medicine at Mount Sinai, [7]University of Turku, [8]University of Melbourne, [9]University of Duesseldorf, [10]University of Milan, [11]University of Birmingham, [12]University of Bern, [13]Airlangga University, Surabaya, Indonesia, [14]Max-Planck-Institute of Psychiatry Munich, [15]King's College London

Object Recognition: Neural models

Tuesday, May 17, 8:30 am – 12:30 pm, Banyan Breezeway

53.337 What can 5.17 billion regression fits tell us about the representational format of the high-level human visual system?

Talia Konkle[1] (talia_konkle@harvard.edu), Colin Conwell[1], Jacob S. Prince[1], George A. Alvarez[1]; [1]Harvard University

53.338 Probing the functional relevance of side-reads and bypass-connections in the primate ventral stream during visual object recognition using deep neural networks

Marcelo Armendariz[1,2], Kushin Mukherjee[3], Jiaqi Shang[1], Kohitij Kar[4]; [1]Harvard University, [2]KU Leuven, [3]University of Wisconsin-Madison, [4]Massachusetts Institute of Technology

53.339 Computational Models Recapitulate Key Signatures of Face, Body and Scene Processing in the FFA, EBA, and PPA

Alex abate[1] (aabate@mit.edu), Elizabeth Mieczkowski[1,2], Meenakshi Khosla[1,2], James DiCarlo[1,2,3], Nancy Kanwisher[1,2,3], N Apurva Ratan Murty[1,2,3]; [1]Department of Brain and Cognitive Sciences, Massachusetts Institute of Technology, [2]McGovern Institute for Brain Research, Massachusetts Institute of Technology, [3]The Center for Brains, Minds and Machines, Massachusetts Institute of Technology

53.340 A critical test of deep convolutional neural networks' ability to capture recurrent processing using visual masking.

Jessica Loke[1,2], Noor Seijdel[1,2], Lukas Snoek[1,2], Ron van de Klundert[1], Matthew van der Meer[1], Eva Quispel[1], Natalie Cappaert[3], H. Steven Scholte[1,2]; [1]Department of Psychology, University of Amsterdam, The Netherlands, [2]Amsterdam Brain & Cognition (ABC) Center, University of Amsterdam, The Netherlands, [3]Swammerdam Institute for Life Sciences, University of Amsterdam, The Netherlands

53.341 Predicting Multiple behaviors from the activity of Deep Neural Networks: Is one visual hierarchy enough?

Aryan Zoroufi*[1] (aryan@zoroufi.com), Aida Mirebrahimi*[2], Leslie Ungerleider[3], Chris Baker[3], Maryam Vaziri-Pashkam[3]; [1]Department of Electrical and Computer Engineering, K.N.TOOSI university of technology, [2]Department of Computer Science, Western University, [3]Laboratory of Brain and Cognition, National Institute of Mental Health *Equal Contribution

53.342 Bio-inspired divisive normalization improves object recognition performance in ANNs

Vijay Veerabadran[1] (vveeraba@ucsd.edu), Ritik Raina[1], Virginia De Sa[1,2]; [1]Department of Cognitive Science, University of California San Diego, [2]Halıcıoglu Data Science Institute, University of California San Diego

53.343 Benchmarking dynamic neural-network models of the human speed-accuracy tradeoff

Ajay Subramanian[1] (as15003@nyu.edu), Elena Sizikova[1], Omkar Kumbhar[1], Najib Majaj[1], Denis G. Pelli[1]; [1]New York University

53.344 An interpretable alternative to convolutional neural networks: the scattering transform

Shi Pui Li[1] (shipui2005@hotmail.com), Michael Bonner[1]; [1]Johns Hopkins University

53.345 How many non-linear computations are required for CNNs to account for the response properties of the primary visual cortex (V1)?

Hui-Yuan Miao[1] (huiyuan.miao@vanderbilt.edu), Hojin Jang[1], Frank Tong[1,2]; [1]Department of Psychology, Vanderbilt University, [2]Vanderbilt Vision Research Center

53.346 Neural model for the representation of static and dynamic bodies in cortical body patches

Prerana Kumar[1], Nick Taubert[1], Rajani Raman[2,3], Rufin Vogels[2,3], Beatrice de Gelder[4,5], Martin Giese[1]; [1]Section for Computational Sensomotorics, Hertie Institute for Clinical Brain Research, Centre for Integrative Neuroscience, University of Tuebingen, Germany, [2]Laboratory of Neuro- and Psychophysiology, Department of Neurosciences, K. U. Leuven, Belgium, [3]Leuven Brain Institute, K. U. Leuven, Belgium, [4]Department of Cognitive Neuroscience, Faculty of Psychology and Neuroscience, Maastricht University, The Netherlands, [5]Department of Computer Science, University College London, United Kingdom

Object Recognition: Perceptual similarity

Tuesday, May 17, 8:30 am – 12:30 pm, Banyan Breezeway

53.347 Whether and how individuals with ASD utilize prior belief during perceptual decision making: Evidence from an orientation categorization task

laurina fazioli[1] (laurina.fazioli@hotmail.fr), Rachel Denison[1], Bat-Sheva Hadad[1], Amit Yashar[2]; [1]Department of Special Education, Haifa University, [2]Department of Psychological & Brain Sciences, Boston University

53.348 Using an Odd-One-Out Design Affects Consistency, Agreement and Decision Criteria in Similarity Judgement Tasks Involving Natural Images.

Inés Schönmann[1] (ines.schoenmann@ru.nl), David-Elias Künstle[1,2], Felix A. Wichmann[1]; [1]University of Tübingen, [2]Max Planck Research School for Intelligent Systems

53.349 Revealing feature spaces underlying similarity judgments of natural scenes in individual participants

Peter Brotherwood[1,2] (peter.brotherwood@umontreal.ca), Andrey Barsky[2], Kendrick Kay[3], Ian Charest[1,2]; [1]cerebrUM, Département de Psychologie, Université de Montréal, Canada, [2]CHBH, School of Psychology, University of Birmingham, UK, [3]Center for Magnetic Resonance Research, Department of Radiology, University of Minnesota, United States

53.350 **Neural networks vs. humans in assessing trademark similarities**

Masahiko Noguchi[1] (mnoguchi@caltech.edu), Filip-Mihai Toma[1], Eli J. Seiner[1], Daw-An J. Wu[1], Mohammad H. Shehata[1,2], Shinsuke Shimojo[1]; [1]California Institute of Technology, [2]Toyohashi University of Technology

53.351 **Metamer generation 2.0: using fMRI and deep learning to assess the specificity of human visual processing and encoding**

Jean-Maxime Larouche[1] (jean-maxime.larouche@umontreal.ca), Clémentine Pagès[1], Frédéric Gosselin[1]; [1]University of Montreal

53.352 **How to look unique**

Zekun Sun[1] (zekun@jhu.edu), Qian Yu[1], Justin Halberda[1], Chaz Firestone[1]; [1]Johns Hopkins University

53.353 **Audiovisual Semantic Relatedness of Real-World Objects**

Kira Wegner-Clemens[1], George Malcolm[2], Sarah Shomstein[1]; [1]George Washington University, [2]University of East Anglia

Tuesday Morning Posters in Pavilion

Visual Search: Serial, temporal

Tuesday, May 17, 8:30 am – 12:30 pm, Pavilion

53.401 **The Influence of Clutter on Target Prevalence and Decision Making**

Brandon Eich[1] (beich1@lsu.edu), Melissa Beck[1]; [1]Louisiana State University

53.402 **Associative binding occurs for both task-relevant and task-irrelevant features in visual search**

Emma M. Siritzky[1] (esiritzky@gwu.edu), Samoni Nag[1], Chloe Callahan-Flintoft[2], Stephen R. Mitroff[1], Dwight J. Kravitz[1]; [1]The George Washington University, [2]U.S. Army Research Laboratory

53.403 **Selection history and the size congruity effect: Does the SCE interact with priming effects in visual search?**

Caroline Dacus[1], Nathaniel Wilson[1], Nickolas Paternoster[1], Kenith Sobel[1], Amrita Puri[1]; [1]University of Central Arkansas

53.404 **Statistical learning during within object search**

Dirk van Moorselaar[1] (dirkvanmoorselaar@gmail.com), Jan Theeuwes; [1]Vrije Universiteit Amsterdam, [2]Institute of Brain and Behavior Amsterdam

53.405 **Biasing Global and Local Attention During Low Prevalence Search**

Charlotte Kelly[1] (cmkelly@rollins.edu), Juan Guevara Pinto[1]; [1]Rollins College

53.406 **Exploring the Functional Role of Post-Error Adjustments during a Flanker Task**

Joe Opdenaker[1] (jopdenak@ttu.edu), Ema Shamasdin Bidiwala[2], Miranda Scolari[2]; [1]Texas Tech University

53.407 **Interactions of sustained attention and visual search**

Kirsten Adam[1] (kadam@ucsd.edu), John Serences[1]; [1]University of California San Diego

Visual Memory: Neural mechanisms

Tuesday, May 17, 8:30 am – 12:30 pm, Pavilion

53.408 **Massive visual long-term memory is largely dependent on meaning**

Roy Shoval[1] (rshoval@gmail.com), Nurit gronau[1], Tal Makovski[1]; [1]The Open University of Israel

53.409 **The representational geometry of images and concepts in perception and memory**

Adva Shoham[1] (advashoham@mail.tau.ac.il), Idan Grosbard[1], Yoav Ger[1], Shira Kossovsky[1], Tal Barnahor[1], Galit Yovel[1]; [1]Tel Aviv University

53.410 **Visual long-term memory guides attentional selection during serial reaction time task**

Chong Zhao[1] (chongzhao@uchicago.edu), Edward Vogel[1]; [1]University of Chicago

53.411 **Category-specific deficit in visual memory consolidation following resection of posterior para-hippocampal cortex: A case study**

Weizhen Xie[1] (weizhen.xie@nih.gov), Ai Phuong Tong[1], John Wittig[1], Sara Inati[1], Chris Baker[2], Kareem Zaghloul[1]; [1]National Institute of Neurological Disorders and Stroke, National Institutes of Health, [2]National Institute of Mental Health, National Institutes of Health

53.412 The Cortical Representation of Proprioception is Necessary for the Establishment of Long-Term Visuospatial Memory

Olivia Rutler[1] (or2244@cumc.columbia.edu), Serena Persaud, Jung Park, Eric Kandel, Randy Bruno, Stylianos Kosmidis, Michael Goldberg; [1]Zuckerman Mind, Brain, Behavior Institute, Columbia University

53.413 Detailed memory for visual scenes: remembering a few scenes with a great effort

Filip Děchtěrenko[1] (dechterenko@praha.psu.cas.cz), Jiří Lukavský[1], Petr Adámek[2,3]; [1]Czech Academy of Sciences, [2]National Institute of Mental Health, Klecany, Czech Republic, [3]Charles University

53.414 Drift-like dynamics of working memory representations in human cortex

Hsin-Hung Li[1,2] (hsin.hung.li@nyu.edu), Wei Ji Ma[1,2], Clayton Curtis[1,2]; [1]Department of Psychology, New York University, [2]Center for Neural Science, New York University

53.415 Neural representations of targets and distractors in visual working memory

Yaoda Xu[1] (xucogneuro@gmail.com); [1]Yale University

53.416 Thousands of daily recorded visual memories reveal a multidimensional cortical topography of memory

Wilma Bainbridge[1] (wilma@uchicago.edu), Chris Baker[2]; [1]University of Chicago, [2]National Institute of Mental Health

53.417 Neural analogs of memory sharpening behavior emerge earlier in inferotemporal cortex than the hippocampus

Barnes G.L. Jannuzi (barnes.g.l.jannuzi@gmail.com), Catrina M. Hacker, Travis Meyer, Madison L. Hay, Nicole C. Rust; [1]University of Pennsylvania

53.418 Temporal structure of persistent activity in macaque lateral prefrontal cortex during a naturalistic working memory task

Megan Roussy[1] (mroussy2@uwo.ca), Alex Busch[2], Rogelio Luna[3], Lyle Muller[4], Julio Martinez-Trujillo[5]; [1]University of Western Ontario

53.419 Is Theta-Gamma Coupling Memory Specific?

Orestis Papaioannou[1], Molly A. Erickson[1]; [1]University of Chicago

53.420 Identifying the format of neural codes for orientation WM by predictive modeling of fMRI activation patterns

Kelvin Vu-Cheung[1] (vucheung@psych.ucsb.edu), Thomas Sprague[1]; [1]University of California, Santa Barbara

53.421 Neural basis of remembering details of a social versus non-social scene shown in a naturalistic movie

Haemy Lee Masson[1] (haemy.leemasson@jhu.edu), Lucy Chang[1], Leyla Isik[1]; [1]Johns Hopkins University

53.422 Do the contralateral delay activity, univariate alpha activity, and multivariate alpha activity all measure working memory storage?

Peter Novak[1] (ptnovak41@gmail.com), David Sutterer[1], Geoffrey Woodman[1]; [1]Vanderbilt University

Visual Memory: Strategy, individual differences

Tuesday, May 17, 8:30 am – 12:30 pm, Pavilion

53.423 Assessing individual differences in perceptual grouping strategy in working memory

Yin-ting Lin[1] (lin.3913@osu.edu), Andrew B. Leber[1]; [1]The Ohio State University

53.424 Detailed item-level information persists in visual working memory throughout chunk learning.

Isabella DeStefano[1] (idestefa@ucsd.edu), Michael Allen[1], Timothy Brady[1]; [1]University of California San Diego

53.425 Investigating Sex Differences in Mental Rotation and Visual Working Memory

Daniel San Miguel[1], Collin Scarince[1]; [1]Texas A&M University - Corpus Christi

53.426 The Relation between Working Memory and Prospection

Li Yang[1] (lyang147@ucr.edu), Weiwei Zhang[1]; [1]University of California, Riverside

53.427 Children show adult-like memory patterns to scene images by the age of five
Xiaohan (Hannah) Guo[1] (hannahguo@uchicago.edu), Wilma A. Bainbridge[1]; [1]The University of Chicago

53.428 Impact of active and latent concerns about COVID-19 on multiple attention tasks
Caitlin A. Sisk[1] (siskx024@umn.edu), Yi Ni Toh[1], Jihyang Jun[1], Roger W. Remington[1], Vanessa G. Lee[1]; [1]University of Minnesota

53.429 Joint Effects of Physical Effort and Cognitive Effort on Pupil Size
Lilian Azer[1] (lazer001@ucr.edu), Weiwei Zhang[2]; [1]University of California, Riverside, [2]University of California, Riverside

Motion: Models, mechanisms, illusions

Tuesday, May 17, 8:30 am – 12:30 pm, Pavilion

53.430 Preferential pupillary responses to very fast motion
Kyriaki Mikellidou[1,2], Paola Binda[3]; [1]University of Cyprus, Cyprus, [2]University of Florence, Italy, [3]University of Pisa, Italy

53.431 Motion streak facilitates motion deblurring
Seonggyu Choe[1] (sgchoe@unist.ac.kr), Chang-Yeong Han[1], Hyosun Kim[2], Oh-Sang Kwon[1]; [1]Ulsan National Institute of Science and Technology, [2]Samsung Display R&D center

53.432 Manipulating the Fourier spectra of stimuli comprising a 2-frame kinematogram to study early visual motion-detecting mechanisms: perception vs. short latency ocular-following responses (OFRs)
Boris Sheliga[1] (bms@lsr.nei.nih.gov), Edmond FitzGibbon; [1]NEI

53.433 Feature tracking counteracts illusory non-rigidities from motion-energy
Akihito Maruya[1] (user3098@sunyopt.edu), Qasim Zaidi[2]; [1]Graduate Center for Vision Research, State University of New York, New York, USA

53.434 Barber-pole illusion: The contribution of long edges in motion perception
Rémy Allard[1] (remy.allard@umontreal.ca), Yara Mohiar[1], Asma Braham chaouche[1], Nathalie Chateau[1]; [1]School of optometry, Universite de Montreal

53.435 Dynamic Ebbinghaus vs the contracting-expanding square illusions: so similar and yet not the same.
Saki Takao[1,2] (sakitakao76@gmail.com), Katsumi Watanabe[2], Patrick Cavanagh[1,3]; [1]York University, Canada, [2]Waseda University, Japan, [3]Dartmouth College, USA

53.436 Ruling out an aperture motion solution as the source of the double-drift illusion
Marvin Maechler[1] (marvin.r.maechler.gr@dartmouth.edu), Ananya Alleyne[1], Victoria Faustin[1], Patrick Cavanagh[2], Peter Tse[1]; [1]Dartmouth College, [2]Glendon College

53.437 Is The Double-Drift Illusion Special?
Sharif Saleki[1], Ineke Cordova[2], Patrick Cavanagh[1,3,4], Peter Tse[1]; [1]Dartmouth college, [2]Carleton College, Northfield, MN, USA, [3]Glendon College, Toronto, ON, Canada, [4]York University

53.439 The motion silencing effect in static and dynamic orientation change detection
Tabea-Maria Haase[1] (tabea-maria.haase@bristol.ac.uk), Anina N. Rich[2], Iain D. Gilchrist[1], Christopher Kent[1]; [1]University of Bristol, UK, [2]Macquarie University, Australia

53.440 Motion discrimination around the visual field
Rania Ezzo[1,2] (rje257@nyu.edu), Jonathan Winawer[1,3], Marisa Carrasco[1,3], Bas Rokers[1,2,3]; [1]Department of Psychology, New York University, New York, United States, [2]Psychology, New York University Abu Dhabi, Abu Dhabi, United Arab Emirates, [3]Center for Neural Science, New York University, New York, United States

53.441 Humans make non-ideal inferences about world motion
Tyler S Manning[1] (tmanning@berkeley.edu), Jonathan W Pillow[2], Bas Rokers[3], Emily A Cooper[4]; [1]University of California, Berkeley, [2]Princeton University, [3]NYU Abu Dhabi

Perception and Action: Virtual environments

Tuesday, May 17, 8:30 am – 12:30 pm, Pavilion

53.442 Distributional biases in spatial memory during virtual navigation

Kathryn N. Graves[1] (kathryn.graves@yale.edu), Brynn E. Sherman[1], Nicholas B. Turk-Browne[1,2]; [1]Yale University, [2]Wu Tsai Institute

53.443 Locomotor decision-making altered by different walking interfaces in virtual reality

Cyan Kuo[1] (cyk@cse.yorku.ca), Rob Allison; [1]York University, [2]York University

53.444 Perceived Humanness Bias in Additive Light Model Displays

Austin Erickson[1] (ericksona@knights.ucf.edu), Gerd Bruder[1], Gregory Welch[1], Isaac Bynum[2], Tabitha Peck[2], Jessica Good[2]; [1]University of Central Florida, [2]Davidson College

53.445 The role of expectations in embodiment and presence

Pierre-Pascal Forster[1,2] (pierre.p.forster@psychol.uni-giessen.de), Harun Karimpur[1,2], Katja Fiehler[1,2]; [1]Experimental Psychology, Justus Liebig University Giessen, Germany, [2]Center for Mind Brain and Behavior, Philipps University Marburg and Justus Liebig University Giessen, Germany

53.446 Virtual hand actions show behavioral and neural signatures of right-handedness

Jaana Leppala[1] (jleppala@uwo.ca), Karsten Babin[1], Kevin Stubbs[1], Jody C. Culham[1]; [1]University of Western Ontario, London Canada

53.447 Planning visually-guided movement trajectories to hit targets and avoid obstacles in a 3D immersive environment

Laurence Maloney[1] (ltm1@nyu.edu), Anne Thaler[2], Adam Bebko[2], Denise Henriques[2], Nikolaus Troje[2]; [1]New York University, [2]York University, Toronto

53.448 The effects of visual cues in an immersive virtual reality environment on adaptation to internal and external errors

Shanaathanan Modchalingam[1] (s.modcha@gmail.com), Bernard Marius 't Hart[1], Denise Henriques[1]; [1]York University

Temporal Processing: Timing perception, duration

Tuesday, May 17, 8:30 am – 12:30 pm, Pavilion

53.449 Temporal modulations of extrafoveal sensitivity to changes during fixation

Sanjana Kapisthalam[1] (skapisth@ur.rochester.edu), Martina Poletti[1]; [1]University of Rochester

53.450 Context dependent mechanisms of time and numerosity during bisection and discrimination task performance

Candice T. Stanfield-Wiswell[1] (cstanfie@gmu.edu), Martin Wiener[1]; [1]George Mason University

53.451 Serial Dependence in Visual Causality

Michele Deodato[1] (md5050@nyu.edu), David Melcher[1]; [1]New York University Abu Dhabi

53.452 Reverse motion from reversed time perception?

Pascal Mamassian[1] (pascal.mamassian@ens.fr); [1]CNRS & Ecole Normale Supérieure, Paris

53.453 Temporal interval discrimination with continuous and discrete stimuli

Anthony Bruno[1] (anthony_bruno@brown.edu), Leslie Welch[1]; [1]Brown University

53.454 The Impact of Fibromyalgia Pain on Space and Time Perception

Mirinda Whitaker[1] (mirinda.whitaker@utah.edu), Akiko Okifuji[1], Sarah Creem-Regehr[1], Jeanine Stefanucci[1]; [1]University of Utah

53.455 Separate but interacting sources drive serial dependencies in temporal motor and perception tasks

Nadine Schlichting[1] (nadine.schlichting@hhu.de), Clara Fritz[1], Eckart Zimmermann[1]; [1]Heinrich Heine University Düsseldorf, Germany

53.456 Seeing nothing happening: Moments of absence as perceptual events

Rui Zhe Goh[1] (rgoh1@jhu.edu), Ian Phillips[1], Chaz Firestone[1]; [1]Johns Hopkins University

53.457 Moderate physical activity alters the estimation of time, but not space.

Claudia Lunghi[1] (claudia.lunghi@ens.fr), Alessia Tonelli[2], Monica Gori[2]; [1]Laboratoire des systèmes perceptifs, Département d'études cognitives, École normale supérieure, PSL Research University, CNRS, 75005 Paris, France, [2]UVIP – Unit for visually impaired people, Istituto Italiano di Tecnologia, Genova, Italy

53.458 Assessing the interocular delay in amblyopia and its link to visual acuity

Daniel Gurman[1] (daniel.gurman@mail.mcgill.ca), Alexandre Reynaud[1]; [1]McGill University

Visual Search: Serial, temporal

Tuesday, May 17, 8:30 am – 12:30 pm, Pavilion

53.459 The Low Prevalence Effect During Visual Search of Randomly-Directed Dynamic Stimuli

Krystina Diaz[1,2] (krystina.l.diaz.ctr@mail.mil), Margaret Wise[1,2], Sylvia Guillory[1,2], Jeffrey Bolkhovsky[2], Chad Peltier[1,2]; [1]Leidos, Inc., [2]Naval Submarine Medical Research Laboratory (NSMRL)

Tuesday Afternoon Posters in Banyan Breezeway

Face Perception: Individual differences

Tuesday, May 17, 2:45 – 6:45 pm, Banyan Breezeway

56.301 Do Super Recognizers Excel at Deepfake Detection?

Matthew Groh[1] (groh@mit.edu), Meike Ramon[2]; [1]MIT, [2]Applied Face Cognition Lab, Switzerland

56.302 Does social network quality influence facial recognition abilities in emerging adults?

Myles Arrington[1], K. Suzanne Scherf[1]; [1]Pennsylvania State University

56.303 Individual differences in the tuning of the face adaptation aftereffect to the preferred fixation location on the face

Puneeth Chakravarthula[1] (puneeth@ucsb.edu), Ansh Soni[1], Miguel Eckstein[1]; [1]UCSB

56.304 Optimizing Wisdom-of-the-Crowd by Measuring Idiosyncratic Perceptual Biases

Zixuan Wang[1] (zixuan@berkeley.edu), Mauro Manassi[2], Zhimin Chen[1], David Whitney[1]; [1]University of California, Berkeley, [2]University of Aberdeen, UK

56.305 Stimulus size modulates idiosyncratic neural face identity discrimination

Lisa Stacchi[1] (lisa.stacchi@unifr.ch), Roberto Caldara[1]; [1]University of Fribourg

56.306 The impact of sex on visual strategies underlying the discrimination of facial expressions of pain.

Pierre-Louis Audette[1], Marie-Pier Plouffe-Demers[1,2], Daniel Fiset[1], Caroline Blais[1]; [1]Université du Québec en Outaouais, [2]Université du Québec à Montréal

56.307 The Impact of Deafness on the Use of Information During Facial Emotion Discrimination

Catherine Landry[1], Justine Lévesque[2], Marie-Ève Doucet[2], Nicolas Dupuis-Roy[2], Frédéric Gosselin[1], Hugo Théoret[1], François Champoux[3], Franco Lepore[1]; [1]cerebrum, Département de Psychologie, Université de Montréal, Canada, [2]Département de Psychologie, Université de Montréal, Canada, [3]École d'orthophonie et d'audiologie, Université de Montréal, Canada

56.308 Colour predictors of facial preference differ in Caucasian and Chinese populations

Yan Lu[1] (sdyl@leeds.ac.uk), Kaida Xiao[1,2], Jie Yang[1,3], Michael Pointer[1], Changjun Li[2], Sophie Wuerger[4]; [1]Leeds Institute of Textile and Colour, University of Leeds, UK, [2]School of Electronics and Information Engineering, University of Science and Technology Liaoning, China, [3]School of New Media, Beijing Institute of Graphic Communication, China, [4]Department of Psychology, University of Liverpool, UK

56.309 Differences in cognitive eye size between self and others in people with face dissatisfaction

Izumi Ayase[1] (110izumi@sfc.keio.ac.jp), Masaki Mori[1], Takaaki Kato[1]; [1]Keio University, Japan

Face Perception: Development and Disorders

Tuesday, May 17, 2:45 – 6:45 pm, Banyan Breezeway

56.310 Can face recollection be improved in developmental prosopagnosia? Evidence from a novel repetition-lag training program

Regan Fry[1,2] (regan_fry@hms.harvard.edu), Mieke Verfaellie[3,4], Nicole Anderson[5,6], Joseph DeGutis[1,2]; [1]Department of Psychiatry

Harvard Medical School, Boston MA, [2]Boston Attention and Learning Lab, Boston VA Healthcare System, Boston MA, [3]Memory Disorders Research Center, Boston VA Healthcare System, Boston MA, [4]Department of Psychiatry, Boston University School of Medicine, Boston MA, [5]Rotman Research Institute, Baycrest, Toronto, Ontario, Canada, [6]Departments of Psychology and Psychiatry, University of Toronto, Ontario, Canada

56.311 Computational brain dynamics in prosopagnosia

Simon Faghel-Soubeyrand[1,2] (simon.faghel-soubeyrand@umontreal.ca), Anne-Raphaelle Richoz[3], Delphine Waeber[3], Jessica Woodhams[4], Frédéric Gosselin[1], Roberto Caldara[3], Ian Charest[1,2]; [1]Université de Montréal, Département de Psychologie, cerebrUM, [2]University of Birmingham, Center for Human Brain Health, [3]Université de Fribourg, Département de Psychologie, [4]University of Birmingham, Centre for Crime, Justice and Policing

56.312 Face distortions in prosopometamorphopsia provide new insights into face representation

Sarah B. Herald[1], Brad Duchaine[1]; [1]Dartmouth College

56.313 Intact sex perception in a young acquired prosopagnosic

Alison Dickstein[1], Marie-Luise Kieseler[1], Brad Duchaine[1]; [1]Dartmouth College

56.314 Neurodiversity in Gaze Patterns and Face Recognition: Individual Differences in Autistic Face Processing Fall Along the Continuum of Neurotypical Heterogeneity

Karisa Parkington[1] (karisaparkington@gmail.com); [1]Independent Researcher

56.315 Pain decoding without mental representations of the eyes

Camille Saumure[1] (camillesaumure1991@gmail.com), Anne-Raphaëlle Richoz[1], Daniel Fiset[2], Caroline Blais[2], Roberto Caldara[1]; [1]University of Fribourg, [2]University of Quebec in Outaouais

56.316 Scanning faces: A deep learning approach to studying the eye movements of prosopagnosic subjects

Atlas Kazemian[1] (atlaskazemian@gmail.com), Jason Barton, Ipek Oruc; [1]researcher at the university of british columbia, [2]Professor, Medicine (Neurology), Ophthalmology and Visual Sciences, Psychology UBC, Canada Research Chair, Marianne Koerner Chair in Brain Diseases, [3]Associate Professor, Department of Ophthalmology & Visual Sciences, Faculty of Medicine, UBC

56.317 Typical sensitivity to changes in interpersonal distance in developmental prosopagnosia

Carl Bunce[1] (c.bunce@mail.bbk.ac.uk), Maria Tsantani[1], Katie L. H. Gray[2], Richard Cook[1,3]; [1]Birkbeck, University of London, [2]University of Reading, [3]University of York

56.318 Developmental trajectory of face preference differs across individual in infant samples with ASD and without ASD

Xiaomei Zhou[1] (zhoux169@mcmaster.ca), M.D. Rutherford[1]; [1]McMaster University

56.319 Feature and holistic mechanisms uniquely contribute to face perception deficits in developmental prosopagnosia

YI ZHAGN[1,2] (zhang104@bu.edu), Regan Fry2[2,3], Joseph DeGutis[2,3]; [1]Boston university, [2]Boston Attention and Learning Laboratory, VA Boston Healthcare System, Boston MA, [3]Department of Psychiatry, Harvard Medical School, Boston MA

56.320 Visual attention for a face-like stimulus and correlates with autistic traits: using a henohenomoheji-type stimulus

Midori Sugiyama[1] (midori.sugiyama@keio.jp), Sakurako Yamanishi[1], Shinya Fujii[1], Masaki Mori[1]; [1]Keio University, Japan

Spatial Vision: Across the visual field

Tuesday, May 17, 2:45 – 6:45 pm, Banyan Breezeway

56.321 Do sensory tuning functions differ between the fovea and periphery?

Shutian Xue[1] (shutian.xue@nyu.edu), Antonio Fernández[1], Marisa Carrasco[1,2]; [1]Department of Psychology, New York University, New York, United States, [2]Center for Neural Science, New York University, New York, United States

56.322 Efficient Dataflow Modeling of Peripheral Encoding

Rachel Brown[1] (rachelabrown347@gmail.com), Vasha Dutell[1,2], Bruce Walter[3], Ruth Rosenholtz[4], Peter Shirley[1], Morgan McGuire[1], David Luebke[1]; [1]NVIDIA, [2]UC Berkeley, [3]Cornell University, [4]Massachusetts Institute of Technology

56.324 Mapping temporal sensitivity across the central fovea

Ruitao Lin[1] (rlin18@ur.rochester.edu), Janis Intoy[1], Michele Rucci[1]; [1]University of Rochester

56.325 Meta-awareness of anisotropic processing of visual information across the visual field.

Devi Klein[1] (dklein@ucsb.edu), Miguel P. Eckstein[2]; [1]UCSB, graduate student, [2]UCSB, Faculty

56.326 Redundancy masking of faces: When trios look like duos

Miao Li[1,2] (miao.li@univ-lille.fr), Dandan Yu[1], Bert Reynvoet[2], Bilge Sayim[1,3]; [1]University of Lille, [2]KU Leuven, [3]University of Bern

56.327 Spatial Heterogeneity in Localization Biases Predicts Crowding Performance

Zainab Haseeb[1] (zainab.haseeb@mail.utoronto.ca), Benjamin Wolfe[1], Anna Kosovicheva[1]; [1]University of Toronto Mississauga

56.328 The central visual field might mediate night vision

Avital Moshkovitz[1] (1moavital@gmail.com), Maria Maria Lev[1], Uri Polat[1]; [1]Bar-Ilan University, Ramat Gan Israel

56.329 Relating residual visual function to visual areas affected by visual field loss

Lucy Starling[1], Junaid Hameed[1], Hanna E. Willis[1], Amirah Khan[1], Rachel Maxwell[1], Marco Tamietto[2], Sara Ajina[1], Holly Bridge[1]; [1]University of Oxford, UK, [2]University of Torino, Italy

56.330 A New Method for Measuring Visual Snow Symptoms

Samantha Montoya[1], Michael Lee[2], Stephen Engel[3], Michael-Paul Schallmo[4]; [1]University of Minnesota, Graduate Program in Neuroscience, [2]University of Minnesota, Department of Ophthalmology and Visual Neurosciences, [3]University of Minnesota, Department of Psychology, [4]University of Minnesota, Department of Psychiatry and Behavioral Sciences

Development

Tuesday, May 17, 2:45 – 6:45 pm, Banyan Breezeway

56.331 Changes in the angry-male/happy-female bias across development

Erinda Morina[1] (erinda.morina001@umb.edu), Vivian Ciaramitaro[1]; [1]University of Massachusetts Boston

56.332 Attention to faces and races in the infant brain: Evidence from fast periodic visual stimulation

Jessica Figueira[1] (jessica.sanchesb@ufl.edu), Ryan Barry-Anwar[1], Mina Elhamiasl[1], Andreas Keil[1], Lisa Scott[1]; [1]Psychology Department, University of Florida

56.333 Cross-decoding of eye movement dynamics reveals the incremental development of face-race representations in infancy

Gabriel (Naiqi) Xiao[1] (xiaon8@mcmaster.ca), Anna Herbolzheimer[2], Shaoying Liu[3], Lauren Emberson[4]; [1]McMaster University, [2]Princeton University, [3]Zhejiang Sci-Tech University, [4]The University of British Columbia

56.334 The Role of Familiarity in Infant Selective Attention to the Eyes and Language Development

Jamie Newland[1] (jnewland96@ufl.edu), Lisa S. Scott[1]; [1]University of Florida

56.335 The selectivity and development of the visual word form area and frontotemporal language network in pre-readers and beginning readers

Kelly J Hiersche[1] (hiersche.1@buckeyemail.osu.edu), Jin Li[2], Zeynep M Saygin[3]; [1]The Ohio State University

56.336 Development and functional relevance of visual word-selectivity and laterality

Jin Li[1] (li.9361@buckeyemail.osu.edu), Patricia Stefancin[1], Zeynep Saygin[1]; [1]The Ohio State University

56.337 Children with dyslexia have a deficit in visual encoding of letter strings, but not in exogenous attention

Mahalakshmi Ramamurthy[1] (maha10@stanford.edu), Alex White[2], Patrick Donnelly[3], Kenny An Tang[4], Clementine Chou[5], Grace Adebogun[6], Jason Yeatman[7]; [1]Developmental-behavioral Pediatrics, School of Medicine & Graduate School of Education, Stanford University, CA, USA., [2]Department of Neuroscience & Behavior, Barnard College, NY, USA., [3]Department of Speech & Hearing Sciences, University of Washington, Seattle, WA.

56.338 Temporo-Parietal tDCS Alters Motion Perception and Visuo-Spatial Attention in Dyslexia

Simone Gori[1] (simone.gori@unibg.it), Giulia Lazzaro[2,3], Sara Bertoni[1], Deny Menghini[2], Floriana Costanzo[2], Sandro Franceschini[4], Cristiana Varuzza[2], Luca Ronconi[5], Andrea Battisti[2], Andrea Facoetti[6], Stefano Vicari[2,7]; [1]Department of Human and Social Sciences, University of Bergamo, [2]Child and Adolescent Psychiatry Unit, Department of Neuroscience, Bambino Gesù Children's Hospital, IRCCS, [3]Department of Human Science, LUMSA University of Rome, [4]University of Insubria, [5]School of Psychology, University "Vita-Salute San Raffaele", [6]Department of General Psychology, University of Padova, [7]Department of Life Sciences and Public Health, Catholic University of the Sacred Heart

56.339 Alpha Desynchronization to Faces and Objects Across the First Year of Life

Mina Elhamiasl[1] (melhamiasl@ufl.edu), Jessica Figueira[1], Ryan Barry-Anwar[1], Zoe Pestana[2], Andreas Keil[1], Lisa S. Scott[1]; [1]University of Florida, [2]UC Davis

56.340 Metacontrast masking in early infancy

Yusuke Nakashima[1], So Kanazawa[2], Masami K. Yamaguchi[1]; [1]Chuo University, [2]Japan Women's University

56.341 Recurrent interactions shape cortical responses to sensory experience during development

Augusto Abel Lempel[1] (augusto.lempel@mpfi.org), David Fitzpatrick; [1]Max Planck Florida Institute for Neuroscience, [2]Max Planck Florida Institute for Neuroscience

56.342 Uncorrected early visual bias affects vision development and persist in adults

Gad Serero[1] (gadserero29@gmail.com), Maria Lev[1], Dov Sagi[2], Uri Polat[1]; [1]Bar-Ilan University, Ramat-Gan, Israel, [2]The Weizmann Institute of Sciences, Rehovot, Israel

56.343 Cortical structure in the primary visual cortex (V1) in congenital achromatopsia

Mahtab Farahbakhsh[1] (m.farahbakhsh.16@ucl.ac.uk), Elaine J. Anderson[1], Nashila Hirji[1], Serena Zaman[2], Geraint Rees[1], Michel Michaelides[2], Tessa M. Dekker[1]; [1]University College London, [2]Moorfields Eye Hospital

56.344 Polar angle asymmetries in V1 cortical magnification differ between children and adults

Ekin Tuncok[1], Marc Himmelberg[1], Jesse Gomez[2], Kalanit Grill-Spector[3], Marisa Carrasco[1], Jonathan Winawer[1]; [1]New York University, [2]Princeton University, [3]Stanford University

56.345 Perceptual and neural representations of texture naturalness in young macaques

Gerick M. Lee[1] (gerick@cns.nyu.edu), Carla L. Rodríguez-Deliz[1], Najib J. Majaj[1], J. Anthony Movshon[1], Lynne Kiorpes[1]; [1]New York University

Eye Movements: Neural, fixation, instrumentation

Tuesday, May 17, 2:45 – 6:45 pm, Banyan Breezeway

56.346 Microsaccades to the midpoint between targets in a visual attention task

Shawn M. Willett[1] (smw146@pitt.edu), J. Patrick Mayo[1]; [1]Department of Ophthalmology, University of Pittsburgh

56.347 Fixation related Visual Mismatch Negativity in Free Viewing

Oren Kadosh[1] (okadoshx@gmail.com), Yoram Bonneh[1]; [1]Bar-Ilan University

56.348 Gaze-dependent brain activity during narrative perception and recall

Matthias Nau[1], Austin Greene[1], Janice Chen[2], Christopher Baker[1]; [1]The Laboratory of Brain and Cognition, The National Institute of Mental Health, Bethesda, MD, USA, [2]Department of Psychological & Brain Sciences, Johns Hopkins University, Baltimore, MD, USA

56.349 Investigating the consistency of pupil-linked cognitive processes across multiple disparate tasks

Russell Cohen Hoffing[1] (russell.cohenh@gmail.com), Javier Garcia[1], Jean Vettel[1], Steven Thurman[1]; [1]DEVCOM Army Research Labs

56.350 Dynamic interactions between the two hemispheres facilitate value-based decisions.

Atul Gopal[1] (atulgopal.pa@gmail.com), Okihide Hikosaka; [1]Laboratory of Sensorimotor Research - National Eye Institute, NIH

56.351 High-resolution oculomotor measurements via a digital Dual Purkinje Image eye-tracker

Ruei-Jr Wu[2,3] (rueijrwu@rochester.edu), Paul Jolly[1,2], Soma Mizobuchi[1,2], Ashley M. Clark[1,2], Zhetuo Zhao[1,2], Bin Yang[1,2], Janis Intoy[1,2], Michele A. Cox[1,2], Michele Rucci[1,2]; [1]Department of Brain and Cognitive Sciences, University of Rochester, [2]Center for Vision Science, University of Rochester, [3]The Institute of Optics, University of Rochester

56.352 Evaluating Data Stability During Active Head-Eye Tracking: A Comparison of Dynamic Gaze Error between Two Custom-Built Head-Mounted Devices

Kamran Binaee[1] (kamranbinaee@gmail.com), Bharath Shankar[1], Brian Szekely[1], Michelle Greene[2], Paul MacNeilage[1]; [1]University of Nevada Reno, [2]Bates College

56.353 Validation of a Mouse-Contingent Bi-Resolution Display to measure attention in online videos

Karissa Payne[1] (karipayne@ksu.edu), Brian Howatt[1], Sahand Shaghaghi[2], Lester Loschky[1]; [1]Kansas State University, [2]University of Waterloo

56.354 Slippage Correction in Mobile Head Mounted Eye-tracking Systems

Arnab BISWAS[1] (arnab.biswas93@gmail.com), Kamran Binaee[1], Mark D. Lescroart[1]; [1]University of Nevada, Reno,

56.355 Maintaining fixation by children in a virtual reality version of pupil perimetry

Brendan Portengen[1] (b.l.portengen-2@umcutrecht.nl), Giorgio Porro[1], Demi Jansen[2], Carlijn van den Boomen[2], Saskia Imhof[1], Marnix Naber[2]; [1]UMC Utrecht, [2]Utrecht University

56.356 Cognitive Influences on Ocular Drifts during Visual Discrimination

Yen-Chu Lin[1] (yel2005@med.cornell.edu), Janis Intoy[2], Ashley M. Clark[2], Michele Rucci[2], Jonathan D. Victor[1]; [1]Weill Cornell Medical College, [2]University of Rochester

56.357 Eye and head movement recordings using smartphone: measurements of accuracy and precision

Jorge Otero-Millan[1,2], T Maxwell Parker[2], Shervin Badihian[2,3], Ahmed Hassoon[4], Ali S. Saber Tehrani[2], Nathan Farrell[2,3,4], David E Newman-Toker[2,3,4]; [1]Herbert Wertheim School of Optometry and Vision Science, University of California, Berkeley, Berkeley, CA, USA, [2]Department of Neurology, The Johns Hopkins University, Baltimore, MD, USA, [3]Armstrong Institute Center for Diagnostic Excellence, Baltimore, MD, USA, [4]Department of Epidemiology, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

56.358 Decoding the reference frame of spatial vision by means of fMRI population receptive field mapping

Martin Szinte[1,2] (martin.szinte@gmail.com), Gilles de Hollander[2,3], Marco Aqil[2], Serge Dumoulin[2,4], Tomas Knapen[2,4]; [1]Institut de Neurosciences de la Timone, Marseille, France, [2]Spinoza Centre for Neuroimaging, Amsterdam, Netherlands, [3]Zurich Center for Neuroeconomics, Zurich, Switzerland, [4]Vrije Universiteit Amsterdam, Amsterdam, Netherlands

56.359 Unilateral V1 damage leads to micro-offsets of monocular fixation towards the cortically-blinded field

Martina Poletti[1] (martina.poletti@gmail.com), Ashley Clark[1], Matthew Cavanaugh[1], Krystel Huxlin[1]; [1]University of Rochester

56.360 Neural correlates of curved saccades in the primate frontal eye field

Hamidreza Ramezanpour[1,2,3] (hamidram@yorku.ca), Jeffrey Schall[1,3,4], Mazyar Fallah[1,2,3,4,5]; [1]Centre for Vision Research, York University, Toronto, Ontario, Canada, [2]School of Kinesiology and Health Science, Faculty of Health, York University, Toronto, Ontario, Canada, [3]VISTA: Vision Science to Application, York University, Toronto, Ontario, Canada, [4]Department of Biology, York University, Toronto, Ontario, Canada, [5]Department of Human Health and Nutritional Sciences, College of Biological Science, University of Guelph, Guelph, Ontario, Canada

Tuesday Afternoon Posters in Pavilion

Visual Search: Eye movements, memory, knowledge

Tuesday, May 17, 2:45 – 6:45 pm, Pavilion

56.401 Title: Where's Waldo?: Analyzing visual search behaviour with a web-based eye tracking system

Amy vanWell[1] (amyvanwell@gmail.com), James Tanaka[1]; [1]University of Victoria

56.402 Fixational eye movements affect visually guided behaviors in complex visual search tasks

Sunwoo Kwon[1] (kwsunwoo@berkeley.edu), Avi Aizenman[3], Dennis Levi[1,2]; [1]Herbert Wertheim School of Optometry, UC Berkeley, [2]Helen Wills Neuroscience Institute, UC Berkeley, [3]Department of Psychology, University of Giessen

56.403 The effects of crowd gaze on visual search

Shuyi Chen[1] (pennyshuyichen@utexas.edu), Sholei Croom[2], Kimberly Schauder[3], Jacob Yates[4], Duje Tadin[5], Woon Ju park[6]; [1]University of Texas Austin, Center for Perceptual Systems, Department of Psychology, [2]Johns Hopkins University, Department of Psychological and Brain Sciences, [3]University of Louisville School of Medicine, Norton Children's Hospital, [4]University of Maryland, Department of Biology, [5]University of Rochester, Department of Brain and Cognitive Science, Center for Visual Science, Department of Ophthalmology, Department of Neuroscience, [6]University of Washington, Department of Psychology

56.404 Ideal Searcher with Inter-Saccade Response Correlations

Weimin Zhou[1] (weiminzhou@ucsb.edu), Miguel Eckstein[1]; [1]University of California, Santa Barbara

56.405 Evidence of separate learning system contributions in categorical visual search

Corey Bohil[1] (corey.bohil@ucf.edu), Ashley Phelps[1], Mark Neider[1], Joseph Schmidt[1]; [1]University of Central Florida

56.406 Interference from a spatially incompatible salient distractor on target location probability learning

Chen Chen[1] (chen5954@umn.edu), Vanessa G. Lee[1]; [1]University of Minnesota

56.407 The consequences of effects of saliency are long-lived (and stubborn)

Heinrich Liesefeld[1,2] (heinrich.liesefeld@uni-bremen.de), Martin Constant[1,2], Klaus Oberauer[3]; [1]University of Bremen, [2]Graduate School of Systemic Neurosciences, LMU München, [3]University of Zurich

56.408 Learning to suppress a location does not depend on knowing which location

Ya Gao[1,2] (cherry1028@outlook.com), Jan Theeuwes[1,2,3]; [1]Vrije Universiteit Amsterdam, [2]Institute Brain and Behavior Amsterdam (iBBA), [3]William James Center for Research, ISPA-Instituto Universitario

56.409 Searching the sock drawer: How do people find pairs?

Aoqi Li[1] (aqli@whu.edu.cn), Jeremy M Wolfe[2,3], Zhenzhong Chen[1], Christian NL Olivers[4,5]; [1]School of Remote Sensing and Information Engineering, Wuhan University, Wuhan, PR China, [2]Brigham & Women's Hospital, Boston, MA, USA, [3]Harvard Medical School, Boston, MA, USA, [4]Department of Experimental and Applied Psychology, Vrije Universiteit Amsterdam, Amsterdam, The Netherlands, [5]Institute for Brain & Behavior Amsterdam, Vrije Universiteit, Amsterdam

56.410 Implicit spatiotemporal predictions improve short-term memory representation

Nir Shalev[1] (nir.shalev@wolfson.ox.ac.uk), Sage Boettcher[1], Anna Chrsitina (Kia) Nobre[1]; [1]University of Oxford

56.411 Hybrid search performance is better for target sets with greater memory strength

Viola Störmer[2] (viola.s.stoermer@dartmouth.edu), Lauren Williams[1], Timothy Brady[1]; [1]University of California, San Diego, [2]Dartmouth College

56.412 Learned associations bias the contents of the attentional template during visual search

Zhiheng Zhou[1] (zhhzhou@ucdavis.edu), Joy Geng[1]; [1]University of California Davis

56.413 COCO-CursorSearch: A large-scale cursor movement dataset approximating eye movement in visual search

Yupei Chen[1], Gregory Zelinsky[2]; [1]The Smith-Kettlewell Eye Research Institute, [2]Stony Brook University

Visual Memory: Encoding, retrieval

Tuesday, May 17, 2:45 – 6:45 pm, Pavilion

56.414 Scene Complexity Captures the Detail Trace of Visual Episodic Memory

Cameron Kyle-Davidson[1] (ckd505@york.ac.uk), Karla K. Evans[1]; [1]University of York

56.415 Tracking induced forgetting across both strong and weak memory representations to test competing theories of forgetting

Zara Joykutty[1], Emma Megla[2], Ashleigh M. Maxcey[1]; [1]Vanderbilt University, [2]University of Chicago

56.416 Data Shape and Response Modalities Can Bias Estimations of Average Data Location in Visualizations

Tejas Savalia[1] (tsavalia@umass.edu), Cristina Ceja[2], Rosemary Cowell[1], Cindy Xiong[1]; [1]University of Massachusetts Amherst, [2]Northwestern University

56.417 Understanding eye movements as retrieval cues: the role of peripheral visual input

Keren Taub[1] (kerentaub@gmail.com), Shlomit Yuval-Greenberg[1,2]; [1]Sagol school of neuroscience, Tel Aviv University, [2]School of psychological sciences, Tel-Aviv University

56.418 Memory-based predictions across head-turns in naturalistic scene perception

Anna Mynick[1] (anna.r.mynick.gr@dartmouth.edu), Allie Burrows[1], Brenda D. Garcia[1], Thomas L. Botch[1], Adam Steel[1], Caroline E. Robertson[1]; [1]Dartmouth College

56.419 Number, not uncertainty, drives logarithmic compression of numerosity estimates

Hyekyung Park[1] (park.2766@osu.edu), John E. Opfer[1]; [1]The Ohio State University

56.420 The multiple encoding benefit: encoding specificity does not hinder the retrieval generalizability of visual long-term memory

Caitlin J. I. Tozios[1] (caitlin.tozios@mail.utoronto.ca), Keisuke Fukuda[1,2]; [1]University of Toronto, [2]University of Toronto Mississauga

56.421 Learning the visual memorability of images with feedback-based training

Cambria Revsine[1] (crevsine@uchicago.edu), Wilma A. Bainbridge[1]; [1]University of Chicago

56.422 Memory polarization over visual evidence of climate change

Andrew Li[1], Yu Luo[1], Jiaying Zhao[1]; [1]Department of University of British Columbia

56.423 Meaningful numbers: Upright numbers are better remembered than rotated numbers regardless of encoding strategy

Hayden Schill[1] (hschill@ucsd.edu), Samantha Gray[1], Timothy Brady[1]; [1]University of California, San Diego

56.424 Differential mechanisms of learning-related change

Youssef Ali[1] (youssefali96@gmail.com), Jeffrey Wammes[1]; [1]Queen's University

56.425 Dissociation between object detail and spatial memory across exposure time using drawing

Emma Megla[1], Rebecca Greenberg[1], Wilma A. Bainbridge[1]; [1]University of Chicago

56.427 Subjective reports of mind wandering during encoding predict recognition memory for scenes

Shaela T Jalava[1] (19stj@queensu.ca), Jeffrey D Wammes[1]; [1]Queen's University

Visual Memory: Models and mechanisms

Tuesday, May 17, 2:45 – 6:45 pm, Pavilion

56.428 A theory of working memory performance based on representational geometry

Xue-Xin Wei[1] (weixxpku@gmail.com), Michael Woodford[2]; [1]Department of Neuroscience, Department of Psychology, UT Austin, [2]Department of Economics, Columbia University

56.429 Evaluating models of visual working memory in change detection: Discrete-slots or non-diagnostic data?

Maria Robinson[1] (mrobinson@ucsd.edu), Jamal Williams[1], Timothy Brady[1]; [1]University of California, San Diego

56.430 The mechanisms of selection-for-action on visual working memory representations

Michael K. Mugno[1] (mikemugno518@gmail.com), Jessica Parker[1], Kaleb T. Kinder[1], A. Caglar Tas[1]; [1]University of Tennessee, Knoxville

56.431 Visual guessing is anti-Bayesian

Justin Halberda[1] (halberda@jhu.edu), Caroline Myers[1], Chaz Firestone[1]; [1]Johns Hopkins University

56.432 You can't "count" how many items people remember in working memory: The importance of signal detection-based measures for understanding change detection performance

Jamal Williams[1] (jrwilliams@ucsd.edu), Maria Robinson[2], Mark Schurgin[3], John Wixted[4], Timothy Brady[5]; [1]University of California, San Diego

Color, Light and Materials: Neural mechanisms, models, dimensions

Tuesday, May 17, 2:45 – 6:45 pm, Pavilion

56.433 Psychophysically measuring the number of photons detected by rods

Geneviève Rodrigue[1] (genevieve.rodrigue.2@umontreal.ca), Laurine Paris[1], Judith Renaud[1], Rémy Allard[1]; [1]School of optometry, Université de Montréal

56.434 Temporal dynamics of color processing measured using a continuous tracking task

Michael Barnett[1] (micalan@sas.upenn.edu), Benjamin Chin[1], Geoffrey Aguirre[2], David Brainard[1], Johannes Burge[1]; [1]University of Pennsylvania, Department of Psychology, [2]University of Pennsylvania, Department of Neurology

56.435 Estimating the perceived dimensionality of psychophysical stimuli using a triplet accuracy and hypothesis testing procedure

David-Elias Künstle[1,2] (david-elias.kuenstle@uni-tuebingen.de), Ulrike von Luxburg[1,3], Felix A. Wichmann[1]; [1]University of Tübingen, [2]International Max Planck Research School for Intelligent Systems, Tübingen, [3]Max Planck Institute for Intelligent Systems, Tübingen

56.436 Can failed Hebbian wiring explain the difficulty in finding separate non-cardinal mechanisms in the tritan/luminance color plane?

Karen L. Gunther[1] (guntherk@wabash.edu); [1]Wabash College

56.437 A multi-channel visual stimulator for selective photoreceptor stimulation

Robert Lee[1] (robert.lee@crsltd.com), Caterina Ripamonti[1]; [1]Cambridge Research Systems Ltd.

56.438 Hue versus chroma discrimination

Laysa Hedjar[1] (laysa.hedjar@psychol.uni-giessen.de), Matteo Toscani[1,2], Karl R. Gegenfurtner[1]; [1]Justus-Liebig-Universität Gießen, Germany, [2]Bournemouth University, United Kingdom

56.439 Fixational eye movements and fading of stabilized images in a neural model of lightness computation

Michael Rudd[1] (mrudd@unr.edu); [1]University of Nevada, Reno

56.440 Determining how color and form are integrated within macaque V1 neurons through combined neurophysiology and computational modeling

Felix Bartsch[1,2,3] (felixbartsch@gmail.com), Bevil R. Conway[3], Daniel A. Butts[1,2]; [1]Department of Biology, University of Maryland, College Park, MD, United States of America, [2]Program in Neuroscience and Cognitive Science, University of Maryland, College Park, MD, United States of America, [3]Laboratory of Sensorimotor Research, National Eye Institute, National Institutes of Health, Bethesda, Maryland, United States of America

56.441 Color, spatial frequency, and contrast tuning vary across cortical retinotopic areas and eccentricity in the alert macaque.

Stuart Duffield[*1], Spencer Loggia[*1], Kurt Braunlich[1,2], Bevil Conway[1]; [1]Section on Sensation, Cognition, and Action; Laboratory of Sensorimotor Research; National Eye Institute; National Institutes of Health, [2]Section on Learning and Plasticity; Laboratory of Brain and Cognition; National Institute of Mental Health; National Institutes of Health [*]Equal Contribution

Attention: Awareness

Tuesday, May 17, 2:45 – 6:45 pm, Pavilion

56.442 How counting, representing, and searching do, and do not, lessen change blindness for person substitutions

Madison Lee[1] (madison.j.lee@vanderbilt.edu), Chris Jaeger[2], Daniel Levin[1]; [1]Vanderbilt University, [2]Baylor University

56.443 Navigational affordances are automatically computed during scene perception: Evidence from behavioral change blindness and a computational model of active attention

Mario Belledonne[1] (mario.belledonne@yale.edu), Yihan Bao[1], Ilker Yildirim[1]; [1]Yale University

56.444 Tracking contingency unconsciously

Shao-Min (Sean) Hung[1] (konaes@gmail.com), Daw-An Wu[1], Po-Jang (Brown) Hsieh[2], Shinsuke Shimojo[1,3]; [1]Biology and Biological Engineering, California Institute of Technology, Pasadena, CA, USA, [2]Department of Psychology, National Taiwan University, Taipei, Taiwan, [3]Computation and Neural Systems, California Institute of Technology, Pasadena, CA, USA

56.445 Automatic simulation of unseen physical events

Tal Boger[1,2] (tal.boger@yale.edu), Chaz Firestone[2]; [1]Yale University, [2]Johns Hopkins University

56.446 Perceptual awareness of natural scenes is limited by higher-level visual features: Evidence from deep neural networks.

Michael Cohen[1,2] (michaelthecohen@gmail.com), Kirsten Lydic[2], N. Apurva Ratan Murty[2]; [1]Amherst College, [2]MIT

56.447 Stimuli associated with first-hand traumatic events do not yield an emotional attentional blink

Lindsay A. Santacroce[1] (lindsayas22@gmail.com), Benjamin J. Tamber-Rosenau[1]; [1]University of Houston

56.448 Metacognitive understanding of visual motion cues to intentionality

Mohan Ji[1,2] (mji24@wisc.edu), Emily J. Ward[1,2], C. Shawn Green[1,2]; [1]University of Wisconsin - Madison, [2]McPherson Eye Research Institute

56.449 Expectation-induced blindness: Predictions about object categories gate awareness of focally attended objects in dynamic displays

Alon Zivony[1] (alonzivony@gmail.com), Martin Eimer[1]; [1]Birkbeck, University of London

Color, Light and Materials: Neural mechanisms, models, dimensions

Tuesday, May 17, 2:45 – 6:45 pm, Pavilion

56.450 Spatial suppression of the perceived color contrast is hue polarity selective

Hiromi Sato[1] (sato.h@chiba-u.jp), Shohei Kamegawa[2], Isamu Motoyoshi[3], Yoko Mizokami[1]; [1]Graduate School of Engineering, Chiba University, Japan., [2]Graduate School of Science and Engineering, Chiba University, Japan., [3]Department of Life Sciences, The University of Tokyo.

Wednesday Morning Posters in Banyan Breezeway

Multisensory Processing

Wednesday, May 18, 8:30 am – 12:30 pm, Banyan Breezeway

63.301 Visual Short-Term Memory Load Impairs Auditory Perception

Phivos Phylactou[1] (phivph@gmail.com), Nikos Konstantinou[1]; [1]Department of Rehabilitation Sciences, Cyprus University of Technology

63.302 Eye responses reflect spatial congruency and perceptual bias in audiovisual interaction

Zion Park[1] (qkr8448@gmail.com), Chai-Youn Kim[2]; [1]Korea University, [2]Korea University

63.303 The full-body illusion changes visual depth perception

Manuel Bayer[1] (manuel.bayer@hhu.de), Sophie Betka[2], Bruno Herbelin[2], Olaf Blanke[2], Eckart Zimmermann[1]; [1]Heinrich Heine University Düsseldorf, Germany, [2]Swiss Federal Institute of Technology in Lausanne, Switzerland

63.304 Flicker helps flutter: visual-tactile integration benefits tactile frequency perception even in the absence of visual awareness

Sofia Montoya[1] (sofia.montoya@tufts.edu), Stephanie Badde[1]; [1]Tufts University

63.305 Visual attenuation of reactions to misophonic trigger sounds

Nicolas Davidenko[1] (ndaviden@ucsc.edu), Patrawat Samermit[1], Michael Young[1], Ghazaleh Mahzouni[1], Allison Allen[1], Hannah Trillo[1], Sandhya Shankar[1], Abigail Klein[1], Chris Kay[1], Veronica Hamilton[1]; [1]University of California, Santa Cruz

63.306 Haptic object recognition abilities correlate across feature types and with visual object recognition ability

Jason Chow[1] (jason.k.chow@vanderbilt.edu), Thomas Palmeri[1], Isabel Gauthier[1]; [1]Vanderbilt University

63.307 Impact of task-irrelevant auditory information on a visual rate categorization task

Mattia Zanzi[1] (mzanzi@sissa.it), Silene Fornasaro[1], Davide Zoccolan[1]; [1]SISSA (International School for Advanced Studies), Trieste, Italy

63.308 Environmental motion presented ahead of body motion modulates the heading direction estimation

Liana Nafisa Saftari[1], Oh-Sang Kwon[1]; [1]Ulsan National Institute of Science and Technology

63.310 Pleasant Visual Stimuli Decrease Sensitivity To Pain But Only Among Highly Sensitive Adults

Russell J. Adams[1] (rjadams@mun.ca), Michele E. Mercer[1]; [1]Memorial University, St John's NL Canada

63.311 Decoding audio-visual direction congruence in the visual cortex

Minsun Park[1] (vd.mpark@gmail.com), Chai-Youn Kim[1]; [1]Korea University

63.312 Visual and motor mapping of human frontal cortex

Ines Verissimo[1] (s.verissimo.ines@gmail.com), Tomas Knapen[1,2], Christian Olivers[1]; [1]Vrije Universiteit Amsterdam, [2]Spinoza Centre for Neuroimaging, Amsterdam

63.313 Audiovisual integration across space and time

Fangfang Hong[1] (fh862@nyu.edu), Jiaming Xu[1], Megha Kalia[1], Stephanie Badde[2], Michael Landy[1,3]; [1]Department of Psychology, New York university, [2]Department of Psychology, Tufts University, [3]Center for Neural Science, New York University

63.314 Visual pop-out search is robust to auditory distraction

Ananya Mandal[1,2] (ananya.mandal@psy.lmu.de), Heinrich R. Liesefeld[2,3]; [1]General and Experimental Psychology, Ludwig-Maximilians-Universität München, [2]Graduate School of Systemic Neurosciences, LMU München, [3]University of Bremen

63.315 Tactile pre-motor attention induces sensory attenuation for sounds

Clara Fritz[1] (clara.fritz@uni-duesseldorf.de), Mayra Flick[1], Eckart Zimmermann[1]; [1]Heinrich Heine University Düsseldorf Germany

63.316 Crossmodal interactions of the audiovisual bounce-inducing effect: an EEG study

Sydney M. Brannick[1] (sbrannic@hawaii.edu), Dorita H.F. Chang[2], Jonas F. Vibell[1]; [1]University of Hawai'i at Mānoa, [2]The University of Hong Kong

Binocular Vision: Clinical and amblyopia

Wednesday, May 18, 8:30 am – 12:30 pm, Banyan Breezeway

63.317 Stereovision experience is linked to better movement kinematics

Angelica Godinez[1,2,3] (agodinez@berkeley.edu), Preeti Verghese[4], Dennis Levi[1]; [1]Herbert Wertheim School of Optometry and Vision Science, University of California, Berkeley, [2]Department of Psychology, Humboldt Univesität zu Berlin, Germany, [3]Cluster of Excellence Science of Intelligence, Technishe Univesität zu Berlin, Germany, [4]The Smith-Kettlewell Eye Research Institute, San Francisco USA

63.318 Can anisometropia disrupt vergence development?

Clara Mestre[1] (cmestre@iu.edu), Kathryn Bonnen[1], T. Rowan Candy[1]; [1]Indiana University School of Optometry, Bloomington, IN, United States

63.319 Comparison of FInD (Foraging Interactive D-prime)-Depth with three conventional methods

Sonisha Neupane[1] (s.neupane@northeastern.edu), Peter J Bex[1], Jan Skerswetat[1]; [1]Northeastern University

63.320 Is accommodative control sufficient to overcome the propiniquity of enclosed stimulus displays during distance heterophoria measurement?

Kevin Willeford[1] (kwillefo@nova.edu), Zoeanne Schinas[1], Ilira Caboku[1], Cassidy Lawless[1], Julia Malone[1]; [1]NOVA Southeastern College of Optometry

63.321 A novel eye-tracking-based binocular therapeutic improves visual performances in amblyopic children: a pilot study.

Oren Yehezkel[1] (oren.yehezkel@gmail.com), Tamara Wygnanski-Jaffe[2,3], Michael Belkin[2,3], Avital Moshkovitz[1,4]; [1]NovaSight LTD., Airport City, Israel, [2]Goldschleger Eye Institute, Tel-Hashomer, Israel., [3]Sackler Faculty of Medicine, Tel- Aviv University, Tel-Aviv, Israel, [4]Bar-Ilan University. Ramat Gan, Israel

63.322 Abnormal internal disparity noise in amblyopic vision

Jian Ding[1] (jian.ding@berkeley.edu), Lauren Spano[1,2], Kaiona Martinson[1], Hilary Lu[1], Dennis Levi[1,2]; [1]School of Optometry, University of California, Berkeley, [2]Vision Science Program, University of California, Berkeley

63.323 Using dynamic contrast estimation to assess amblyopia

Kimberly Meier[1] (kimmeier@uw.edu), Kristina Tarczy-Hornoch[2], Geoffrey M. Boynton[1], Ione Fine[1]; [1]Department of Psychology, University of Washington, [2]Department of Ophthalmology, University of Washington

63.324 Objective measures of visual improvement following amblyopia therapy in children

Freya Lygo-Frett[1,4] (f.lygo-frett@ucl.ac.uk), Bruno Richard[2,4], Usman Mahmood[3], Mohammed Aftab Maqsud[3], Daniel Baker[4]; [1]UCL, UK, [2]Rutgers University, Newark, USA, [3]Hull Royal Infirmary, Hull, UK, [4]University of York, York, UK

Spatial Vision: Crowding

Wednesday, May 18, 8:30 am – 12:30 pm, Banyan Breezeway

63.325 Crowding distance beats acuity and crowded acuity in detecting strabismic amblyopia.

Sarah J Waugh[1,2] (s.j.waugh@hud.ac.uk), Louisa A Haine[2], Monika A Formankiewicz[2], Denis G Pelli[3]; [1]University of Huddersfield, [2]Anglia Ruskin University, [3]New York University

63.326 Crowding is Different for Letters, Presumably Due to a Lifetime of Reading

Kurt Winsler[1] (kpwinsler@ucdavis.edu), Steve Luck[1]; [1]University of California, Davis

63.327 Foveal crowding modifies target color perception under brief presentation time

Ziv siman tov[1] (zivst2@gmail.com), Maria Lev[1], Uri Polat[1]; [1]Bar Ilan University, Ramat-Gan, Israel

63.328 How much does crowding, aging, or glaucoma shrink your functional field of view?

Foroogh Shamsi[1] (f.shamsi@northeastern.edu), Victoria Chen[2], Rong Liu[3], MiYoung Kwon[1]; [1]Northeastern University, [2]Baylor College of Medicine, [3]University of Science and Technology of China

63.329 Modeling crowding based on interactions between sustained and transient channels and differential latencies

Susana Chung[1] (s.chung@berkeley.edu), Saumil Patel[2]; [1]University of California, Berkeley, [2]Baylor College of Medicine

63.330 Role of microsaccade preparation in visual crowding

Krish Prahalad[1] (pskrishn@central.uh.edu), Daniel Coates[2]; [1]University of Houston College of Optometry, Houston, TX, United States, [2]University of Houston College of Optometry, Houston, TX, United States

63.331 Significance of Real-World Depth on Crowding Investigated with a Multi-Depth Plane Display

Samuel Smithers[1] (s.smithers@northeastern.edu), Yulong Shao[1], James Altham[1], Peter Bex[1]; [1]Northeastern University

63.332 Neural correlates of visual crowding in macaque area V4

Taekjun Kim[1] (taekjunkim1223@gmail.com), Anitha Pasupathy[1]; [1]University of Washington

63.333 Imagine that! Visual imagery alleviates crowding

Fazilet Zeynep Yildirim[1] (fazilet.yildirim@psy.unibe.ch), Rahel Aschwanden[1], Bilge Sayim[1,2]; [1]University of Bern, [2]University of Lille

Motion: Optic flow

Wednesday, May 18, 8:30 am – 12:30 pm, Banyan Breezeway

63.334 Interpretation of viewing context alters object motion perception

Zhe-Xin Xu[1] (brian.zx.xu@gmail.com), Gregory C. DeAngelis[1]; [1]Brain and Cognitive Sciences, Center for Visual Science, University of Rochester

63.335 Flow segmentation during locomotion

Daniel Panfili[1] (dan.panfili@utexas.edu), Karl Muller[1], Mary Hayhoe[1]; [1]University of Texas at Austin

63.336 Inconsistent self-motion perception between hemifields from optic flow distorted by progressive addition lenses

Yannick Sauer[1] (yannick.sauer@uni-tuebingen.de), Malte Scherff[2], Niklas Stein[2], Selam Wondimu Habtegiorgis[3], Markus Lappe[2], Siegfried Wahl[1,3]; [1]Institute for Ophthalmic Research, University of Tuebingen, [2]Department of Psychology & Otto Creutzfeldt Center for Cognitive and Behavioral Neuroscience, University of Muenster, [3]Carl Zeiss Vision International GmbH, Aalen, Germany

63.337 The effects of distorted optic flow in multifocal glasses on self-motion perception

Malte Scherff[1,2] (malte.scherff@uni-muenster.de), Yannick Sauer[3], Markus Lappe[1,2], Katharina Rifai[3,4], Niklas Stein[1,2], Siegfried Wahl[3,4]; [1]Institute of Psychology, University of Münster, Germany, [2]Otto Creutzfeldt Center for Cognitive and Behavioral Neuroscience, University of Münster, Germany, [3]Institute for Ophthalmic Research, University of Tuebingen, Germany, [4]Carl Zeiss Vision International GmbH, Germany

63.338 Motion Prediction is Biased by Visually Simulated Self-Motion

Bjoern Joerges[1] (bjoerges@yorku.ca), Laurence R. Harris[1]; [1]Center for Vision Research, York University

63.339 Detecting Object Motion During Self Motion

Hope Lutwak[1], Kathryn Bonnen[1,2], Eero Simoncelli[1,3]; [1]New York University, [2]Indiana University, [3]Flatiron Institute

Visual Search: Real-world stimuli and factors

Wednesday, May 18, 8:30 am – 12:30 pm, Banyan Breezeway

63.340 Serial Dependence in Radiologist Perception across Naturalistic Mammogram Stimuli

Zhihang Ren[1] (peter.zhren@berkeley.edu), Teresa Canas-Bajo[1], Min Zhou[2], Stella X. Yu[1], David Whitney[1]; [1]University of California, Berkeley, [2]The First People's Hospital of Shuangliu District, Chengdu, China

63.341 Unintended Consequences of Trying to Help: Augmented Target Recognition Cues Bias Perception

Catherine Konold[1] (catherinekonold@gmail.com), Michael Geuss[2], Joshua Butner[1], Mirinda Whitaker[1], Ryan Murdock[1], Jeanine Stefanucci[1], Sarah Creem-Regehr[1], Trafton Drew[1]; [1]University of Utah Psychology Department, [2]Combat Capabilities Development Command Army Research Laboratory, Human Research and Engineering Directorate Aberdeen Proving Ground USA

63.342 Conscientiousness protects visual search performance from the impact of fatigue

Justin Grady[1] (justgrad@gwu.edu), Patrick Cox[1], Samoni Nag[1], Stephen Mitroff[1]; [1]The George Washington University

63.343 Investigating Methods to Improve Low Prevalence Detection Across Two Targets

Andrew Rodriguez[1] (rodri818@msu.edu), Mark W. Becker[1]; [1]Michigan State University

63.344 Turning over a new leaf: Differences in search ability across naturalistic leaf litter textures

Rebecca R Maguire[1] (rebecca.maguire@st-andrews.ac.uk), Julie M Harris[1]; [1]University of St Andrews

63.345 Can a saliency model using feature sets derived cityscapes predict cultural differences in visual search asymmetry?

Yoshiyuki Ueda[1] (ueda.yoshiyuki.3e@kyoto-u.ac.jp), Shohei Kato[1]; [1]Kyoto University

63.346 Search templates for real-world objects in natural scenes

John Emmanuel Kiat[1] (jekiat@ucdavis.edu), Brett Bahle[2], Steven John Luck[3]; [1]University of California-Davis, [2]University of California-Davis, [3]University of California-Davis

63.347 Leveraging big data to disentangle effects of distractor interference and improve prediction of visual search performance

Chloe Callahan-Flintoft[1] (ccallahanflintoft@gmail.com), Samoni Nag[2], Patrick H. Cox[2], Emma M. Siritzky[2], Kelvin S. Oie[1], Dwight J. Kravitz[2], Stephen R. Mitroff[2]; [1]United States Army Research Laboratory, [2]The George Washington University

63.348 Reducing risk habituation to struck-by hazards in a road construction environment using virtual reality behavioral intervention

Laurent Grégoire[1] (lgregoire1@tamu.edu), Namgyun Kim[1], Moein Razavi[1], Niya Yan[1], Changbum Ahn[2], Brian Anderson[1]; [1]Texas A&M University, [2]Seoul National University

63.349 Frequent target objects are found faster in search for real-world objects

Reshma Rajasingh[1], Douglas A. Addleman[1], Viola S. Störmer[1]; [1]Dartmouth College

63.350 Cybersecurity and Visual Fatigue

Genna Telschow[1], Mark Neider[1]; [1]University of Central Florida

Eye Movements: Gaze patterns, binocular

Wednesday, May 18, 8:30 am – 12:30 pm, Banyan Breezeway

63.351 Artificial neural networks predict human eye movement patterns as an emergent property of training for object classification

Gustavo Santiago-Reyes[1] (gustxsr@mit.edu), Thomas O'Connell[1], Nancy Kanwisher[1]; [1]Massachusetts Institute of Technology

63.352 At First Glance: The Effect of Spatial Attentional Bias and Individual Differences in First-Fixation Behavior During Visual Search

Ryan V Ringer[1] (ryan.ringer@ucdenver.edu), Tamar Japaridze[1], Dylan Kammerzell[1], Jiaqi Tian[1], Julia Wernersbach[1], Carly J Leonard[1]; [1]University of Colorado, Denver

63.353 Eye fixation patterns are not associated with individual differences in the ability at recognizing facial expressions of emotions

Jessica Limoges[1] (limj04@uqo.ca), Marie-Claude Desjardins[1], Francis Gingras[1,2], Daniel Fiset[1], Caroline Blais[1]; [1]University of Quebec in Outaouais, [2]University of Quebec in Montreal

63.354 The relation between individual fixation biases towards faces and inanimate objects

Maximilian Davide Broda[1] (maximilian.broda@psychol.uni-giessen.de), Benjamin de Haas[1]; [1]Justus Liebig University Giessen

63.355 Using observer similarity matrices to understand individual differences in gaze behaviour towards objects in complex scenes

Marcel Linka[1] (marcellinka54@gmail.com), Benjamin de Haas[1]; [1]Justus-Liebig-Universität Gießen

63.356 Performance on a Subjective Vertical Number Naming Test in Young, Healthy Adults

Patricia Cisarik[1] (pcisarik@sco.edu); [1]Southern College of Optometry

63.357 Semantic Manipulation of Scenes with Small Visual Changes Alters Eye Movements

Shravan Murlidaran[1] (smurlidaran@ucsb.edu), Miguel Eckstein[1]; [1]University of California Santa Barbara

63.358 Does individual gaze lead to individual visual representations?

Petra Borovska[1] (petra.borovska@psychol.uni-giessen.de), Benjamin de Haas[1]; [1]Justus-Liebig-University Giessen

63.359 Marrying Helmholtz and Hering: A hybrid model of binocular control

Stephen Heinen[1] (heinen@ski.org), Arvind Chandna[1], Devashish Singh[1], Scott Watamaniuk[2,1]; [1]Smith-Kettlewell Eye Research Institute, [2]Wright State University

63.360 Visual Attention during Scene Viewing – Eye Tracking Discovery with K-Means and Gaussian Mixture Model

Xinrui Jiang[1] (xinrui.n.jiang@gmail.com), Melissa Beck[2]; [1]Datacubed Health, [2]Louisiana State University

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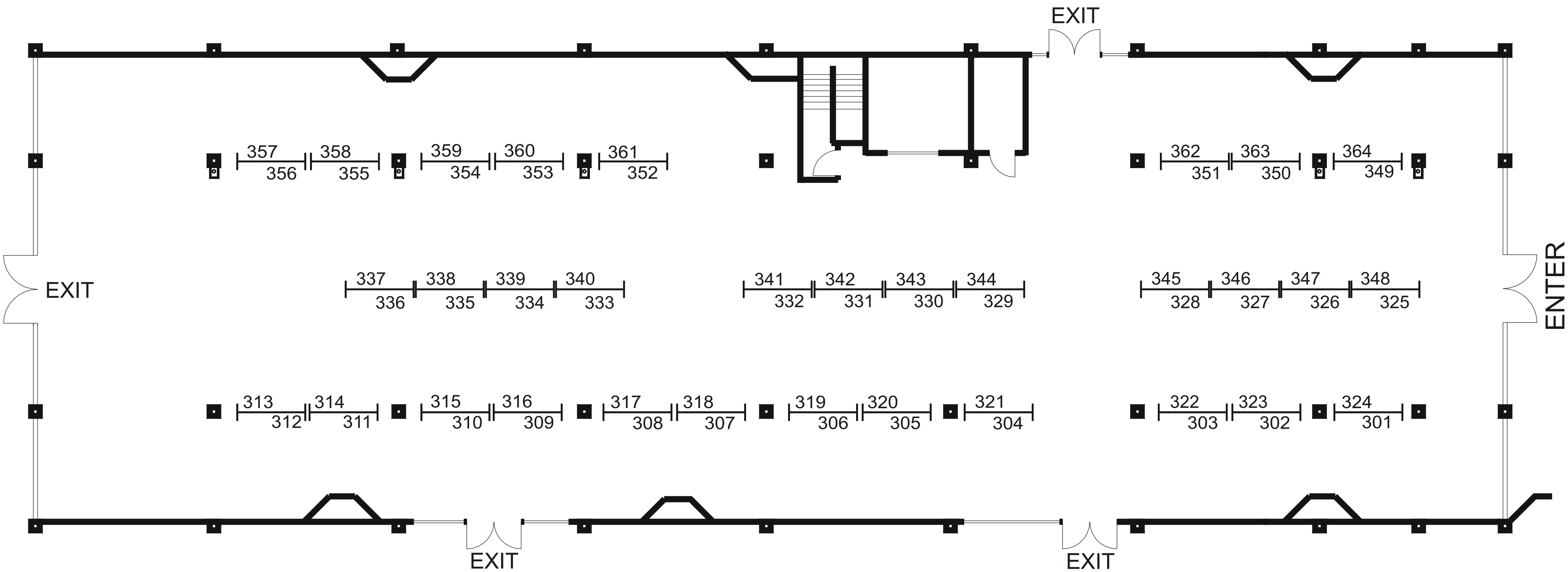

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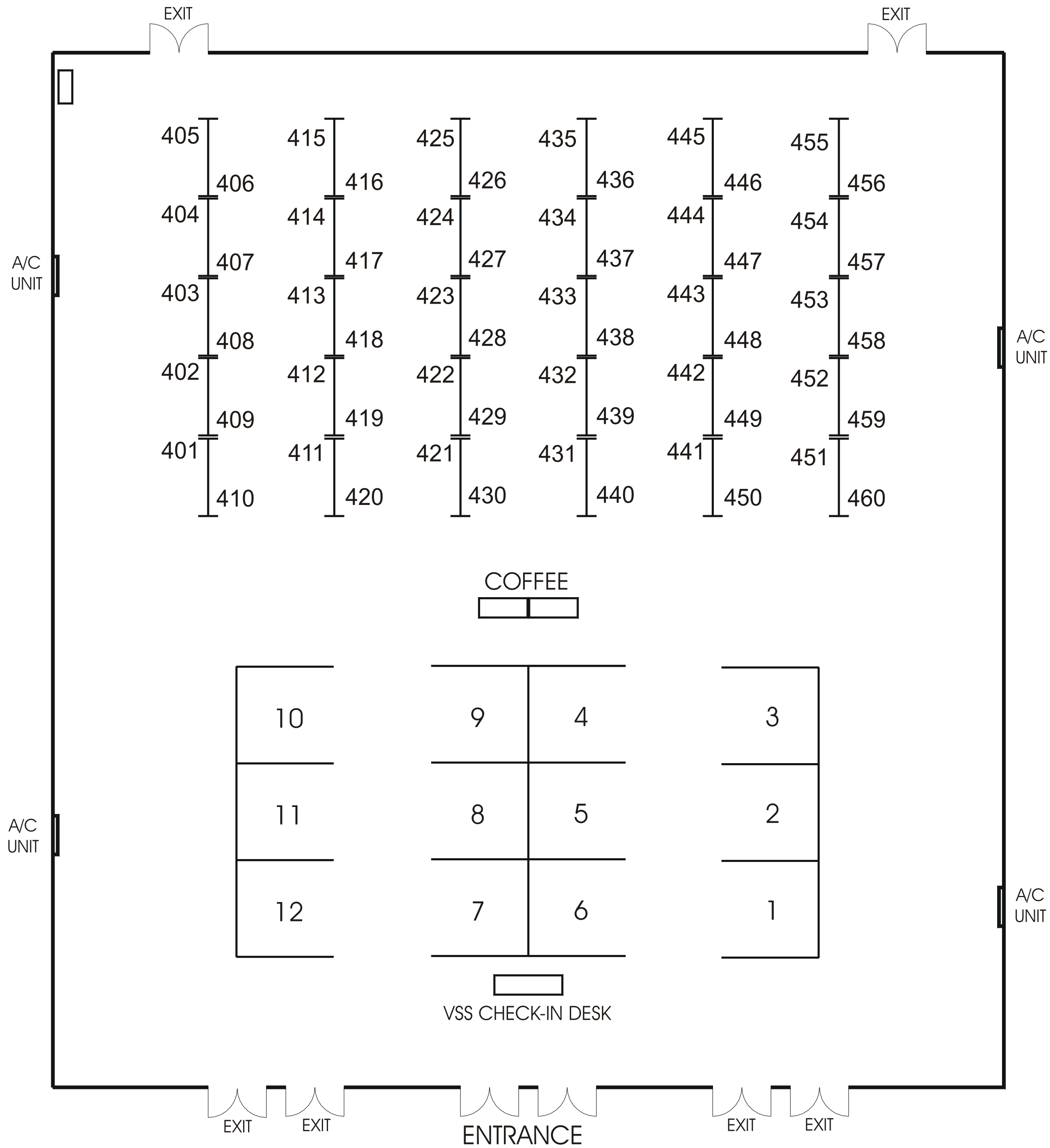

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Exponent Engineering and Scientific Consulting (Bronze Sponsor)

Booth 8

Exponent is a leading scientific and engineering consulting firm. Our multidisciplinary organization of brings together more than 90 technical disciplines to address complicated issues facing industry and government today. Among myriad other specialized services, we provide user experience and human factors support across the entire product lifecycle informed by five decades of experience in failure analysis. We are always looking for qualified PhDs, postdocs, and early-career faculty interested in technical consulting.

Psychology Software Tools (Bronze Sponsor)

Booth 1

Psychology Software Tools is celebrating our 35th anniversary in 2022! We are the developers of E-Prime 3.0 stimulus presentation software. E-Prime 3.0 now includes E-Prime Go for remote data collection! E-Prime 3.0 integrates with eye tracking and EEG with E-Prime Extensions for Tobii Pro, EyeLink, Net Station, and Brain Products. Chronos can be used for millisecond-accurate responses, sound output, and triggers to external devices. Chronos Adapters provide a simple connection to external devices, including Brain Products, ANT Neuro, BIOPAC, BioSemi, Neuroscan, MagstimEGI, NIRx, g.tec, Smart Eye Aurora and more. We also provide solutions for fMRI research, such as Fiber Optic and Wireless Response Systems, Digital Projection System, and an MRI Simulator with head motion tracking. Contact us at sales@pstnet.com for more information!

Psychonomic Society (Bronze Sponsor)

Booth 7

The Psychonomic Society is a community of over 4,300 cognitive and experimental psychologists from more than 60 countries around the world. Members include some of the most distinguished researchers in the field. Many are concerned with the application of psychology to health, technology, and education. What brings us together is that we study the basic, fundamental properties of how the mind works by using behavioral techniques to better understand mental functioning.

Our most innovative research uses converging methods from behavioral measurement, neuroscience, computational modeling and other fields to achieve our research goals. Members of the Society conduct research on questions concerning memory, learning, problem solving, decision making, language, attention, and perception. We also connect with research in biology, chemistry, statistics, computer science, medicine, law, and business.

We achieve our objectives by hosting meetings around the world, publishing seven world-class, peer-reviewed journals, disseminating our research, and funding workshops and symposia.

Visit us online and Become a Member.

Rogue Research Inc. (Bronze Sponsor)

Booth 3

Rogue Research has been your partner in neuroscience research for over 20 years. As developers of the Brainsight® family of neuronavigation systems for non-invasive brain stimulation, we have helped make transcranial magnetic stimulation more accurate and more reproducible while keeping it simple and effective. 20 years and 600 laboratories later, Brainsight® continues to evolve to meet the needs in non-invasive brain stimulation and has expanded into functional brain imaging. Brainsight® NIRS combines the power of neuronavigation to ensure accurate placement of NIRS optodes with our NIRS hardware that incorporates low-profile, TMS, MRI and MEG compatible.

Rogue Research has expanded beyond navigation to develop our own, next-generation, TMS device: Elevate™ TMS. Elevate™ TMS offers control over the pulse shape to ensure more reproducible excitatory or inhibitory effects on the targeted network. While Brainsight® ensures accurate targeting and Elevate™ TMS ensures reliable circuit interaction, Rogue Research is actively developing a robotic positioner to ensure that the plan is accurately and efficiently carried out. The unique design will ensure reachability and simplicity.

Rogue Research also offers our Brainsight® Vet line of neurosurgical and neuronavigation tools for animal research. Come see our new, navigated microsurgical robot, which is the most accurate animal stereotaxic system on the market. We also offer custom MRI compatible implants and a line of MRI coils and testing platforms.

TELLab (The Experiential Learning Laboratory)

Booth 2

The Experiential Learning Laboratory (TELLab) is a web-based platform that enables students to create and run their own psychology experiments (including vision experiments). The system includes a library of experiments created by the team that can be copied and modified using the experiment editor. The original system, created at Harvard University, has been used by over 7000 undergraduate students. Visit our booth to learn about TELLab2, a new and improved version that adds pedagogical "modules" and graphical debriefing at the close of an experiment. ShowMyData.org is a suite of data visualization web apps that allow the user, in a matter of seconds, to build and curate best-practice, publication-quality graphs that support clear understanding via display of individual data points. Graphs of data from TELLab or other sources are produced via simple copy-paste from a standard spreadsheet. Supported by NSF award #1837731

WorldViz

Booth 10

For 20 years, WorldViz VR has helped over 1500 universities, businesses and government organizations to conduct
leading edge research with Virtual Reality.

Over the years, WorldViz VR has developed Vizard, a python-based platform that enables users to rapidly build 3D virtual reality applications that solve real world business and research challenges.

WorldViz will present SightLab VR, a fully GUI based tool that allows users to collect, review and analyze eye tracking data with support for all the major PC based VR eye tracking devices including HP Reverb Omnicept, Vive Pro Eye, Pupil Labs and Tobii VR. It will allow drag and drop adding of videos and 3D models, and many of the most used analytics methods are included into the provided templates.

Build a scene, run your experiment and review in minutes. Fully expandable and modifiable by using the GUI configurator or python code.

The WorldViz components allow integration of highly targeted VR labs, and we are happy to help customers configure their own labs, tailored to their specific needs.


Boston, Massachusetts
opam30
November 17, 2022
Join us to witness outstanding research by graduate and postdoctoral scientists at the annual Object Perception, Attention, and Memory conference.
2022 Organizers
Xiaoli Zhang
Doug Addleman
Chenxiao Guan
Cristina Ceja
Visit www.opam.net for more details

TRADEWINDS ISLAND RESORT DIRECTORY

DINING & ENTERTAINMENT

ArtWakenings Coffee Spirits	Starbucks™ coffee and cocktails	1
Beef 'O' Brady's	Family Sports Pub, Lunch, Dinner 'til Late Night	21
Bermudas Steak & Seafood	Breakfast & Dinner – Casual dining, steak & seafood, sunset view	21
Deli	Breakfast pastries, fruit, snacks, beer/wine, sandwiches to order	1
Flying Bridge Bar & Grill	Lunch, tropical drinks, and sunset dinners	12
Guy's Gulfside Grill	Casual indoor and outdoor dining for all meals	29
Ice Cream Shoppe / Pizza Hut Express	Pizza, wings, ice cream and sundaes	23
Palm Court Italian Grill	Exceptional cuisine for Lunch and Dinner, Sunday Brunch Buffet	4
Red Beard's Sharktooth Tavern	Live entertainment, bottled beer and full bar	14
Salty's Tiki Bar	Tiki bar, tropical drinks, Lunch and lite bites	22
Perks Up! Coffee & Cocktails	Starbucks™ coffee, on-the-go-breakfasts, cocktails	26
SandBar	Tropical drinks, beer, wine and appetizers	31

MEETING & EVENT FACILITIES, ISLAND GRAND

Banyan	5
Banyan Breezeway	5
Bird Key	2
Blue Heron, 2nd floor	3
Board Room, 2nd floor	3
Breck Deck	22
Chart Room, 2nd floor	3
Citrus	5
Compass Room, 2nd floor	3
Cypress Villa, 2nd floor	17
Garden Courtyard	6
Glades	5
Grand Palm Colonnade	1
Horizons East & West	20
Horizons Portico	19
Indian Key	2
Island Ballroom	2
Jacaranda Beach	9
Jacaranda Hall	5
Jasmine	5
Long Key	2
Palm	5
The Pavilion	18
Pirate Island	16
Royal Tern, 2nd floor	3
Sabal	5
Sawgrass	5
Sawyer Key	2
SeaBreeze Terrace	11
South Beach Lawn	8
Snowy Egret, 2nd floor	3
Tarpon Key	2

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Guy Harvey Outfitter	27
Cabana Hut	10, 30
Chess Set, Lifesize	6
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Mini-Golf	7
Paddleboat Landings	15
Pet Play Zone	7
Pirate Island	16
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Towels for beach & pool	11, 30
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Watersports	11
Whirlpools	11, 28

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Body Works Spa & Fitness	24
Deli & General Store	1
Guy Harvey Outfitter Shop	27

GUY HARVEY OUTPOST

Fitness Center, 3rd floor	26
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North Terrace Courtyard	32
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Perks Up Coffee & more	26
Sunset Beach	31
SandBar	31

Tradewinds Island Grand Resort