Vision Sciences Society

10th Annual Meeting, May 7-12, 2010 Naples Grande Resort & Club, Naples, Florida

Program

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Keynote Address

Carla Shatz

Professor of Biology and Neurobiology Director, Bio-X, Stanford University



Carla Shatz is professor of biology and neurobiology and director of Bio-X at Stanford University. Dr. Shatz's research focuses on the development of the mammalian visual system, with an overall goal of better understanding critical periods of brain wiring and developmental disorders such as autism, dyslexia and schizophrenia, and also for understanding how the nervous and immune systems interact.

Dr. Shatz graduated from Radcliffe College in 1969 with a B.A. in Chemistry. She was honored with a Marshall Scholarship to study at University College London, where she received an M.Phil. in Physiology in 1971. In 1976, she received a Ph.D. in Neurobiology from Harvard Medical School, where she studied with Nobel Laureates David Hubel and Torsten Wiesel. During this period, she was appointed as a Harvard Junior Fellow. From 1976 to 1978 she obtained postdoctoral training with Dr. Pasko Rakic in the Department of Neuroscience, Harvard Medical School. In 1978, Dr. Shatz moved to Stanford University, where she attained the rank of Professor of Neurobiology in 1989. In 1992, she moved her laboratory to the University of California, Berkeley, where she was Professor of Neurobiology and an Investigator of the Howard Hughes Medical Institute. In 2000, she assumed the Chair of the Department of Neurobiology at Harvard Medical School as the Nathan Marsh Pusey Professor of Neurobiology.

Dr. Shatz received the Society for Neuroscience Young Investigator Award in 1985, the Silvo Conte Award from the National Foundation for Brain Research in 1993, the Charles A. Dana Award for Pioneering Achievement in Health and Education in 1995, the Alcon Award for Outstanding Contributions to Vision Research in 1997, the Bernard Sachs Award from the Child Neurology Society in 1999, the Weizmann Institute Women and Science Award in 2000 and the Gill Prize in Neuroscience in 2006. In 1992, she was elected to the American Academy of Arts and Sciences, in 1995 to the National Academy of Sciences, in 1997 to the American Philosophical Society, and in 1999 to the Institute of Medicine. In 2009 she received the Salpeter Lifetime achievement award from the Society for Neuroscience.

Releasing the Brake on Ocular Dominance Plasticity

Saturday, May 8, 7:45 pm Royal Ballroom 4-5

Connections in adult visual system are highly precise, but they do not start out that way. Precision emerges during critical periods of development as synaptic connections remodel, a process requiring neural activity and involving regression of some synapses and strengthening and stabilization of others. Activity also regulates neuronal genes; in an unbiased PCR-based differential screen, we discovered unexpectedly that MHC Class I genes are expressed in neurons and are regulated by spontaneous activity and visual experience (Corriveau et al, 1998; Goddard et al, 2007). To assess requirements for MHCI in the CNS, mice lacking expression of specific MHCI genes were examined. Synapse regression in developing visual system did not occur, synaptic strengthening was greater than normal in adult hippocampus, and ocular dominance (OD) plasticity in visual cortex was enhanced (Huh et al, 2000; Datwani et al, 2009). We searched for receptors that could interact with neuronal MHCI and carry out these activity-dependent processes. mRNA for PirB, an innate immune receptor, was found highly expressed in neurons in many regions of mouse CNS. We generated mutant mice lacking PirB function and discovered that OD plasticity is also enhanced (Syken et al., 2006), as is hippocampal LTP. Thus, MHCI ligands signaling via PirB receptor may function to "brake" activity- dependent synaptic plasticity. Together, results imply that these molecules, thought previously to function only in the immune system, may also act at neuronal synapses to limit how much- or perhaps how quickly- synapse strength changes in response to new experience. These molecules may be crucial for controlling circuit excitability and stability in developing as well as adult brain, and changes in their function may contribute to developmental disorders such as Autism, Dyslexia and even Schizophrenia.

Supported by NIH Grants EY02858, MH071666, the Mathers Charitable Foundation and the Dana Foundation



Keynote Address is sponsored by Cambridge Research Systems

A reception will immediately precede the Keynote Address and Awards Ceremony.

Meeting Schedule

Friday, May 7

9:00 am - 8:30 pm 1:00 - 3:00 pm 3:00 - 3:30 pm 3:30 - 5:30 pm 5:30 - 7:30 pm 5:30 - 9:30 pm 6:30 - 9:30 pm

Saturday, May 8

7:30 am - 6:45 pm 7:45 - 8:15 am 8:15 - 10:00 am 8:30 am - 12:30 pm 8:30 am - 6:45 pm 10:00 - 11:30 am 10:00 - 11:30 am 10:15 – 10:45 am 11:00 am - 12:45 pm 12:45 - 2:45 pm 2:45 - 4:15 pm 2:45 - 6:45 pm 4:30 - 5:00 pm 5:15 - 6:45 pm 6:45 - 7:45 pm 7:45 - 9:15 pm

Sunday, May 9

7:30 am – 6:45 pm 7:45 – 8:15 am 8:15 – 10:00 am 8:30 am – 12:30 pm 8:30 am – 6:45 pm 10:15 – 10:45 am 11:00 am – 12:45 pm 12:45 – 2:45 pm 2:45 – 4:15 pm 2:45 – 6:45 pm 4:30 – 5:00 pm 5:15 – 7:00 pm 10:00 pm – 1:00 am Registration Open Symposia Session 1 Coffee Break Symposia Session 2 Opening Night Reception Exhibits Open Evening Poster Session

Registration Open Coffee Talk Sessions **Poster Sessions** Exhibits Open **VSS Public Lecture** Family & Friends Get-Together Coffee Break Talk Sessions Lunch Break Talk Sessions Poster Sessions Coffee Break Talk Sessions **Keynote Reception** Keynote Address and Awards Ceremony

Registration Open Coffee Talk Sessions Poster Sessions Exhibits Open Coffee Break Talk Sessions Lunch Break Talk Sessions Poster Sessions Coffee Break Talk Sessions Coffee Break Talk Sessions CVS-VVRC Social Royal Foyer Royal Ballrooms 1-3, 4-5 & 6-8 Royal Foyer Royal Ballrooms 1-3, 4-5 & 6-8 Royal Foyer, Orchid Foyer, Sunset Deck, Vista Deck Orchid Foyer Vista Ballroom, Orchid Ballroom

Royal Foyer Royal Foyer, Orchid Foyer Royal Ballrooms 1-3 & 4-5 Royal Ballroom 6-8, Orchid Ballroom, Vista Ballroom **Orchid Foyer** Renaissance Academy of Florida Gulf Coast University Mangrove Pool Royal Foyer, Orchid Foyer Royal Ballrooms 1-3 & 4-5 Purchase a lunch at VSS Marketplace and head to the beach!* Royal Ballrooms 1-3 & 4-5 Royal Ballroom 6-8, Orchid Ballroom, Vista Ballroom Royal Foyer, Orchid Foyer Royal Ballrooms 1-3 & 4-5 **Royal Foyer** Royal Ballroom 4-5

Royal Foyer Royal Foyer, Orchid Foyer Royal Ballrooms 1-3 & 4-5 Royal Ballroom 6-8, Orchid Ballroom, Vista Ballroom Orchid Foyer Royal Foyer, Orchid Foyer Royal Ballrooms 1-3 & 4-5 Purchase a lunch at VSS Marketplace and head to the beach!* Royal Ballrooms 1-3 & 4-5 Royal Ballroom 6-8, Orchid Ballroom, Vista Ballroom Royal Foyer, Orchid Foyer Royal Ballrooms 1-3 & 4-5 Vista Ballrooms 1-3 & 4-5

Monday, May 10

7:30 am – 1:15 pm 7:45 – 8:15 am 8:15 – 10:00 am 8:30 am – 12:30 pm 8:30 am – 1:15 pm 10:00 – 11:00 am

10:15 – 10:45 am 11:00 am – 12:30 pm 12:30 – 1:15 pm 5:00 – 7:00 pm

7:00 – 9:00 pm 7:30 – 10:00 pm 7:30 – 10:00 pm

Tuesday, May 11

7:45 - 8:15 am 8:00 am - 6:45 pm 8:15 - 10:00 am 8:30 am - 12:30 pm 8:30 am - 6:45 pm 10:15 - 10:45 am 11:00 am - 12:45 pm 12:45 - 2:45 pm 2:45 - 4:15 pm 2:45 - 6:45 pm 4:30 - 5:00 pm 5:15 - 7:00 pm 9:00 - 10:00 pm

10:00 pm – 2:00 am

Wednesday, May 12

7:45 - 8:15 am 8:00 am - 12:45 pm 8:15 - 10:00 am 8:30 am - 12:30 pm 10:15 - 10:45 am 11:00 am - 12:45 pm 12:45 pm Registration Open Coffee Talk Sessions Poster Sessions Exhibits Open Visual Search Workshop/National Geospatial-Intelligence Agency Coffee Break Talk Sessions Business Meeting 6th Annual Best Illusion of the Year Contest Demo Night Dinner Demo Night Demos Exhibits Open

Registration Open Talk Sessions Poster Sessions Exhibits Open Coffee Break Talk Sessions Lunch Break Talk Sessions Poster Sessions Coffee Break Talk Sessions Open House for Graduate Students and Postdoctoral Fellows Club Vision Dance Party

Coffee

Coffee

Registration Open

Talk Sessions

Coffee Break

Talk Sessions

Meeting Ends

Poster Sessions

Royal Foyer Royal Foyer, Orchid Foyer Royal Ballrooms 1-3 & 4-5 Royal Ballroom 6-8, Orchid Ballroom, Vista Ballroom Orchid Foyer Acacia 5

Royal Foyer, Orchid Foyer Royal Ballrooms 1-3 & 4-5 Royal Ballroom 4-5 Philharmonic Center for the Arts

Vista Ballroom, Sunset Deck, Mangrove Pool Royal Ballroom 4-5 & Acacia Meeting Rooms Orchid Foyer

Royal Foyer, Orchid Foyer Royal Foyer Royal Ballrooms 1-3 & 4-5 Royal Ballroom 6-8, Orchid Ballroom, Vista Ballroom Orchid Foyer Royal Foyer, Orchid Foyer Royal Ballrooms 1-3 & 4-5 Purchase a lunch at VSS Marketplace and head to the beach!* Royal Ballrooms 1-3, & 4-5 Royal Ballroom 6-8, Orchid Ballroom, Vista Ballroom Royal Foyer, Orchid Foyer Royal Ballrooms 1-3 & 4-5 Mangrove 1-2

Vista Ballroom, Sunset Deck

Royal Foyer. Orchid Foyer Royal Foyer Royal Ballrooms 1-3 & 4-5 Orchid Ballroom Royal Foyer, Orchid Foyer Royal Ballrooms 1-3 & 4-5

* Salads, sandwiches, and snacks are available for purchase at the VSS Marketplace located on the ballroom level between the Royal and Orchid Foyers.





Poster Schedule

Poster Setup and Takedown

All poster sessions are held in the Royal Ballroom 6-8 and Orchid Ballroom on the Ballroom level, and Vista Ballroom on the Lobby level. 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 Author Presents" time; and authors of odd numbered posters during the entire "Odd Author Presents" time. Authors may be present longer if desired.

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 his or her poster.

Push pins are available for your use and are located at the Meeting Registration Desk in the Royal Foyer.

Friday Afternoon, May 7

Setup: 5:30 - 6:30 pm Session: 6:30 - 9:30 pm Even Authors Present: 7:30 - 8:30 pm Odd Authors Present: 8:30 - 9:30 pm Room: Orchid Ballroom Perception and action: Locomotion Eye movements: Mechanisms and methods Development: Disorders Color and light: Adaptation and constancy 3D perception: Binocular and motion cues Room: Vista Ballroom Object recognition: Development and learning Face perception: Development Attention: Reward, motivation, emotion Memory: Capacity and resolution of working and short-term memory

Take down: 9:30 - 9:45 pm

Saturday Morning, May 8

Setup: 8:00 - 8:30 am Session: 8:30 am - 12:30 pm Even Authors Present: 9:30 - 10:30am Odd Authors Present: 10:30 - 11:30 am Room: Roval Ballroom 6-8 Spatial vision: Image statistics and texture Attention: Eye movements Room: Orchid Ballroom Neural mechanisms: Cortical organization Color and light: Mechanisms Perception and action: Reaching and grasping Attention: Spatial selection and modulation Room: Vista Ballroom Binocular vision: Rivalry and bistability Face perception: Experience Scene perception: Objects and scenes Take down: 12:30 - 1:00 pm

Saturday Afternoon, May 8

Setup: 2:00 - 2:45 pm Session: 2:45 - 6:45 pm Even Authors Present: 3:45 - 4:45 pm Odd Authors Present: 4:45 - 5:45 pm Room: Royal Ballroom 6-8 Attention: Temporal selection and modulation Attention: Divided attention Attention: Special populations Room: Orchid Ballroom Neural mechanisms: Adaptation, awareness, action Perceptual learning: Specificity and transfer Motion: Mechanisms and Illusions Eye movements: Smooth pursuit Memory: Encoding and retrieval Room: Vista Ballroom Object recognition: Features and categories Search: Neural mechanisms and behavior Search: Attention Spatial vision: Mechanisms and models Take down: 6:45 - 7:00 pm

Sunday Morning, May 9

Setup: 8:00 - 8:30 am Session: 8:30 am - 12:30 pm Even Authors Present: 9:30 – 10:30am Odd Authors Present: 10:30 - 11:30 am Room: Royal Ballroom 6-8 Spatial vision: Crowding and eccentricity Perception and action: Navigation and mechanisms Room: Orchid Ballroom Perceptual organization: Temporal processing Perceptual organization: Objects Motion: Biological motion Attention: Numbers and things Search: Learning, memory and context Room: Vista Ballroom Face perception: Emotional processing Face perception: Social cognition Scene perception: Categorization and memory Object recognition: Selectivity and invariance Take down: 12:30 - 1:00 pm

Sunday Afternoon, May 9

Setup: 2:00 - 2:45 pm Session: 2:45 - 6:45 pm Even Authors Present: 3:45 - 4:45 pm Odd Authors Present: 4:45 - 5:45 pm Room: Royal Ballroom 6-8 Neural mechanisms: Neurophysiology and theory Perception and action: Pointing and hitting Room: Orchid Ballroom Perceptual learning: Sensory plasticity and adaptation Color and light: Lightness and brightness Attention: Capture Attention: Brain and behavior I Room: Vista Ballroom 3D perception: Pictorial cues Face perception: Features Scene perception: Mechanisms Binocular vision: Stereo mechanisms Temporal processing: Mechanisms and models Take down: 6:45 - 7:00 pm

Monday Morning, May 10

Setup: 8:00 - 8:30 am Session: 8:30 am - 12:30 pm Even Authors Present: 9:30 - 10:30am Odd Authors Present: 10:30 – 11:30 am Room: Royal Ballroom 6-8 Eye movements: Selection and cognition Memory: Brain mechanisms of working and short-term memory Room: Orchid Ballroom Attention: Deciding where we look Attention: Mechanisms and models Attention: Inattention and attention blindness Perceptual organization: Grouping and segmentation Room: Vista Ballroom Motion: Mechanisms and models Face perception: Neural processing Multisensory processing: Visual-auditory interactions 3D perception: Spatial layout Take down: 12:30 - 1:00 pm

Tuesday Morning, May 11

Setup: 8:00 - 8:30 am Session: 8:30 am - 12:30 pm Even Authors Present: 9:30 - 10:30am Odd Authors Present: 10:30 - 11:30 am Room: Royal Ballroom 6-8 Memory: Objects and features in working and short-term memory Perceptual learning; Mechanisms and models Room: Orchid Ballroom Color and light: Surfaces and materials Spatial vision: Cognitive factors Attention: Visual working memory Multisensory processing: Cross-modal perception Multisensory processing: Synesthesia Temporal processing: Perception of time Room: Vista Ballroom Development: Early Perception and action: Mechanisms Object recognition: Recognition processes Face perception: Disorders Take down: 12:30 - 1:00 pm

Tuesday Afternoon, May 12

Setup: 2:00 - 2:45 pm Session: 2:45 - 6:45 pm Even Authors Present: 3:45 – 4:45 pm Odd Authors Present: 4:45 - 5:45 pm Room: Royal Ballroom 6-8 Binocular vision: Stereopsis Motion: Flow, depth, and spin Room: Orchid Ballroom Neural mechanisms: Human electrophysiology Attention: Tracking Attention: Endogenous and exogenous Perceptual organization: Contours and 2D form 3D perception: Distance and size Room: Vista Ballroom Eye movements: Perisaccadic perception Development: Lifespan Face perception: Eye movements Face perception: Parts and configurations Take down: 6:45 - 7:00 pm

Wednesday Morning, May 12

Setup: 8:00 – 8:30 am Session: 8:30 am – 12:30 pm Even Authors Present: 9:30 – 10:30am Odd Authors Present: 10:30 – 11:30 am Room: Orchid Ballroom Scene perception: Aesthetics Color and light: Categories, culture and preferences Attention: Brain and behavior II Attention: Features and objects Spatial vision: Masking Take down: 12:30 – 12:45 pm

Talk Schedule

Saturday, May 8

Time	Royal Ballroom 1-3	Royal Ballroom 4-5
8:15 – 10:00 am	Attention: Interactions with eye and hand move- ment	Memory: Working and short-term memory
11:00 am - 12:45 pm	Multisensory processing	Motion: Perception
2:45 – 4:15 pm	Perceptual organization: Contours and 2D form	Face perception: Brain mechanisms
5:15 – 6:45 pm	Binocular vision: Rivalry and mechanisms	Scene perception
Sunday, May 9		
Time	Royal Ballroom 1-3	Royal Ballroom 4-5
8:15 – 10:00 am	Color and light	Perceptual learning: Mechanisms and models
11:00 am - 12:45 pm	Development: Mechanisms	Attention: Brain imaging
2:45 – 4:15 pm	Eye movements: Top-down effects	Object recognition: Object and scene processing
5:15 – 7:00 pm	Spatial vision: Mechanisms and models	Search: Eye movements and mechanisms
Monday, May 10		
Time	Royal Ballroom 1-3	Royal Ballroom 4-5
8:15 – 10:00 am	Binocular vision: Models and mechanisms	Attention: Time
11:00 am – 12:30 pm	Perception and action: Pointing, reaching, and grasping	Object recognition: Categories
Tuesday, May 11		
Time	Royal Ballroom 1-3	Royal Ballroom 4-5
8:15 – 10:00 am	Perceptual organization: Grouping and segmenta- tion	Motion: Mechanisms
11:00 am - 12:45 pm	Neural mechanisms: Cortex	Attention: Object attention and object tracking
2:45 – 4:15 pm	Memory: Encoding and retrieval	Attention: Models and mechanisms of search
5:15 – 7:00 pm	Spatial vision: Crowding and mechanisms	Perceptual learning: Plasticity and adaptation
Wednesday, May	12	
Time	Royal Ballroom 1-3	Royal Ballroom 4-5
8:15 – 10:00 am	Eye movements: Updating	Perception and action: Navigation and mechanisms

Speaker Information

11:00 am - 12:45 pm

Please arrive at the Ballroom no less than 30 minutes before the start of your session. Presenters are welcome to test their presentations between talk sessions. Please give priority to presenters whose talk is scheduled for the subsequent session. The meeting rooms are equipped with a data/video projector and a projection screen. Presentations can be made from

Face perception: Social cognition

your Mac or PC laptop. A technician will be present in each room to handle any technical problems that may arise.

3D perception: Depth cues and spatial layout

Young Investigator Award

George Alvarez

Harvard University



The winner of the 2010 VSS Young Investigator Award is George Alvarez, Assistant Professor of Psychology at Harvard University. Alvarez has made exceptionally influential contributions to a number of research areas in vision and visual cognition. His work has uncovered principles that shape the efficient representation of information about objects and scenes in high level vision. He has also studied the way that highlevel visual representations interact with attention and memory, revealing the functional organization and limitations of these processes. His work particularly illuminates the interfaces of vision, memory, and attention, systems that have classically been studied as separate entities. His creative experiments elegantly represent the diversity and vitality of the emerging field of visual cognition.

The Young Investigator Award will be presented before the VSS Keynote Address on Saturday, May 8th, at 7:45 pm, in the Royal Ballroom at the Naples Grande Hotel.

Abstract Numbering System

Each abstract is assigned a unique 4 to 5 digit number based on when and where it is to be presented. The format of the abstract numbering is DT.RN (where D is the Day, T is the Time, R is the Room and N is the Presentation number).

First Digit - Day

- 1 Friday
- 2 Saturday
- 3 Sunday
- 4 Monday
- 5 Tuesday
- 6 Wednesday
- 2 Late AM talk session 3 AM poster session

1 Early AM talk session

Second Digit - Time Period

- 4 Early PM talk session
- 5 Late PM talk session
- 6 PM poster session

Third Digit - Room

- Royal Ballroom 1-3 1 2
- 3 Royal Ballroom 6-8
- 4 Orchid Ballroom
- 5 Vista Ballroom

Examples:

21.16 Saturday, early AM talk in Royal Ballroom 1-3, 6th talk

- 36.513 Sunday, PM poster in Vista Ballroom, poster board 513
- 53.306 Tuesday, AM poster in Royal Ballroom 6-8, poster board 306

Note: Two digits after the period indicates a talk, three digits indicates a poster (and is also the number of the poster board).

Royal Ballroom 4-5

Fourth/Fifth Digits - Number

For talks

For posters

1, 2, 3...

01, 02, 03...

11

8th Annual VSS Dinner and Demo Night

Monday, May 10, 7:00 - 10:00 pm

Dinner: 7:00 – 9:00 pm Vista Ballroom, Sunset Deck and Mangrove Pool

Demos: 7:30 – 10:00 pm Royal Ballroom 4-5 and Acacia Meeting Rooms

Please join us Monday evening for the 8th Annual VSS 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.

This year, Arthur Shapiro (chair), Peter Tse, and Alan Gilchrist are co-curators for Demo Night, and Gideon Caplovitz is assistant curator.

A buffet dinner will be held in the Vista Ballroom, on the Sunset Deck and Mangrove Pool. Demos will be located upstairs on the ballroom level in the Royal Ballroom 4-5 and Acacia Meeting Rooms.

Some exhibitors will also be presenting demos in the Orchid Foyer.

Demo Night is free for all registered VSS attendees. Meal tickets are not required, but you must wear your VSS badge for entry to the Dinner Buffet. Guests and family members of all ages are welcome to attend the demos but must purchase a ticket for dinner. You can register your guests at any time during the meeting at the VSS Registration Desk, located in the Royal Foyer. A desk will also be set up at the entrance to the dinner in the Vista Ballroom at 6:30 pm.

Guest prices Adults: \$25 Youth (6-12 years old): \$10 Children under 6: free

The Ambiguous Corner Cube and Friends

Kenneth Brecher (Boston University)

Several three-dimensional visually ambiguous objects that are bi-stable, tri-stable (and possibly more) will be displayed. The missing corner cube in particular probes interesting questions about the number of possible visual interpretations of such objects and their relative strength.

The Not-So Rotating Snakes

Christopher Cantor, Humza Tahir (University of California, Berkeley)

This illusion is an extension of our poster: we will show how certain optical manipulations kill the rotating snakes illusion.

Fun with stick shadow motion

Gideon Paul Caplovitz (Princeton University), Marian E. Berryhill (University of Pennsylvania)

Shadows of objects moving in 3D that are projected on a 2D surface move in ambiguous ways and have been used to provide insight into how our brains construct motion percepts. Here we re-create a simplified and interactive version of the original 'stick shadow motion' apparatus (Metzger 1934).

Tangible display systems: bringing virtual objects into the real world

Jim Ferwerda (Rochester Institute of Technology)

We are developing tangible display systems that allow people to interact with virtual surfaces as naturally as they can with real ones. We integrate accelerometers and webcams in laptops and cell phones with 3D surface models and computer graphics rendering, to create images of glossy textured surfaces that change realistically as the user manipulates the display.

Sharon Gershoni Photographs: Aesthetic Studies in Visual Perception

Sharon Gershoni, Shaul Hochstein (Neurobiology Department, Hebrew University)

I am an artist and a scientist. Since 2000 I have been pursuing graduate studies in visual perception in Japan, as well as being an artist in residence at visual perception labs. There I started developing the visual sciences-art connection, which I currently continue at the ICNC and Bezalel Art Academy. The photographs are the product of this interdisciplinary path.

Waves of Lights, Magic Flowers and Unchained Dots illusions

Simone Gori (Department of General Psychology, University of Padua), D. Alan Stubbs (University of Maine)

We will present three new motion illusions. Wave of Lights and Magic Flowers present surprising size and brightness variations due to observer motion, while the Unchained Dots Illusion is characterized by the misperception of dot trajectory.

Free the Ring!: Striking Color Spreading Induced Transparency

Abigail Huang, Alice Hon and Eric Altschuler (New Jersey Medical School)

We read/saw that vertical yellow bars can appear to spread geometrically faithfully through a black horizontal bar. Here we show that in a stereopsis display this effect can give striking transparency -e.g., a white ring inside a black pyramid.

Coming face to face with 2-faced faces

Melinda S. Jensen and Kyle E. Mathewson (University of Illinois at Urbana-Champaign)

In this demo, we present pairs of identical ambiguous figures. Even with intentional effort, observers typically cannot hold opposing interpretations of the two figures. However, with a simple and powerful technique, observers can see the alternative interpretations side by side.

The Jaggy Diamonds Illusion

Qian Kun and Takahiro Kawabe (Kyushu University)

We report a new illusion where the edges of diamonds placed at the intersections of crossing grids are perceived to be jaggy (the jaggy diamonds illusion). Luminance contrast among diamonds, grids, and background is a strong determinant for this illusion.

Stretching out in the tub

Lydia Maniatis (American University)

A large image of a bathtub appears to change shape as the viewpoint changes.

Smoothness Aftereffect

Emmanuel Guzman Martinez, Marcia Grabowecky, Laura Ortega-Torres, and Satoru Suzuki (Northwestern University)

Adaptation to a grainy, randomly black and white flicker produces an apparently smoother region on a subsequent gray display. This percept can appear in rivalry with the afterimage of the adaptor when a proportion of white-black pixels differs.

Steerable Spirals

Peter B. Meilstrup and Michael N. Shadlen (University of Washington)

When local features are put in conflict with global trajectories, the result can depend on long range competition between features. In our demo viewers interactively adjust the spacing of an array of identical elements resulting in different perceived global directions.

The Wellcome Trust Illusion

Michael Morgan (Max-Planck Institute of Neurology, Koeln, Germany)

A page of the Wellcome Trust Grant Application form has a series of vertically aligned text boxes that are distorted in shape by surrounding text.

Variations on the hollow mask illusion

Thomas V. Papathomas and Manish Singh (Rutgers University)

In the hollow-mask illusion, a rotating hollow mask is perceived as a convex face rotating in the opposite direction. Variations of the hollow mask (featureless mask; randomtextured; realistically painted; "smoking" a cigarette) illustrate how various manipulations affect the illusion.

Positive Afterimage

Maryam Vaziri Pashkam (Harvard University), Daw-An Wu (California Institute of Technology)

A powerful flash will burn a long-lasting positive afterimage on your retina that you can experiment on. Make the whole room tilt, make an object float in the air, or take a standstill picture of your friend's funny gesture with your eyes.

Exploring YOUR Phantom Limb: Paresthesias Elicited by Three Webcam Video Demonstrations

David Peterzell (University of California, San Diego and San Diego State University)

Three webcam-based procedures were designed in hopes of facilitating treatment of phantom limb pain in amputees (based on modifications to theories of VS Ramachandran), but cause unusual sensations (paresthesias and sense of limb movement) in many "normal" observers.

Star Trek (lightness from depth) illusion

Yury Petrov and Jiehui Qian (Northeastern University)

We will demonstrate how lightness and contrast of objects can be modulated up to 50%, when the objects appear to move in depth. Surprisingly, radial optic flow produces a much stronger illusion than binocular disparity.

Real-Time Avatar Animation in Virtual Reality

Matthias Pusch and Michael Schaletzki (WorldViz)

Live animation of an avatar in virtual reality through natural body movements via simple-to-use WorldViz PPT motion capture. This next generation real-time technology empowers researchers to inject living human beings into virtual worlds and give them the ability to engage in interactions, which opens new avenues for avatar-based visual perception and spatial cognition experiments.

Stroboscopic training for an Athletic Task

Alan Reichow and Herb Yoo (Nike, Inc.), Stephen Mitroff (Duke University), Graham Erickson (Pacific University)

A new product called Nike Strobe uses stroboscopic filters to limit participants' available visual information. This interactive experience demonstrates a tool to enhance visual information processing. Participants play a simple game of catch while wearing the Nike Strobe.

Recovering a naturalistic 3D scene from a single 2D image

Stephen Sebastian, Joseph Catrambone, Yunfeng Li, Tadamasa Sawada, Taekyu Kwon, Yun Shi, Robert M. Steinman, and Zygmunt Pizlo (Purdue University)

We will demonstrate how a naturalistic 3D scene can be recovered from a single 2D image taken with a calibrated camera like the human eye once Figure and Ground are organized and providing that the direction of gravity is known.

Silent updating of color changes

Jordan Suchow and George Alvarez (Harvard University)

When a vivid display of many color-changing dots is rotated about its center, the colors appear to stop changing.

Face-Face-Revolution: A game in real-time facial expression recognition

Jim Tanaka (University of Victoria), Marni Bartlett, Javier Movellan, and Gwen Littlewort (University of California, San Diego), Serena Lee-Cultura (University of Victoria)

Face-Face-Revolution is an interactive computer game intended to enhance the facial expression abilities of children with autism. The game utilizes the Computer Expression Recognition Toolbox (CERT) developed by Marni Bartlett and Javier Movellan at UC San Diego's Machine Perception Lab.

Perceived gaze direction does not reverse in the mirror (although everything else does)

Dejan Todorovic and Oliver Toskovic (University of Belgrade, Serbia)

When a mirror is set at 90 degrees to a portrait that appears to gaze at the observer, the mirror image of the portrait also appears to gaze at the observer, rather than at the mirror image of the observer.

Attention-based motion displacement

Peter Tse (Dartmouth College), Patrick Cavanagh (Université Paris Descartes)

Attention-based motion displacement.

The plastic effect: perceiving depth quality

Dhanraj Vishwanath and Paul Hibbard (University of St. Andrews)

We demonstrate stereoscopic quality in the absence of binocular disparities and even under depth cue conflict. The effects suggest that depth quality (the plastic effect) is a fundamental aspect of depth and distance perception and not an epiphenomenon of binocular vision.

Two faces of Albert Einstein: The effects of realism on the concave/convex face illusion

Albert Yonas and Sherryse Corrow (University of Minnesota)

A concave mask of a face may appear convex when viewed monocularly. This demo will allow the viewer to discover whether a realistically colored rendering of a face produces a more powerful convex illusion than an unpainted grey plastic face.

VPixx Technologies

Peter April and Jean-Francois Hamelin

VPixx Technologies, a VSS exhibitor, will be hosting the second annual response-time showdown during demo night this year. The demo is a simple game in which you must press a red or green button as fast as you can when the button lights up and you hear a beep. Do it well, and win a prize! The fastest hands in 2009 came from the University of Montreal. Who will win this year?Jointly sponsored by VSS and the Renaissance Academy of Florida Gulf Coast University

The 2010 VSS Public Lecture

Allison Sekuler

McMaster University



Allison Sekuler is Canada Research Chair in Cognitive Neuroscience, Professor of Psychology, Neuroscience & Behaviour, and Associate Vice-President and Dean of Graduate Studies at McMaster University, in Hamilton, Ontario. She received her B.A. with a joint degree in Mathematics and Psychology from Pomona College, and her Ph.D. in Psychology from the University of Califor-

nia, Berkeley. An outstanding teacher and internationallyrecognized researcher, Dr. Sekuler has been recognized as an Alexander von Humboldt fellow and an Ontario Distinguished Researcher, and she was named one of Canada's "Leaders of Tomorrow" in 2004. Her primary areas of research are vision science and cognitive neuroscience. Prof. Sekuler has served on numerous national and international boards in support of science, and is a former Treasurer and Member of the Board of Directors for the Vision Sciences Society. She is a passionate advocate for science outreach, frequently appearing in the media to discuss scientific issues, and currently representing the scientific community on the national Steering Committee for the Science Media Centre of Canada.

Vision and the Amazing, Changing, Aging Brain

Saturday, May 8, 10:00 – 11:30 am, Renaissance Academy of Florida Gulf Coast University

The "greying population" is the fastest growing group in North America. We know relatively little, however, about how aging affects critical functions such as vision and neural processing. For a long time, it was assumed that once we passed a certain age, the brain was essentially fixed, and could only deteriorate. But recent research shows that although aging leads to declines in some abilities, other abilities are spared and may even improve. This lecture will discuss the trade-offs in visual and neural processing that occur with age, and provide evidence that we really can teach older brains new tricks.



The annual public lecture represents the mission and commitment of the Vision Sciences Society to promote progress in understanding vision, and its relation to cognition, action and the brain. Education is basic to our science, and as scientists we are obliged to communicate the results of our work, not only to our professional colleagues but to the broader public. This lecture is part of our effort to give back to the community that supports us.

VSS at ARVO: Understanding the Functional Mechanisms of Visual Performance

Wednesday, May 5, 12:00 – 1:30 pm, Broward County Convention Center, Fort Lauderdale, FL Organizers: David R. Williams, PhD; Wilson S. Geisler, PhD

Speakers: David H. Brainard, PhD; Martin S. Banks, PhD; David J. Heeger, PhD

Every year, VSS and ARVO collaborate in a symposium – VSS at ARVO or ARVO at VSS – designed to highlight and present work from one society at the annual meeting of the other. This year's symposium is at ARVO.

In recent years, considerable progress has been made in understanding the functional mechanisms underlying human visual performance. This progress has been achieved by attacking the same questions from different directions using a variety of rigorous approaches, including careful psychophysics, functional imaging, computational analysis, analysis of natural tasks and natural scene statistics, and the development of theories of optimal Bayesian performance. This symposium highlights some of the exciting recent progress that has been made by combining two or more of these approaches in addressing fundamental issues in color coding, distance coding and object recognition.

Attendee Resources

Abstract Book

A printed Abstract book is no longer provided to each attendee. Printed Abstract books are available for purchase for \$10 or you can download an electronic copy in PDF format from the VSS website. See the Registration Desk.

Airport Transportation

VSS has arranged for discounted transportation from Fort Meyers airport to the meeting hotels. Service will be provided by Naples Transportation, Tours & Event Planning (NTT&EP), a professional transportation company and is available beginning on Wednesday, May 5 through Friday, May 14.

The one-way VSS fare is \$30/person each way. The airport shuttle will be available within the hours of 9:00 am and 9:00 pm on arrival days and within the hours of 4:00 am and 4:00 pm on departure days. Roundtrip purchase is not required. Tickets must be purchased a minimum of three days in advance. Individuals from VSS 2010 will be grouped together for transportation.

Transportation drop-offs (and pick-ups) will include The Naples Grande Resort & Club, The Edgewater Beach Hotel, the Hilton Naples, the Staybridge Hotel and the Park Shore Resort.

ATM

An ATM is located in the main lobby of the hotel.

Baggage Check

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

Bike Rentals

In the past few years, bikes have become a popular mode of transportation between the Naples Grande and the overflow hotels. The Naples Grande has set up a special "bike parking" area on the first level of the garage for VSS bikes. Here is information on two local bike rental companies:

Trek (www.trekbikesflorida.com) is located a few miles from the Naples Grande. Bikes can be rented by the day or by the week and Trek has offered to deliver bikes to the Naples Grande for VSS attendees. For reservations, call 866-876-4858. Make sure to mention Code# VSS to be entered into a drawing to win a \$50.00 American Express Gift Card.

Big Momma's Bicycles (www.bigmommasbicycles.com) is conveniently located down the street from the Naples Grande, less than a mile from the Naples Grande. Bikes can be rented by the day or by the week - delivery & pick-up

are available. For reservations, call 239-263-0728 or after hours call or text 239-734-7734. Amy from Big Momma's will be glad to assist you with anything from late pickups to a flat tire!

Business Center

The Business Center is located in the Orchid Foyer.

Child Care

The Naples Grande invites children between the ages of 4 and 12 to experience arts and crafts, sports, water activities and fun-filled games amidst the resort's beautiful natural setting. 1/2 day, full-day and extended day sessions are available.

Open to all VSS attendees. You need NOT be staying at the Naples Grande for your children to take advantage of this program.

Reservations can be made by calling the Naples Grande Kids Club at 239.597.3232, ext. 5612.

Morning Session: 8:15 am - 1:00 pm

Morning session includes a trip through the winding mangrove forest for a visit to the secluded beach, a variety of activities and lunch at the beach. Cost: \$44 per child

Afternoon Session: 1:00 - 4:30 pm

Afternoon session includes swimming and activities at the Mangrove Mountain Pool, arts and crafts and a tasty treat. (bring swimsuit for afternoon session) Cost: \$39 per child

Extended Afternoon: 1:00 – 7:00 pm Cost: \$80 per child

Full Day: 8:15 am – 4:30 pm Cost is \$69 per child.

Extended Day: 8:15 am – 7:00 pm Cost: \$150 per child

Kids Night Out: 6:00 - 9:00 pm

Kids Night Out offers a themed evening party for kids 4 - 12 including dinner, games, activities and a movie. Cost: \$49 a child

Kids Club is available on the following days:

Friday, May 7

Afternoon session, 1:00 – 4:30 pm Extended Afternoon, 1:00 – 7:00 pm Kids Night Out, 6:00 – 9:00 pm Note: The Evening Poster Session and Reception is 5:30 – 9:30 pm Morning session, 8:15 am – 1:00 pm Afternoon session, 1:00 – 4:30 pm Extended Afternoon, 1:00 – 7:00 pm Full Day, 8:15 am – 4:30 pm Extended Day, 8:15 am – 7:00 pm Kids Night Out, 6:00 – 9:00 pm

Note: The Keynote Address and Awards Ceremony is 6:45 – 9:15 pm

Sunday, May 9

Morning session, 8:15 am – 1:00 pm Afternoon session, 1:00 – 4:30 pm Extended Afternoon, 1:00 – 7:00 pm Full Day, 8:15 am – 4:30 pm Extended Day, 8:15 am – 7:00 pm

Monday, May 10 Morning session, 8:15 am – 1:00 pm

Tuesday, May 11

Morning session, 8:15 am – 1:00 pm Afternoon session, 1:00 – 4:30 pm Extended Afternoon, 1:00 – 7:00 pm Full Day, 8:15 am – 4:30 pm Extended Day, 8:15 am – 7:00 pm

Wednesday, May 12

Morning session, 8:15 am - 1:00 pm

The Naples Grande Kids Club is operated by the Naples Grande Hotel. VSS provides information for those who are interested.

Copying and Printing

Copying and printing can be done at the Business Center, located in the Orchid Foyer.

The nearest FedEx Kinko's is approximately 2.5 miles away at 890 Neapolitan Way (cross street Tamiami Trail).

A printer will be available in the Cyber Vision Internet Café located in the Banyan 1-2 meeting room.

Duplication/Recording

Photography, audio taping, video recording, digital taping, or any other form of duplication, is strictly prohibited in the sessions and poster areas.

Fitness Center

The Fitness Center is open 24 hours a day and is available to ALL VSS attendees. See the Reception desk if you are not staying at the Naples Grande Resort and would like access to the Fitness Center.

Food Service/Catering

Complimentary coffee and tea will be available each morning in the Royal Foyer. Coffee, tea, lemonade and sodas will also be served each afternoon between afternoon talk sessions.

VSS provides two receptions and one dinner. **Opening Night Reception** is on Friday night, prior to and during the first poster session. Each attendee is given two free drink tickets good on this night only. Appetizers will also be served. The **Keynote Reception** is new this year and will precede the Keynote Address. Appetizers will be served and a cash bar will be available. A full dinner is provided to all attendees on **Demo Night.**

The VSS schedule gives a generous two-hour lunch period to take advantage of the beautiful surroundings and amenities of the Naples Grande Resort. All Naples Grande facilities are open to all VSS attendees and their guests. Grab a lunch and walk down the path through the natural mangrove estuary to enjoy a break at the beach.

VSS Marketplace

The VSS Marketplace, located on the ballroom level between the Royal and Orchid foyers, offers a selection of reasonably-priced breakfast, lunch and snack items. All items are between \$1 and \$5.

Open daily 7:00 am - 4:00 pm.

Spressi

Located in the resort lobby, Spressi offers a selection of hot coffee drinks and teas, light breakfast and lunch fare to go. Open 6:00 am – 9:00 pm

Paradise Grill

Located at the beach, serving salads, sandwiches, snacks and refreshing beverages. Open 11:00 am – 5:00 pm for food, and 11:00 am to sunset for beverages.

Palm Terrace Pool Bar & Grill

Informal poolside bar serving salads, sandwiches, hamburgers and snacks. Open 11:00 am – 5:00 pm for food, and 11:00 am – 6:00 pm for beverages.

Aura Restaurant

Located in the resort lobby, featuring innovative and sumptuous menus for breakfast, lunch and dinner. Open 7:00 am – 12:00 pm daily for breakfast. A special Mothers Day buffet will be available on Sunday for \$29.95.

Open 12:00 - 3:00 pm daily for lunch.

Open 6:00 - 10:00 pm daily for dinner.

Aura Bar

Open 7:00 – 11:00 am daily for breakfast buffet w/ eggs, sausage or bacon, and hash brown \$15.00

Bar is open 12:00 pm-12:00 am daily.

Guests

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

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

Guests are welcome at all social functions (Club Vision, Friday Night Reception and Demo Night). Fees for guests to eat at Demo Night: Adults \$25; Youth 6-12 \$10; Children under 6 free.

Internet Access

VSS provides free wired and wireless Internet access in the Cyber Vision Internet Café located in the Banyan 1-2 meeting room located on the Ballroom level. A limited number of laptop compters will be available in this room for those who did not bring their own computers.

Free wireless Internet access is provided by the Naples Grande Resort in the lobby and restaurant areas of the hotel. Internet access is not provided in the poster and talk meeting rooms.

Attendees staying as guests at the Naples Grande will have complimentary internet in their guest rooms.

Lost and Found

Lost and found is located at the Registration Desk in the Royal Foyer.

Message Center

Messages for registrants can be left and retrieved at the Registration Desk. A bulletin board will be available in the Royal Foyer for announcements and job postings.

Parking

Complimentary self-parking is available inside the garage of the Naples Grande Resort. Turn right off of the main entrance driveway, then look for the parking garage entrance on your left. Overflow parking is available on Seagate Drive.

Pool & Beach

All hotel facilities accessible without a room key are available to all VSS attendees and their guests. Clam Pass beach is a public beach available to everyone. Free electric carts run continuously from the hotel to the beach and back.

Shipping

To ship your poster or other items home from the meeting ask for the Concierge at the front desk of the Naples Grande.

VSS Trolley Shuttle

An evening trolley will run between the Naples Grande Resort and downtown Naples (with several stops in between). The shuttle is complimentary to VSS attendees and guests, and will run approximately every 30 minutes from Saturday through Tuesday. The shuttle will also run on Monday afternoon. A schedule and map can be found in your tote bag or you can pick up a copy at the Registration Desk. Selected resaurants are offering a 10% discount to VSS attendees. You must wear your badge to receive free trolley transportation and restaurant discounts.

How to Contact Us

If you need to reach VSS meeting personnel while at the meeting, call ext. 6088 from a house phone, or from outside the hotel, call 239-597-3232, ext. 6088.

Exhibitors

VSS recognizes the following companies who are exhibiting at VSS 2010. Thank you for your participation and support.

Exhibit Hours

Friday, May 7, 5:30 – 9:30 pm Saturday, May 8, 8:30 am – 6:45 pm Sunday, May 9, 8:30 am – 6:45 pm Monday, May 10, 8:30 am – 1:15 pm; 7:30 – 10:00 pm Tuesday, May 11, 8:30 am – 6:45 pm

All exhibits are located in the Orchid Foyer.

Arrington Research, Inc.

Booth 7

220 Hz ViewPoint EyeTracker® systems from Arrington Research are now shipping. All systems include a Software Developers Kit (SDK), real-time Ethernet communication, built-in stimulus presentation, post-hoc data analysis tools, a MATLAB toolbox, many other 3rd Party product interfaces and examples. Great for both human and nonhuman primates and can be provided with Analog and TTL communication to ensure seamless communication with your existing equipment. ViewPoint EyeTracker® systems are the easiest and best value available and include light-weight head mounted, HMD and head fixed systems. Arrington Research has been providing reliable affordable eye trackersfor the research market worldwide for almost 15 years. Please visit www.ArringtonResearch.com for more details.

Cambridge Research Systems

Booth 6

Cambridge Research Systems provides a diverse range of novel hardware and software solutions for vision science and human brain mapping. This year we are launching a range of cost-effective, modular hardware accessories that are designed to equip Vision Scientists with the essential tools of their trade. All the devices have standards-based, cross-platform hardware and software interfaces and are designed to integrate with community tools like Psychtoolbox and PsychoPy. Just pick and choose what you need from our range: the devices work equally well when they are linked synchronously together or operated standalone. This range includes: programmable digital video processors that have 16-bit RGB outputs and a host of other neat features, colour display measurement, calibration and characterisation equipment, discrete remote desktop fixation and high-speed video eye tracking systems, a multifunction data acquisition device that make samples relative to an external trigger source (e.g. a video frame sync pulse), a buffered digital audio file playback system that can be controlled using digital triggers (just think "iPod for science"), plus a collection of traditional push button and unique touch-based, self-configuring response boxes that

all offer host operating system independent reaction time measurements. To find out more, please look at our leaflet in the VSS bag, visit our website at http://www.crsltd.com and talk to Steve Elliott during the meeting.

The MIT Press

Booth 11

Please come by The MIT Press booth to browse our newest titles and receive a 30% discount on books and journals including Marr/ Vision and Frisby/ Seeing, Second Edition.

Motion Imaging Corporation

Booth 8

Motion Imaging Corporation (MIC) offers high-performance, cost effective and easy-to-use tracking systems. MIC is the exclusive distributor of NAC High-Speed Cameras and Eye-Tracking Equipment. We integrate software and hardware to create "World Class" digital imaging and motion analysis systems. Our tracking systems include: 3D motion analysis trackers, head trackers, markerless trackers and eye trackers.

Oxford University Press

Booth 1

Visit the Oxford booth for 20% off on Breitmeyer: Blindspots; Adams: Social Vision; Cornelissen: The Neural Basis of Reading; Hansen: MEG; Oakes: Early Perceptual and Cognitive Development; Land: Looking and Acting; and many others.

Sinauer

Booth 3

Founded in 1969, Sinauer Associates, Inc. publishes college-level textbooks and educational multimedia in biology, psychology, neuroscience, and allied disciplines. The company strives to work with talented and knowledgeable authors, to create books and media that are handsomely designed and produced, and to communicate effectively with each title's intended audience.

SMI Eye & Gaze Tracking

Booth 5

SMI designs advanced video eye tracking systems that combine ease of use and flexibility with advanced technology. SMI products offer the ability to measure gaze position, saccades, fixations, pupil size, torsion, etc. This includes fully remote systems, binocular high-speed/highprecision, and fMRI/MEG compatible systems. Experiment Center 360° continues to serve researchers, corporations and consultants worldwide by offering a simple solution to stimulus presentation, data acquisition and analysis.

SR Research Ltd.

Booth 13

SR Research, maker of the world leading EyeLink High-Speed eye tracker line, have been developing advanced eye tracking technologies and serving world class support to our researcher user base since 1992. Now offering the world's first 1000 Hz eye tracker for use in MRI and MEG environments, this same core device can be cost effectively configured to be used in standard lab environments as well. Why buy multiple eye trackers when you may only need one! Visit our both for more information and a discussion of existing installations. Please visit http://www.srresearch.com for details on our eye tracking hardware and software product range, including the latest Experiment Builder software, now supporting both Windows and Mac OS X! We will also be demonstrating integration with the new cutting edge hardware made by VPixx Technologies, including their Response Pads and the DATAPixx real-time hardware toolbox.

Tobii Technology

Booth 2

Tobii Technology is the world leader in hardware and software solutions for eye tracking and eye control. With eye tracking a computer knows exactly where a person is looking, enabling new powerful ways to understand behavior and enhanced control interfaces. Tobii's products are widely used within the scientific community and in commercial market research and usability studies, as well as by disabled people as a mean to communicate. Tobii also drives integration of eye tracking technology in a large number of other areas, offering OEM components for integration into various industry applications. Founded in 2001, Tobii has continuously shown very rapid year-toyear revenue growth. The company is based in Stockholm, Sweden, with braches in the US, Germany and Norway. Products are sold directly and through resellers and partners worldwide. Visit www.tobii.com for more information.

VPixx Technologies Inc.

Booth 12

VPixx Technologies welcomes the vision community to VSS 2010, and is excited to demonstrate our DATAPixx product. The DATAPixx is an essential realtime hardware toolbox containing solutions to many of the technical challenges associated with stimulus presentation and data acquisition. DATAPixx features dual synchronized video outputs with 16-bit video DACs for presenting low-contrast stimuli, 16 simultaneously sampled ADC channels, 4 DAC outputs, stereo audio I/O, and digital I/O for triggers and response boxes. All data I/O is hardware synchronized to video refresh with microsecond precision! The DATA-Pixx is now supported by the PsychToolbox under Matlab and free open-source Octave. Visit our booth to see the DATAPixx, our new fMRI-compatible fiber-optic response pads, and integration with the Eyelink eye-trackers from SR Research.

VPixx Technologies will be hosting the second annual response-time showdown during demo night this year. The demo is a simple game in which you must press a red or green button as fast as you can when the button lights up and you hear a beep. Do it well, and win a prize! The fastest hands in 2009 came from the University of Montreal. Who will win this year?

World viz

Booth 9

WorldViz is an industry leader in interactive virtual reality solutions. The company's flagship products are VIZARD, the VR communities favored interactive 3D content creation software, and PPT X4, the most cost effective wide-area tracking system currently available. WorldViz provides high quality, low-cost immersive 3D products to researchers, educators, designers, manufacturers, and other professionals, integrating all common VR products on the market and delivering complete turnkey solutions.

Travel Awards

Elsevier/Vision Research Travel Awards

VSS congratulates this year's recipients of the 2010 Elsevier/Vision Research Travel Award. The Travel Awards will be presented at the Keynote Address and Awards Ceremony on Saturday, May 8, at 7:45 pm in Royal Ballroom 4-5.



Jorge Almeida Harvard University Advisor: Ken Nakayama

Timothy Brady Massachusetts Institute of Technology Advisor: Aude Oliva

Maartje Cathelijne de Jong Utrecht University Advisors: Casper Erkelens, Raymond van Ee

Koen Haak University of Groningen Advisor: Frans W. Cornelissen

Urs Kleinholdermann University Giessen Advisor: Volker H. Franz

Maro Machizawa University College London Advisor: Jon Driver

Rachel Millin University of Southern California Advisor: Bosco Tjan

Laura Pérez Zapata University of Barcelona Advisor: Hans Sùper

Miranda Scolari University of California, San Diego Advisor: John Serences

Michael Vesia York University Advisors: Doug Crawford, Lauren Sergio Paola Binda San Raffaele University Advisors: M. Concetta Morrone, David C. Burr

Thaddeus B. Czuba University of Texas at Austin Advisors: Lawrence K. Cormack, Alexander C. Huk

Jeremy Freeman New York University Advisors: Eero P. Simoncelli, David J. Heeger

Donatas Jonikaitis Ludwid Maximilians University Advisor: Heiner Deubel

MiYoung Kwon University of Minnesota Advisor: Gordon E. Legge

J. Patrick Mayo University of Pittsburgh Advisor: Marc Sommer

Wei Song Ong UCLA Advisor: James Bisley

Yoni Pertzov University of Jerusalem Advisors: Ehud Zohary, Galia Avidan

Philip Tseng University of California, Santa Cruz Advisor: Bruce Bridgeman

Greg West University of Toronto Advisor: Jay Pratt

Satellite Events

Family and Friends Get-Together

Saturday, May 8, 10:00 - 11:30 am

Organizer: Alex Holcombe, University of Sydney

Moms, dads, buddies, grandparents, big kids, little kids, pets, all are welcome! Meet at the Mangrove Pool, near the Palm Terrace Bar & Grill at 10:00 am on Saturday. Let's make plans for beach excursions and other activities. Information about local and group excursions will be available.

CVS-VVRC Social at VSS

Sunday, May 9, 10:00 $\rm pm$ – 1:00 am, Vista Ballroom and Sunset Deck

Organizers: Duje Tadin, University of Rochester and Jeff Schall, Vanderbilt University

Continuing the long tradition of social events organized by the Vanderbilt Vision Research Center (VVRC) and the University of Rochester's Center for Visual Science (CVS), we invite all VSS attendees to the CVS-VVRC social at VSS. The event will be held on Sunday, May 9th from 10:00 pm to 1:00 am in the Vista Ballroom at the Naples Grande Resort. First 200 guests will receive a free drink ticket.

6th Annual Best Illusion of the Year Contest

Monday, May 10, 5:00 – 7:00 pm (Doors open at 4:30 pm) Philharmonic Center for the Arts (Less than a 10 minute walk from the Naples Grande Hotel)

Organizer: Susana Martinez-Conde, Neural Correlate



The Best Illusion of the Year Contest is a celebration of the ingenuity and creativity of the world's premier illusion creators. Contestants from all around the world have submitted novel illusions (unpublished, or published no earlier than 2009), and an international panel of judges has narrowed them to the TOP TEN. At the Contest Gala in the Naples Phil-

harmonic Center for the Arts, the top ten illusionists will present their creations and the attendees of the event (that means YOU!) will vote to pick the TOP THREE WINNERS!

The Amaz!ng Randi, the renowned magician, escapologist, and skeptic, will give a presentation/magic performance during the vote counting.

Everybody is invited and families are welcome!

Club Vision Dance Party

Tuesday, May 11, 10:00 pm – 2:00 am, Vista Ballroom and Sunset Deck

Each year, the climax of the VSS social program takes place on the last night of the conference. This year's dance will feature one of Florida's most requested and talented DJ's, Kevin Smith. Kevin promises to entertain VSS attendees and get them on the dance floor with his vast selection of music and special lighting effects.

The wearing of glowing or flashing accessories has become a tradition for this event and we will again be distributing free glow-in-the-dark necklaces and bracelets at the event. We encourage you to also bring your own creative accessories.

You won't want to miss this year's Club Vision!

Visual Search: Bridging the Gap between Laboratory Experiments and Real-World Application

Monday, May 10, 10:00 - 11:00 am, Acacia 5

Speakers: Drs. Joeanna C. Arthur, Beth H. Driver, Carsten K. Oertel, and Brian W. Colder

Visual search is an essential task in everyday life (e.g., finding your car in a full parking lot, looking for your friend in crowded bar, etc.). It is well known that various factors can have a negative impact on the effectiveness and efficiency of visual search. Scientific research has demonstrated that cognitive factors such as attention, working memory, expectations, experience, motivation, and idiosyncratic strategies all impact visual search performance. A majority of these studies are conducted in a controlled laboratory environment, however. A common paradigm used in visual search studies requires participants to detect the presence or absence of a predetermined target in arrays presented either briefly or until the observer completes search for one target on each trial. For example, observers might search for a "T" amongst distractor stimuli, "L"s of various orientations. While visual search tasks of this sort have been informative, they fall well short of the complexity of stimuli and the variety of targets present in real-world search efforts. Therefore, it is unclear whether the results can be generalized to real-world targets. For instance, consider the visual search tasks faced by the U.S. Government Intelligence community (IC). Imagery analysts in the IC often search for a broad range of targets amongst an even wider array of distracters placed within cluttered backgrounds. In addition, IC search introduces a range of contextual variables (e.g., more environmental distractions,

such as, increased background noise, frequent interruptions, and real-world urgency, etc.), thus the direct application of results from experimental laboratory studies may prove difficult. Other high-risk professions, such as diagnostic medical imaging and baggage screening, have generated studies conducted in relatively naturalistic environments. The results of these studies have major real-world implications; a miss has greater repercussions (i.e., fatal spread of cancer, deadly weapons in an airline passenger bag) than a false positive. Similarly, imagery analysts know that lives depend on their performance; therefore, results from these studies may be readily applicable to the IC.

This workshop plans to bring together government scientists and academic researchers in the field of visual search. The goal of this workshop is to understand how findings in the laboratory can inform real-world environments, and vice-versa. In particular, the objectives are to identify possible studies that would translate to an intelligence environment and, in turn, how to translate operational discoveries and lessons learned into new lines of inquiry that potentially could be addressed in a controlled laboratory environment. Discussions will center on the following questions: What questions should we be asking that cannot be addressed in the laboratory? How can we begin to collect data in an operational environment versus a controlled laboratory environment? What predictions can we generate surrounding the effect of a multitude of internal (cognitive) factors and external variables on visual search conducted in a real-world context? What methods and analyses can be employed to test these predictions? How would we interpret the predicted results? And, how would these results fit with current theories of visual search behavior?

Open House for Graduate Students and Postdoctoral Fellows

Tuesday, May 11, 9:00 - 10:00 pm, Mangrove 1-2

Students and postdocs comprise more than half of the attendees at VSS. Please join members of the VSS board of directors and administration for an informal meeting and discussion. We would like your input on how to improve the VSS meeting, and we'll be happy to answer any questions you may have. Refreshments will be served.

Member-Initiated Symposia

Symposium summaries are presented below. See the Abstracts book for the full text of each presentation. Preregistration is not necessary to attend a symposium, but rooms will fill up quickly, so plan to arrive early.

Schedule Overview

Friday, May 7, 1:00 - 3:00 pm

S1 Integrative mechanisms for 3D vision: combining psychophysics, computation and neuroscience, Royal Ballroom 1-3

S2 New Methods for Delineating the Brain and Cognitive Mechanisms of Attention, Royal Ballroom 4-5

S3 Nature vs. Nurture in Vision: Evidence from Typical and Atypical Development, Royal Ballroom 6-8

Friday, May 7, 3:30 - 5:30 pm

S4 Representation in the Visual System by Summary Statistics, Royal Ballroom 1-3

S5 Understanding the interplay between reward and attention, and its effects on visual perception and action, Royal Ballroom 4-5
S6 Dissociations between top-down attention and visual awareness, Royal Ballroom 6-8

S1

Integrative mechanisms for 3D vision: combining psychophysics, computation and neuroscience

Friday, May 7, 1:00 – 3:00 pm, Royal Ballroom 1-3

Organizer: Andrew Glennerster (University of Reading)

Presenters: Roland W. Fleming (Max Planck Institute for Biological Cybernetics), James T Todd (Department of Psychology, Ohio State University), Andrew Glennerster (University of Reading), Andrew E Welchman (University of Birmingham), Guy A Orban (K.U. Leuven), Peter Janssen (K.U. Leuven)

Symposium Summary

Estimating the three-dimensional (3D) structure of the world around us is a central component of our everyday behavior, supporting our decisions, actions and interactions. The problem faced by the brain is classically described in terms of the difficulty of inferring a 3D world from ("ambiguous") 2D retinal images. The computational challenge of inferring 3D depth from retinal samples requires sophisticated neural machinery that learns to exploit multiple sources of visual information that are diagnostic of depth structure. This sophistication at the input level is demonstrated by our flexibility in perceiving shape under radically different viewing situations. For instance, we can gain a vivid impression of depth from a sparse collection of seemingly random dots, as well as from flat paintings. Adding to the complexity, humans exploit depth signals for a range of different behaviors, meaning that the input complexity is compounded by multiple functional outputs. Together, this poses a significant challenge when seeking to investigate empirically the sequence of computations that enable 3D vision.

This symposium brings together speakers from different perspectives to outline progress in understanding 3D vision. Fleming will start, addressing the question of "What is the information?", using computational analysis of 3D shape to highlight basic principles that produce depth signatures from a range of cues. Todd and Glennerster will both consider the question of "How is this information represented?", discussing different types of representational schemes and data structures. Welchman, Orban and Janssen will focus on the question of "How is it implemented in cortex?". Welchman will discuss human fMRI studies that integrate psychophysics with concurrent measures of brain activity. Orban will review fMRI evidence for spatial correspondence in the processing of different depth cues in the human and monkey brain. Janssen will summarize results from single cell electrophysiology, highlighting the similarities and differences between the processing of 3D shape at the extreme ends of the dorsal and ventral pathways. Finally, Glennerster, Orban and Janssen will all address the question of how depth processing is affected by task.

The symposium should attract a wide range of VSS participants, as the topic is a core area of vision science and is enjoying a wave of public enthusiasm with the revival of stereoscopic entertainment formats. Further, the goal of the session in linking computational approaches to behavior to neural implementation is one that is scientifically attractive.

Presentations

From local image measurements to 3D shape

Roland W. Fleming, Max Planck Institute for Biological Cybernetics

The perceptual representation of 3D shape

James T Todd, Department of Psychology, Ohio State University

View-based representations and their relevance to human 3D vision

Andrew Glennerster, School of Psychology and CLS, University of Reading

The functional roles of visual cortex in representing 3D shape

Andrew E Welchman, School of Psychology, University of Birmingham

Extracting depth structure from multiple cues

Guy A Orban, K.U. Leuven

Neurons selective to disparity defined shape in the temporal and parietal cortex

Peter Janssen, K.U. Leuven; Bram-Ernst Verhoef, KU Leuven

S2

New Methods for Delineating the Brain and Cognitive Mechanisms of Attention

Friday, May 7, 1:00 – 3:00 pm, Royal Ballroom 4-5

Organizer: George Sperling (University of California, Irvine) Presenters: Edgar DeYoe (Medical College of Wisconsin), Jack L. Gallant (University of California, Berkeley), Albert J. Ahumada (NASA Ames Research Center, Moffett Field CA 94035), Wilson S. Geisler (The University of Texas at Austin), Barbara Anne Dosher (University of California, Irvine), George Sperling (University of California, Irvine)

Symposium Summary

This symposium brings together the world's leading specialists in six different subareas of visual attention. These distinguished scientists will expose the audience to an enormous range of methods, phenomena, and theories. It's not a workshop; listeners won't learn how to use the methods described, but they will become aware of the existence of diverse methods and what can be learned from them. The participants will aim their talks to target VSS attendees who are not necessarily familiar with the phenomena and theories of visual attention but who can be assumed to have some rudimentary understanding of visual information processing. The talks should be of interest to and understandable by all VSS attendees who have an interest in visual information processing: students, postdocs, academic faculty, research scientists, clinicians, and the symposium participants themselves. Attendees will see examples of the remarkable insights achieved by carefully controlled experiments combined with computational modeling. DeYoe reviews his extraordinary fMRI methods for localizing spatial visual attention in the visual cortex of alert human subjects to measure their "attention maps". He shows in exquisite detail how top-down attention to local areas in visual space changes the BOLD response (an indicator of neural activity) in corresponding local areas V1 of visual cortex and in adjacent spatiotopic visual processing areas. This work is of fundamental significance in defining the topography of attention and it has important clinical applications. Gallant is the premier exploiter of natural images in the study of visual cortical processing. His work uses computational models to define the neural processes of attention in V4 and throughout the attention hierarchy. Gallant's methods complement DeYoe's in that they reveal functions and purposes of attentional processing that often are overlooked with simple stimuli traditionally used. Ahumada, who introduced the reverse correlation paradigm in vision science, here presents a model for the eye movements in perhaps the simplest search task (which happens also to have practical importance): the search for a small target near horizon between ocean and sky. This is an introduction to the talk by Geisler. Geisler continues the theme of attention as optimizing performance in complex tasks in studies of visual search. He presents a computational model for how attention and stimulus factors jointly control eye movements and search success in arbitrarily complex and difficult search tasks. Eye movements in visual search approach those of an ideal observer in making optimal choices given the available information, and observers adapt (learn) rapidly when the nature of the information changes. Dosher has developed analytic descriptions of attentional processes that enable dissection of attention into three components: filter sharpening, stimulus enhancement, and altered gain control. She applies these analyses to show how subjects learn to adjust the components of attention to easy and to difficult tasks. Sperling reviews the methods used to quantitatively describe spatial and temporal attention windows, and to measure the amplification of attended features. He shows that different forms of attention act independently.

Presentations

I Know Where You Are Secretly Attending! The topography of human visual attention revealed with fMRI

Edgar DeYoe, Medical College of Wisconsin; Ritobrato Datta, Medical College of Wisconsin

Attentional modulation in intermediate visual areas during natural vision

Jack L. Gallant, University of California, Berkeley

A model for search and detection of small targets

Albert J. Ahumada, NASA Ames Research Center, Moffett Field CA 94035

Ideal Observer Analysis of Overt Attention

Wilson S. Geisler, The University of Texas at Austin

Attention in High Precision Tasks and Perceptual Learning

Barbara Anne Dosher, University of California, Irvine; Zhong-Lin Lu, University of Southern California

Modeling the Temporal, Spatial, and Featural Processes of Visual Attention

George Sperling, University of California, Irvine

S3

Nature vs. Nurture in Vision: Evidence from Typical and Atypical Development

Friday, May 7, 1:00 – 3:00 pm, Royal Ballroom 6-8

Organizer: Faraz Farzin (University of California, Davis)

Presenters: Karen Dobkins (Department of Psychology, University of California, San Diego), Rain G. Bosworth (Department of Psychology, University of California, San Diego), Melanie Palomares (University of South Carolina), Anthony M. Norcia (The Smith-Kettlewell Eye Research Institute), Janette Atkinson (Visual Development Unit, Department of Developmental Science, University College London), Faraz Farzin (University of California, Davis)

Symposium Summary

The interplay between genetics and the environment is a rapidly advancing area in vision, yet it is a classic question in developmental research. In this symposium, each speaker will present empirical evidence supporting the contribution of genetic and/or environmental factors on specific visual processes, and will collectively discuss how these factors affect human visual development. The symposium has three aims: (1) to provide the opportunity for developmental researchers to come together and engage in collaborative dialogue in a single session at VSS, which has been neglected in recent years, (2) to synthesize a working knowledge of the biological and environmental influences on the functional and anatomical organization of the typically and atypically developing visual system, and (3) to advance the role of development in understanding visual mechanisms. Bringing together prominent scientists as well as young investigators, we anticipate that this symposium will appeal to those who share a common interest in understanding the nature of early vision and the factors which shape its development.

Presentations

Infant Contrast Sensitivity: Contributions of Factors Related to Visual Experience vs. Preprogrammed Mechanisms

Karen Dobkins, University of California, San Diego; Rain G. Bosworth, University of California, San Diego

Chromatic and Luminance Contrast Sensitivity in Fullterm and Preterm Infants: Effects of Early Visual Experience on Magnocellular and Parvocellular Pathway Processing

Rain G. Bosworth, University of California, San Diego; Karen Dobkins, University of California, San Diego

Visual Evoked Potentials in Texture Segmentation: Are Boys and Girls Different?

Melanie Palomeres, University of South Carolina; Anthony M. Norcia, The Smith-Kettlewell Eye Research Institute

Experience Dependent Plasticity of human Form and Motion Mechanisms in Anisometropic Amblyopia

Anthony M. Norcia, The Smith-Kettlewell Eye Research Institute; Sean I. Chen, The Galway Clinic, Galway, Ireland; Arvind Chandna, Royal Liverpool Childrens Hospital, Liverpool, UK

Dorsal Stream Vulnerability: Interaction of Intrinsic Programmes and Acquired Developmental Disorders

Janette Atkinson, University College London; Oliver Braddick, University of Oxford

The Role of the FMR1 Gene in Infant Contrast Sensitivity

Faraz Farzin, University of California, Davis and Center for Mind and Brain; David Whitney, University of California, Berkeley and Center for Mind and Brain, Davis; Flora Tassone, M.I.N.D. Institute; Susan M. Rivera, University of California, Davis, Center for Mind and Brain, Davis, and M.I.N.D. Institute

S4

Representation in the Visual System by Summary Statistics

Friday, May 7, 3:30 – 5:30 pm, Royal Ballroom 1-3 Organizer: Ruth Rosenholtz (MIT Department of Brain & Cognitive Sciences)

Presenters: Ruth Rosenholtz (MIT Department of Brain & Cognitive Sciences), Josh Solomon (City University London), George Alvarez (Harvard University, Department of Psychology), Jeremy Freeman (Center for Neural Science, New York University), Aude Oliva (Department of Brain and Cognitive Sciences, Massachusetts Institute of Technology), Ben Balas (MIT, Department of Brain and Cognitive Sciences)

Symposium Summary

What is the representation in early vision? Considerable research has demonstrated that the representation is not equally faithful throughout the visual field; representation appears to be coarser in peripheral and unattended vision, perhaps as a strategy for dealing with an information bottleneck in visual processing. In the last few years, a convergence of evidence has suggested that in peripheral and unattended regions, the information available consists of summary statistics. "Summary statistics" is a general term used to represent a class of measurements made by pooling over visual features of various levels of complexity, e.g. 1st order statistics such as mean orientation; joint statistics of responses of V1-like oriented feature detectors; or ensemble statistics that represent spatial layout information. Depending upon the complexity of the computed statistics, many attributes of a pattern may be perceived, yet precise location and configuration information is lost in favor of the statistical summary.

This proposed representation for early vision is related to suggestions that the brain can compute summary statistics when such statistics are useful for a given task, e.g. texture segmentation, or explicit judgments of mean size of a number of items. However, summary statistic models of early visual representation additionally suggest that under certain circumstances summary statistics are what the visual system is "stuck with," even if more information would be useful for a given task.

This symposium will cover a range of related topics and methodologies. Talks by Rosenholtz, Solomon, and Alvarez will examine evidence for a statistical representation in vision, and explore the capabilities of the system, using both behavioral experiments and computational modeling. Freeman will discuss where summary statistics might be computed in the brain, based upon a combination of physiological findings, fMRI, and behavioral experiments. Finally, we note that a summary statistic representation captures a great deal of important information, yet is ultimately lossy. Such a representation in peripheral and/or unattended vision has profound implications for visual perception in general, from peripheral recognition through visual awareness and visual cognition. Rosenholtz, Oliva, and Balas will discuss implications for a diverse set of tasks, including peripheral recognition, visual search, visual illusions, scene perception, and visual cognition. The power of this new way of thinking about vision becomes apparent precisely from implications for a wide variety of visual tasks, and from evidence from diverse methodologies.

Presentations

The Visual System as Statistician: Statistical Representation in Early Vision

Ruth Rosenholtz, MIT Department of Brain & Cognitive Sciences; B. J. Balas, Dept. of Brain & Cognitive Sciences, MIT; Alvin Raj, Computer Science and Al Lab, MIT; Lisa Nakano, Stanford; Livia Ilie, MIT

Efficiencies for estimating mean orientation, mean size, orientation variance and size variance

Josh Solomon, City University London; Michael J. Morgan, City University London; Charles Chubb, University of California, Irvine

The Representation of Ensemble Statistics Outside the Focus of Attention

George Alvarez, Harvard University, Department of Psychology

Linking statistical texture models to population coding in the ventral stream

Jeremy Freeman, Center for Neural Science, New York University; Luke E. Hallum, Center for Neural Science & Dept. of Psychology, NYU; Michael S. Landy, Center for Neural Science & Dept. of Psychology, NYU; David J. Heeger, Center for Neural Science & Dept. of Psychology, NYU; Eero P. Simoncelli, Center for Neural Science, Howard Hughes Medical Institute, & the Courant Institute of Mathematical Sciences, NYU

High level visual ensemble statistics: Encoding the layout of visual space

Aude Oliva, Department of Brain and Cognitive Sciences, Massachusetts Institute of Technology

Beyond texture processing: further implications of statistical representations

Ben Balas, MIT, Department of Brain and Cognitive Sciences; Ruth Rosenholtz, MIT; Alvin Raj, MIT

S5

Understanding the interplay between reward and attention, and its effects on visual perception and action

Friday, May 7, 3:30 – 5:30 pm, Royal Ballroom 4-5

Organizers: Vidhya Navalpakkam (Caltech), Leonardo Chelazzi (University of Verona, Medical School, Italy), Jan Theeuwes (Vrije Universiteit, the Netherlands)

Presenters: Leonardo Chelazzi (Department of Neurological and Visual Sciences, University of Verona – Medical School, Italy), Clayton Hickey (Department of Cognitive Psychology, Vrije Universiteit Amsterdam, The Netherlands), Vidhya Navalpakkam (Division of Biology, Caltech, Pasadena), Miguel Eckstein (Department of Psychology, University of California, Santa Barbara), Pieter R. Roelfsema (Dept. Vision & Cognition, Netherlands Institute for Neuroscience, Amsterdam), Jacqueline Gottlieb (Dept. of Neuroscience and Psychiatry, Columbia University, New York)

Symposium Summary

Adaptive behavior requires that we deploy attention to behaviorally relevant objects in our visual environment. The mechanisms of selective visual attention and how it affects visual perception have been a topic of extensive research in the last few decades. In comparison, little is known about the role of reward incentives and how they affect attention and visual perception. Generally, we choose actions that in prior experience have resulted in a rewarding outcome, a principle that has been formalized in reward learning theory. Recent developments in vision research suggest that selective attention may be guided by similar economic principles. This symposium will provide a forum for researchers examining the interplay between reward and attention, and their effects on visual perception and action, to present their work and discuss their developing ideas.

The goal of this symposium will be to help bridge the existing gap between the fields of vision that focused on attention, and decision-making that focused on reward, to better understand the combined roles of reward and attention on visual perception and action. Experts from different faculties including psychology, neuroscience and computational modeling will present novel findings on reward and attention, and outline challenges and future directions, that we hope will lead to a cohesive theory. The first three talks will focus on behavior and modeling. Leo Chelazzi will speak about how attentional deployment may be biased by the reward outcomes of past attentional episodes, such as the gains and losses associated with attending to objects in the past. Vidhva Navalpakkam will speak about how reward information may bias saliency computations to influence overt attention and choice in a visual search task. Miguel Eckstein will show how human eye movement strategies are influenced by reward, and how they compare with an ideal reward searcher. The last three talks will focus on neurophysiological evidence for interactions between reward and attention. Clayton Hickey will provide behavioral and EEG evidence for direct, non-volitional role of reward-related reinforcement learning in human attentional control. Pieter Roelfsema will present neural evidence on the remarkable correspondence between effects of reward and attention on competition between multiple stimuli, as early as in V1, suggesting a unification of theories of reward expectancy and attention. Finally, Jacqueline Gottlieb will present neural evidence from LIP on how reward-expectation shapes attention, and compare it with studies on how reward-expectation shapes decision-making.

We expect the symposium to be relevant to a wide audience with interests in psychology, neuroscience, and modeling of attention, reward, perception or decision-making.

Presentations

Gains and losses adaptively adjust attentional deployment towards specific objects

Leonardo Chelazzi, Department of Neurological and Visual Sciences, University of Verona – Medical School, Italy; Andrea Perlato, Department of Neurological and Visual Sciences, University of Verona – Medical School, Italy; Chiara Della Libera, Department of Neurological and Visual Sciences, University of Verona – Medical School, Italy

Understanding how reward and saliency affect overt attention and decisions

Vidhya Navalpakkam, Division of Biology, Caltech; Christof Koch, Division of Engineering, Applied Science and Biology, Caltech; Antonio Rangel, Division of Humanities and Social Sciences, Caltech; Pietro Perona, Division of Engineering and Applied Science, Caltech

Optimizing eye movements in search for rewards

Miguel Eckstein, Department of Psychology, University of California, Santa Barbara; Wade Schoonveld, Department of Psychology, University of California, Santa Barbara; Sheng Zhang, Department of Psychology, University of California, Santa Barbara

Incentive salience in human visual attention

Clayton Hickey, Department of Cognitive Psychology, Vrije Universiteit Amsterdam; Leonardo Chelazzi, Department of Neurological and Visual Sciences, University of Verona - Medical School; Jan Theeuwes, Department of Cognitive Psychology, Vrije Universiteit Amsterdam

Reward expectancy biases selective attention in the primary visual cortex

Pieter R. Roelfsema, Dept. Vision & Cognition, Netherlands Institute for Neuroscience, Amsterdam; Chris van der Togt, Dept. Vision & Cognition, Netherlands Institute for Neuroscience, Amsterdam; Cyriel Pennartz, Dept. Vision & Cognition, Netherlands Institute for Neuroscience, Amsterdam; Liviu Stanisor, Dept. Vision & Cognition, Netherlands Institute for Neuroscience, Amsterdam

How reward shapes attention and the search for information

Jacqueline Gottlieb, Dept. of Neuroscience and Psychiatry, Columbia University; Christopher Peck, Dept. of Neuroscience and Psychiatry, Columbia University; Dave Jangraw, Dept. of Neuroscience and Psychiatry, Columbia University

S6

Dissociations between top-down attention and visual awareness

Friday, May 7, 3:30 – 5:30 pm, Royal Ballroom 6-8

Organizers: Jeroen van Boxtel (California Institute of Technology), Nao Tsuchiya, California Institute of Technology, USA and Tamagawa University, Japan)

Presenters: Nao Tsuchiya (California Institute of Technology, USA, Tamagawa University, Japan), Jeroen J.A. van Boxtel (California Institute of Technology, USA), Takeo Watanabe (Boston University), Joel Voss (Beckman Institute, University of Illinois Urbana-Champaign, USA), Alex Maier (National Institute of Mental Health, NIH)

Symposium Summary

Historically, the pervading assumption among sensory psychologists has been that attention and awareness are intimately linked, if not identical, processes. However, a number of recent authors have argued that these are two distinct processes, with different functions and underlying neuronal mechanisms. If this position were correct, we should be able to dissociate the effects of attention and awareness with some experimental manipulation. Furthermore, we might expect extreme cases of dissociation, such as when attention and awareness have opposing effects on some task performance and its underlying neuronal activity. In the last decade, a number of findings have been taken as support for the notion that attention and awareness are distinct cognitive processes. In our symposium, we will review some of these results and introduce psychophysical methods to manipulate top-down attention and awareness independently. Throughout the symposium, we showcase the successful application of these methods to human psychophysics, fMRI and EEG as well as monkey electrophysiology.

First, Nao Tsuchiya will set the stage for the symposium by offering a brief review of recent psychophysical studies that support the idea of awareness without attention as well as attention without awareness. After discussing some of the methodological limitations of these approaches, Jeroen VanBoxtel will show direct evidence that attention and awareness can result in opposite effects for the formation of afterimages. Takeo Watanabe's behavioral paradigm will demonstrate that subthreshold motion can be more distracting than suprathreshold motion. He will go on to show the neuronal substrate of this counter-intuitive finding with fMRI. Joel Voss will describe how perceptual recognition memory can occur without awareness following manipulations of attention, and how these effects result from changes in the fluency of neural processing in visual cortex measured by EEG. Finally, Alexander Maier will link these results in the humans studies to neuronal recordings in monkeys, where the attentional state and the visibility of a stimulus are manipulated independently in order to study the neuronal basis of each.

A major theme of our symposium is that emerging evidence supports the notion that attention and awareness are two distinctive neuronal processes. Throughout the symposium, we will discuss how dissociative paradigms can lead to new progress in the quest for the neuronal processes underlying attention and awareness. We emphasize that it is important to separate out the effects of attention from the effects of awareness. Our symposium would benefit most vision scientists, interested in visual attention or visual awareness because the methodologies we discuss would inform them of paradigms that can dissociate attention from awareness. Given the novelty of these findings, our symposium will cover a terrain that remains largely untouched by the main program.

Presentations

The relationship between top-down attention and conscious awareness

Nao Tsuchiya, California Institute of Technology, USA, Tamagawa University, Japan

Opposing effects of attention and awareness on afterimages Jeroen J.A. van Boxtel, California Institute of Technology, USA

Role of subthreshold stimuli in task-performance and its underlying mechanism

Takeo Watanabe, Boston University

Implicit recognition: Implications for the study of attention and awareness

Joel Voss, Beckman Institute, University of Illinois Urbana-Champaign, USA

Selective attention and perceptual suppression independently modulate contrast change detection.

Alex Maier, National Institute of Mental Health, NIH

Perception and action: Locomotion

Orchid Ballroom, Boards 401-412

Friday, May 7, 6:30 - 9:30 pm

16.401 **Does Visual Texture Enhance the Recognition of Ramps and Steps?** Tiana M. Bochsler, Christopher S. Kallie, Gordon E. Legge, Rachel Gage

16.402 **Stepping over obstacles: Are older adults' perceptual judgments consistent with their actions?** Kaylena Ehgoetz Martens, Michael Cinelli

16.403 Static and Dynamic Information about the Size and Passability of Apertures Aaron Fath, Brett Fajen

16.404 The effects of aging on action and visual strategies when walking through apertures Amy Hackney, Michael Cinelli

16.405 When walls are no longer barriers: Perception of obstacle height in Parkour J. Eric T. Taylor, Jessica K. Witt

16.406 Gait characteristics and gaze behaviours during a modified timed "Up & Go" (TUG) test: a comparison of older adults and **Parkinson's disease patients** Michael Cinelli, Rachel vanOostveen, Quincy Almeida

16.407 **An affordance processing hypothesis of gait disturbances in Parkinson's disease** Dorothy Cowie, Patricia Limousin, Amy Peters, Brian Day

16.408 **Visual control of posture as a function of age and cognitive task and its relationship with subjective discomfort** Jean-Marie Hanssens, Philippe Turpin-Lavallée, Roshan Soowamber, Jocelyn Faubert

16.409 Are the optic flow and egocentric direction strategies for steering control during walking linearly combined? Hugo Bruggeman, William Warren

16.410 Visual information about locomotor capabilities and the perception of possibilities for action Jonathan Matthis, Brett Fajen

16.411 **The role of continuous vs. terminal visual cues in the acquisition of a whole body perceptuo-motor coordination task** Saritha Miriyala Radhakrishn, Vassilia Hatzitaki

16.412 **The Naïve Physics Curvilinear Impetus Bias does not Occur for Locomotion** Michael K. McBeath, Sara E. Brimhall, Tyler S. Miller, Steven R. Holloway

Eye movements: Mechanisms and methods

Orchid Ballroom, Boards 414-425

Friday, May 7, 6:30 - 9:30 pm

16.414 **Saccadic target selection and temporal properties of visual encoding** Jelmer P. de Vries, Ignace T.C. Hooge, Marco A. Wiering, Frans. A.J. Verstraten

16.415 The integration of visual and auditory cues for express saccade generation Peter Schiller, Michelle Kwak

16.416 Bilateral Involvement of the Right Frontal Eye Field in Saccade Production Weston Pack, Thom Carney, Stanley Klein

16.417 **Foveation Time as a Driving Factor of Saccade Adaptation** Steffen Klingenhoefer, Frank Bremmer

16.418 **Target Specificity Of Saccadic Adaptation** James Herman, Mark Harwood, Josh Wallman, Laurent Madelain

Friday Evening Posters

16.419 Online and offline trajectories characterize the respective control of pro- and antisaccades Matthew Heath, Katie Dunham, Lindsay Dryden

16.420 **A common inhibition mechanism underlies both anti and countermanded saccades** Raymond Delnicki, Akiko Ikkai, Martin Paré, Clayton Curtis

16.421 **Ongoing EEG oscillations and saccadic latency** Jan Drewes, Rufin VanRullen

16.422 **The timing of oculomotor fixations** John D Wilder, Cordelia D Aitkin, Brian S Schnitzer, Andre Cohen, Eileen Kowler

16.423 Attention vs. The Eye: Which stabilizes fixation? Linh Dang, Laura Walker Renninger, Donald Fletcher

16.424 **Infrared Tracking of the Near Triad** Natalia Bogdan, Robert Allison, Rajaraman Suryakumar

16.425 Simultaneous recordings of ocular microtremor and fixational microsaccades with a piezoelectric sensor and a

commercial video tracking system Jorge Otero-Millan, Niamh Collins, Mohammed Al-Kalbani, Xoana G. Troncoso, Michael B. McCamy, Stephen L. Macknik, Davis Coakley, Gerard Boyle, Vinodh Narayanan, Thomas R. Wolf, Susana Martinez-Conde

Development: Disorders

Orchid Ballroom, Boards 426–438 Friday, May 7, 6:30 - 9:30 pm

16.426 **The effect of speed, age and amblyopia on the perception of motion-defined form** Deborah Giaschi, Jake Hayward, Grace Truong, Marita Partanen

16.427 **Spatiotemporal differences in local and global pattern perception in human amblyopia investigated with MEG** Herbert Goltz, Filomeno Cortese, Alton Wong, Douglas Cheyne, Agnes Wong

16.428 **Deficient Binocular Combination Reveals Mechanisms of Anisometropic Amblyopia** Chang-Bing Huang, Jiawei Zhou, Yifeng Zhou, Zhong-Lin Lu

16.429 **Clinical application of qCSF: Efficient characterization and classification of contrast sensitivity functions in Amblyopia** Fang Hou, Chang-Bing Huang, Luis Lesmes, Li-Xia Feng, Yi-Feng Zhou, Zhong-Lin Lu

16.430 **Fixational eye movements for normal and strabismic amblyopic observers** Shuang Song, Ethan A. Rossi, Charlotte Wickham, Austin Roorda, David R. Brillinger, Dennis M. Levi

16.431 **Double dissociation in monocular blindness: Enhanced contrast but impaired motion perception** Krista Kelly, Puneet Shroff, Brenda Gallie, Jennifer Steeves

16.432 Is Myopia Affected By Near Work, Outdoor Activities And/Or Level Of Education? Adeline Yang, Frederick Tey, Sheng Tong Lin, Gerard Nah

16.433 **Optics and Spatial Vision in Children and Young Adults With Autism Spectrum Disorder** Russell J. Adams, Christina N. Dove, James R Drover, Mary L. Courage, Yi-Zhong Wang, Eileen E. Birch

16.434 The Systemizing Trait of Autism Reflects a Shift from Reliance on Global to Local Contextual Cues Paul Dassonville, Carrie A. Williamson 16.435 **Delayed early primary visual pathway development in premature infants: high density electrophysiological evidence** Maryse Lassonde, Emmanuel Tremblay, Franco Lepore, Marie-Sylvie Roy, Nicole Fallaha, Michelle McKerral

16.436 Dissociating higher-order visual processing in typical and atypical development Nevena Simic, Joanne Rovet

16.437 Magnocellular Deficits in Dyslexia Provide Evidence Against Noise Exclusion Hypothesis Teri Lawton, Garrison Cottrell

16.438 **The Effects of Acute Alcohol Consumption on the Visual Perception of Velocity and Direction** Sherene Fernando, Fahrin Rawji, Alexandra Major, Brian Timney

Color and light: Adaptation and constancy

Orchid Ballroom, Boards 439–450

Friday, May 7, 6:30 - 9:30 pm

16.439 **Color rendering and the spectral structure of the illuminant** Sérgio Nascimento, Paulo Felgueiras, João Linhares

16.440 **A low-cost, color-calibrated reflective high dynamic range display** Dan Zhang, James Ferwerda

16.441 **The Combined Effect of Chromatic Contrast and Chromatic Assimilation Produced by a Purple Surround on an Achromatic Target** Gennady Livitz, Ennio Mingolla

16.442 **Variations in achromatic settings across the visual field** Kimberley Halen, Igor Juricevic, Kyle McDermott, Michael A. Webster

16.443 Are Gaussian spectra a viable perceptual assumption in color appearance? Yoko Mizokami, Michael Webster

16.444 **Colour constancy as measured by least dissimilar matching** Alexander D. Logvinenko, Rumi Tokunaga

16.445 **Why Does von Kries Law Hold?** Minjie Xu, Jinhui Yuan, Bo Zhang

16.446 **Individual differences in chromatic contrast adaptation** Sarah Elliott, Eric Roth, Jennifer Highsmith, John Werner, Michael Webster

16.447 The duration of contingent color aftereffects for different directions in color space Sean F O'Neil, Megan Tillman, Michael A Webster

16.448 **Cortical aftereffects of time-varying chromatic stimuli** Robert Ennis, Qasim Zaidi

16.449 Very-long-term chromatic adaptation and short-term chromatic adaptation: Are their influences cumulative? Suzanne Belmore, Steven Shevell

16.450 **The role of adaptation mechanisms at the mesopic range to achieve lightness constancy under glare conditions** Pablo Barrionuevo, Elisa Colombo, Luis Issolio

3D perception: Binocular and motion cues

Orchid Ballroom, Boards 451-460

Friday, May 7, 6:30 - 9:30 pm

16.451 **Quality in depth perception: the plastic effect** Dhanraj Vishwanath, Paul Hibbard

16.452 **Combination of da Vinci stereopsis and Metelli's transparency in depth perception** Marina Zannoli, Pascal Mamassian

16.453 **Shape Contrast: Where Does It End?** Katinka van der Kooij, Susan te Pas 16.454 **Binocular shape vs. depth perception** Yun Shi, Taekyu Kwon, Tadamasa Sawada, Yunfeng Li, Zygmunt Pizlo

16.455 **Percept of shape distortion induced by binocular disparity and motion parallax** Masahiro Ishii, Masayuki Sato

16.456 Integration time for the mechanisms serving the perception of depth from motion parallax Mark Nawrot, Keith Stroyan

16.457 The Role of Temporal 'Priors' in the Perception of Depth-Order from Motion: A Priming Study Amber Epting, Jay Hegdé

16.458 Neural Mechanisms of Perception of Depth-Order from Motion: A Human fMRI Study Sarah Kromrey, Shalon Howard, Jay Hegdé

16.459 **Transcranial magnetic stimulation improves rotation sensitivity for actively viewed structure from motion** Lorella Battelli, Giovanni Mancuso, Carlo Fantoni, Fulvio Domini

16.460 **Surface Layout and Embodied Memory: Optic Flow and Image Structure as Interacting Components in Vision** Jing Samantha Pan, Geoffrey P. Bingham

Object recognition: Development and learning

Vista Ballroom, Boards 501–513 Friday, May 7, 6:30 - 9:30 pm

16.501 Infant learning ability for recognizing artificially-produced **3D objects** Wakayo Yamashita, So Kanazawa, Masami K. Yamaguchi

16.502 **The development of part-based and analytical object recognition in adolescence** Elley Wakui, Dean Petters, Jules Davidoff, Martin Juttner

16.503 **Adult Shape Preferences are Evident in Infancy** Ori Amir, Rachel Wu, Irving Biederman

16.504 Visual recognition of filtered object in normal aging: A parvocellular impairment? Pierre Bordaberry, Sandrine Delord

16.505 **Visual span as a sensory bottleneck in learning to read** Matthieu Dubois, Sylviane Valdois

16.506 Is there a functional overlap between the expert processing of characters from alphabetic and non-alphabetic writing systems? Zhiyi Qu, Alan C.-N. Wong, Rankin Williams McGugin, Isabel Gauthier

16.507 Not all spaces stretch alike: How the structure of morphspaces constrains the effect of category learning on shape perception Jonathan Folstein, Isabel Gauthier, Thomas Palmeri

16.508 **Eye movement patterns during object recognition are modulated by perceptual expertise and level of stimulus classification** Lina Conlan, Alan Wong, Charles Leek

16.509 Knowledge influences perception: Evidence from the Ebbinghaus illusion Matthew Hughes, Diego Fernandez-Duque

16.510 Benefits of a Hybrid Spatial/non-Spatial Neighborhood Function in SOM-based Visual Feature Learning Rishabh Jain, Bartlett Mel

16.511 How do we recognize our own stuff? Expert vs. generic recognition of household items Lauren Kogelschatz, Elan Barenholtz

16.512 How do Task-dependent Attentional Demands Alter How Objects are Learned? Jeffrey Markowitz, Yongqiang Cao, Stephen Grossberg

16.513 Discrimination training builds position tolerant object representations David Remus, Kalanit Grill-Spector

Face perception: Development

Vista Ballroom, Boards 514–527 Fridav, May 7, 6:30 - 9:30 pm

16.514 **Revisiting upright and inverted face recognition in 6 to 12-year-old children and adults** Adelaide de Heering, Bruno Rossion, Daphne Maurer

16.515 Eyes on the target: A comparison of fine-grained sensitivity to triadic gaze between 8-year-olds and adults Mark Vida, Daphne Maurer

16.516 **Psychophysics of face processing in childhood: A developmental perspective** Al Yonas, Sherryse Corrow, Garga Chatterjee, Ken Nakayama

16.517 Children's Face Coding is Norm-Based rather than Exemplar-based: Evidence From Face Identity Aftereffects Linda Jeffery, Gillian Rhodes, Elinor McKone, Elizabeth Pellicano, Kate Crookes, Libby Taylor

16.518 **Adaptation effect for facial identity in infants** Megumi Kobayashi, Yumiko Otsuka, Emi Nakato, So Kanazawa, Masami K Yamaguchi, Ryusuke Kakigi

16.519 **Infants' neural responses to facial expressions using Near-Infrared Spectroscopy** Emi Nakato, Yumiko Otsuka, So Kanazawa, Masami K Yamaguchi, Ryusuke Kakigi

16.520 **Infants' brain activity in perceiving facial movement of point-light display** Hiroko Ichikawa, So Kanazawa, Masami K. Yamaguchi, Ryusuke Kakigi

16.521 Age-contingent face aftereffects depend on age of the **observer** Janice Murray, Beatrix Gardiner

16.522 **Exploring the perceptual spaces of faces, cars, and birds in children and adults** Tamara L. Meixner, Justin Kantner, James W. Tanaka

16.523 **Sad or Afraid? Body Posture Influences Children's and Adults' Perception of Emotional Facial Displays** Catherine Mondloch, Danielle Longfield

16.524 **The fear factor: Attentional capture by fearful faces in adolescence** Jill Grose-Fifer, Ozlem Yuksel-Sokmen, Andrea Rodrigues, Steven Hoover, Tina Zottoli

16.525 **The effects of aging and stimulus duration on face identification accuracy with differing viewpoints** Ayan K. Dey, Matthew V. Pachai, Patrick J. Bennett, Allison B. Sekuler

16.526 **Differential development of the ventral visual cortex extends through adolescence** Golijeh Golarai, Alina Liberman, Jennifer Yoon, Kalanit Spector

16.527 **Plasticity of face recognition in early childhood disappears in adolescence and adulthood** Elinor McKone, Madeleine Pidcock, Ashleigh Hall

Attention: Reward, motivation, emotion

Vista Ballroom, Boards 528-541

Friday, May 7, 6:30 - 9:30 pm

16.528 **Reward has a larger impact on visual search in people with reward-seeking personalities** Clayton Hickey, Leonardo Chelazzi, Jan Theeuwes

16.529 Attention ignores rewards when feature-reward mappings are uncertain Alejandro Lleras, Brian Levinthal

16.530 **The role of motivational value in competition for attentional resources** Jennifer O'Brien, Jane Raymond, Thomas Sanocki

16.531 **Reward speeds up response inhibition, but only when it is unpredictable** Y. Jeremy Shen, Daeyeol Lee, Marvin Chun

16.532 **Saccadic reaction times in response to rewards of varying magnitude and probability** Angela Vavassis, Michael von Grunau, Aaron Johnson

16.533 **Effects of hunger and body mass index on attentional capture by high and low calorie food images: An eye-tracking study** Alison Hoover, Natalie Ceballos, Oleg Komogortsev, Reiko Graham

16.534 **Exploring the relationship between anxiety and processing capacity for threat detection** Helen Richards, Valerie Benson, Julie Hadwin, Michael Wenger, Nick Donnelly

16.535 Value associations make irrelevant stimuli especially distracting Julia Gómez-Cuerva, Jane E. Raymond

16.536 Interaction effects of emotion and attention on contrast sensitivity correlate with measures of anxiety Emma Ferneyhough, Damian Stanley, Elizabeth Phelps, Marisa Carrasco

16.537 **Evaluation of attentional biases towards thin bodies** Christina Joseph, Maggie Shiffrar, Sarah Savoy

16.538 **Suppressing sex and money: Response inhibition leads to devaluation of motivationally salient visual stimuli** Anne E. Ferrey, Angele Larocque, Mark J. Fenske

16.539 Arac attack! Natural images of spiders and snakes in a response priming paradigm Anke Haberkamp, Thomas Schmidt

16.540 **Endogenous Attention Control "Chokes under Pressure"** Hengqing Chu, Jay Todd, Sian Beilock, Alejandro Lleras

16.541 **Disguising Losses as Wins in Multi-line Video Slot Machines** Mike Dixon, Kevin Harrigan

Memory: Capacity and resolution of working and short-term memory

Vista Ballroom, Boards 542-556 Friday, May 7, 6:30 - 9:30 pm

16.542 Which Features of an Object are Stored in Visual Working Memory across a Saccade? Evidence from Visual Search Michi Matsukura, Steven Luck, Andrew Hollingworth

16.543 **Proximity Grouping in Visual Working Memory** Andrew McCollough, Brittany Dungan, Edward Vogel

16.544 Visual short term memory serves as a gateway to long term memory Keisuke Fukuda, Edward K. Vogel

16.545 **Can Observers Trade Resolution for Capacity in Visual Working Memory?** weiwei zhang, Steve Luck

16.546 **The Optimal Allocation of Visual Working Memory: Quantifying the Relationship Between Memory Capacity and Encoding Precision** Chris R. Sims, David C. Knill, Robert A. Jacobs

16.547 Interactions between motion perception and visual working memory Min-Suk Kang, Geoffrey Woodman

16.548 Crossmodal Working Memory Load: Perceptual and Conceptual Contributions of Image Characteristics Anne Gilman, Colin Ware, John Limber

16.549 Visual Working Memory Capacity in Retinotopic Cortex: Number, Resolution, and Population Receptive Fields Brian Barton, Alyssa Brewer

16.550 An investigation of the precision and capacity of human visual working memory Rosanne L. Rademaker, Frank Tong

16.551 **The capacity limit of the visual working memory of the macaque monkey** Evelien Heyselaar, Kevin Johnston, Martin Paré

16.552 Variations in mnemonic resolution across set sizes support discrete resource models of capacity in working memory David E. Anderson, Edward Awh

16.553 **Developmental evidence for a capacity-resolution tradeoff in working memory** Jennifer Zosh, Lisa Feigenson

16.554 **The Effect of Minimizing Visual Memory and Attention Load in Basic Mathematical Tasks** Robert Speiser, Matthew Schneps, Amanda Heffner-Wong

16.555 **How low can you go? An investigation of working memory span and change detection** Bonnie L. Angelone, Nikkole Wilson, Victoria Osborne, Zachary Leonardo

16.556 Beyond magical numbers: towards a noise-based account of visual-short term memory limitations Wei Ji Ma, Wen-Chuang Chou

Saturday Morning Talks

Royal Ballroom 1-3

Attention: Interactions with eye and hand movement

Saturday, May 8, 8:15 - 10:00 am Moderator: Amelia Hunt

8:15 am 21.11 **Remapping of an unseen stimulus** Amelia Hunt, Kay Ritchie, Lawrence Weiskrantz, Arash Sahraie

8:30 am 21.12 Non-retinotopic cueing of visual spatial attention Marco Boi, Haluk Ogmen, Michael Herzog

8:45 am 21.13 **Predictive updating of attention to saccade targets** Martin Rolfs, Donatas Jonikaitis, Heiner Deubel, Patrick Cavanagh

9:00 am 21.14 **Toward an interactive race model of double-step saccades** Claudia Wilimzig, Thomas Palmeri, Gordon Logan, Jeffrey Schall

9:15 am 21.15 Information at hand is detected better in change detection Philip Tseng, Bruce Bridgeman

9:30 am 21.16 **The role of feedback to foveal cortex in peripheral perception: A TMS study** Mark Williams, Christopher Allen, Christopher Chambers

9:45 am 21.17 **Guidance of gaze based on color saliency in monkeys with unilateral lesion of primary visual cortex** Masatoshi Yoshida, Laurent Itti, David Berg, Takuro Ikeda, Rikako Kato, Kana Takaura, Tadashi Isa

Multisensory processing

Saturday, May 8, 11:00 - 12:30 pm Moderator: Paola Binda

11:00 am 22.11 **Touch disambiguates rivalrous perception at early stages of visual analysis** Paola Binda, Claudia Lunghi, Concetta Morrone

11:15 am 22.12 The common 2-3Hz limit of binding synchronous signals across different sensory attributes reveals a slow universal temporal binding process Shin'ya Nishida, Waka Fujisaki

11:30 am 22.13 **Dynamic Grapheme-Color Synesthesia** Bruce Bridgeman, Philip Tseng, Dorina Winter

11:45 am 22.14 **Influence of asynchrony on the perception of visual-haptic compliance** Massimiliano Di Luca, Benjamin Knörlein, Matthias Harders, Marc Ernst

12:00 pm 22.15 **Visual perception of motion produced solely by kinesthesia** Kevin Dieter, Randolph Blake, Duje Tadin

12:15 pm 22.16 **Efficient visual search from synchronized auditory signals requires transient audiovisual events** Erik Van der Burg, John Cass, Christian Olivers, Jan Theeuwes, David Alais

Royal Ballroom 4-5

Memory: Working and short-term memory

Saturday, May 8, 8:15 - 10:00 am Moderator: Wei Ji Ma

8:15 am 21.21 Hierarchical Encoding in Visual Working Memory Timothy F. Brady, Joshua B. Tenenbaum

8:30 am 21.22 Working Memory for Spatial Relations Among Object Parts Pamela E. Glosson, John E. Hummel

8:45 am 21.23 **The limitations of spatial visual short-term memory** Patrick Wilken, Ronald van den Berg, Jochen Braun, Wei Ji Ma

9:00 am 21.24 The Primary Visual Cortex as a Modality-Independent 'Screen' for Working Memory Lora Likova

9:15 am 21.25 **Decoding individual natural scene representations during perception and imagery** Matthew Johnson, Marcia Johnson

9:30 am 21.26 Visual working memory information in foveal retinotopic cortex during the delay Won Mok Shim, Nancy Kanwisher

9:45 am 21.27 Cortical anatomy relates to individual differences in dissociable aspects of attention and visual working memory capacity Maro Machizawa, Ryota Kanai, Garaint Rees, Jon Driver

Motion: Perception

Saturday, May 8, 11:00 - 12:45 pm Moderator: Scott Stevenson

11:00 am 22.21 **The vestibular frame for visual perception of head rotation** Albert V. van den Berg, David Arnoldussen, Jeroen Goossens

11:15 am 22.22 **Suppression of retinal image motion due to fixation jitter is directionally biased** Scott Stevenson, David Arathorn, Qiang Yang, Pavan Tiruveedhula, Nicole Putnam, Austin Roorda

11:30 am 22.23 **Comparing the static and flicker MAEs with a cancellation technique in adaptation stimuli** Satoshi Shioiri, Kazumichi Matsumiya

11:45 am 22.24 **The neural correlates of motion streaks: an fMRI study** Deborah Apthorp, Bahador Bahrami, Christian Kaul, D. Samuel Schwarzkopf, David Alais, Geraint Rees

12:00 pm 22.25 **Perception of motion from the combination of temporal luminance ramping and spatial luminance gradients** Peter Scarfe, Alan Johnston

12:15 pm 22.26 **Position-variant perception of a novel ambiguous motion field** Andrew Rider, Alan Johnston, Shin'ya Nishida

12:30 pm 22.27 **Perceptual grouping of ambiguous motion** Stuart Anstis

Saturday Morning Posters

Spatial vision: Image statistics and texture

Royal Ballroom 6-8, Boards 301-312

Saturday, May 8, 8:30 - 12:30 pm

23.301 The Role of Higher-Order Statistics in Naturalistic Texture Segmentation: Modelling Psychophysical Data Elizabeth Arsenault, Curtis Baker

23.302 **Distance dependent contextual interactions in natural images** Chaithanya Ramachandra, Bartlett Mel

23.303 **Natural scenes statistics and visual saliency** Jinhua Xu, Joe Tsien, Zhiyong Yang

23.304 **Classification Images for Search in Natural Images** Sheng Zhang, Craig Abbey, Miguel Eckstein

23.305 Implementing a maximum-entropy parameterization of texture space Jonathan Victor, Jason Mintz, Mary Conte

23.306 Frequency content of the retinal stimulus during active fixation Martina Poletti, Jonathan Lansey, Michele Rucci

23.307 **Sampling Efficiencies for Spatial Regularity** Michael Morgan, Isabelle Mareschal, Joshua Solomon

23.308 **Noise reveals what gets averaged in "size averaging"** Steven Dakin, John Greenwood, Peter Bex

23.309 **Dimensions of preattentive visual sensitivity in human color space** Chuan-Chin Chiao, Charles Chubb

23.310 Lateral Occipital cortex responsive to correlation structure of natural images H.Steven Scholte, Sennay Ghebreab, Arnold Smeulders, Victor Lamme

23.311 Adaptation effects that gain strength over 8 hour induction periods Min Bao, Peng Zhang, Stephen Engel

23.312 **The limited availability of brain resources determines the structure of early visual processing** Maria Michela Del Viva, Rachele Agostini, Daniele Benedetti, Giovanni Punzi

Attention: Eye movements

Royal Ballroom 6-8, Boards 313–327 Saturday, May 8, 8:30 - 12:30 pm

23.313 There's plenty of time in the bottom: the time spent before a saccade is generated is a complex interplay of competing saliency and decision Moran Cerf, Michael MacKay, Christof Koch

23.314 **Modulation of saccade latencies by hand action coding** Simona Buetti, Bernhard Hommel, Dirk Kerzel, Takatsune Kumada

23.315 Attention during pauses between successive saccades: Task interference vs. modulation of contrast-gain Min Zhao, Brian S. Schnitzer, Barbara A. Dosher, Eileen Kowler

23.316 **Evidence for the predictive remapping of visual attention** Jan Theeuwes, Sebastiaan Mathôt

23.317 **Temporal dynamics of remapping captured by peri-saccadic motion trace** Martin Szinte, Mark Wexler, Patrick Cavanagh

23.318 Spatial localization during fixation does not depend on an extraretinal drift signal Chiara Listorti, Martina Poletti, Michele Rucci

23.319 **Differential involvement of the oculomotor system in covert visual search and covert endogenous cueing** Artem Belopolsky, Jan Theeuwes

23.320 Gaze Patterns and Visual Salience in Change Detection of Natural Scenes Ty W. Boyer, Chen Yu, Thomas Smith, Bennett I. Bertenthal

23.321 **Does eye vergence dissociate between covert and overt attention?** Maria Sole Puig, Laura Perez Zapata, Sancho Moro, Antonio Aznar-Casanova, Hans Supèr

23.322 **Biasing attentional priority by microstimulation of LIP** Koorosh Mirpour, Wei Song Ong, James Bisley

23.323 Attention is predominantly guided by the eye during concurrent eye-hand movements Aarlenne Khan, Joo-Hyun Song, Robert McPeek

23.324 **Sudden hand movements enhance gaze cueing** Robert Volcic, Markus Lappe

23.325 Attentional bias to brief threat-related stimuli revealed by saccadic eye movements Rachel Bannerman, Maarten Milders, Arash Sahraie

23.326 **Evolving illusory motion using eye-movements** Tim Holmes, Kati Voigt, Johannes Zanker

23.327 Gender Differences in Visual Attention During Listening as Measured By Neuromorphic Saliency: What Women (and Men) Watch John Shen, Laurent Itti

Neural mechanisms: Cortical organization

Orchid Ballroom, Boards 401–409 Saturday, May 8, 8:30 - 12:30 pm

23.401 **High-resolution retinotopic mapping at 7 Tesla with multishot 3D sequences** Jascha Swisher, John Sexton, John Gore, Chris Gatenby, Frank Tong

23.402 **Non-linear BOLD response to low-contrast Gabor elements** Cheryl Olman, Jennifer Schumacher, Serena Thompson

23.403 **Orientation-selective fMRI adaptation in primary visual cortex revisited** Sarah Weigelt, Katharina Pohl, Wolf Singer, Axel Kohler

23.404 Effect of fMRI study design on the classification accuracy of orientation discrimination Tim J Preston, Miguel P Eckstein

23.405 **How much tuning information is lost when we average across subjects in fMRI experiments?** Natalia Y. Bilenko, An T. Vu, Thomas Naselaris, Alexander G. Huth, Jack L. Gallant

23.406 **No Grey Matter Reduction following Macular Degeneration** Joshua B. Julian, Daniel D. Dilks, Chris I. Baker, Eli Peli, Nancy Kanwisher

23.407 **The human MT/V5 cluster** Hauke Kolster, Ronald Peeters, Guy Orban

23.408 Representations of physical and perceived colour-motion conjunction in early visual cortex Ryota Kanai, Martin Sereno, Walsh Vincent

23.409 Multiple areas in human cerebral cortex contain visual representations of head rotation D.M. Arnoldussen, J. Goossens, A.V. van den Berg

Color and light: Mechanisms

Orchid Ballroom, Boards 410–424 Saturday, May 8, 8:30 - 12:30 pm

23.410 Changes in the space-average S-cone stimulation of inducing patterns suggest an interaction among the different cone-types Patrick Monnier, Vicki Volbrecht

23.411 **Testing models of color deficiencies using normal observers with Ishihara plates simulated for color deficient observers** Joao Linhares, Sergio Nascimento

23.412 Equiluminance Settings Interact Strongly With Spatial Frequency Alissa Winkler, Charles Chubb, Charles E. Wright

23.413 **The role of color in the early stages of visual analysis** Giovanni Punzi, Maria Michela Del Viva, Steve Shevell

23.414 **Filling-in of color spreads to well-localized illusory contours** Claudia Feitosa-Santana, Anthony D'Antona, Steven K Shevell

23.415 **Why do coloured filters improve vision?** Annette Walter, Michael Schuerer, Marina Bloj

23.416 **Filling-in with afterimages: Modeling and predictions** Gregory Francis, Jihyun Kim

23.417 **The role of color in perceptual organization** Baingio Pinna, John S. Werner

23.418 Illusory backward motion occurs only with a luminance component Caterina Ripamonti

23.419 **The Role of S-Cone Signals in the Color-Motion Asynchrony** Eriko Miyahara-Self, Catherine Tran, Naul Paz, Ashley Watson

23.421 The effect of luminance intrusion on the chromatic VEP response Chad Duncan, Michael Crognale

23.422 **Quantifying the perception of colour in visual saltation** David Lewis, Sieu Khuu

23.423 Experimental study of the pre-nonlinearity, nonlinearity and post-nonlinearity stages at medium wavelengths Daniela Petrova

23.424 **Measuring perceived flicker in field-sequential displays** Wei-Chung Cheng

Perception and action: Reaching and grasping

Orchid Ballroom, Boards 425-439

Saturday, May 8, 8:30 - 12:30 pm

23.425 **Effects of object shape on the visual guidance of action** Owino Eloka, Volker H. Franz

23.426 Older adults use a distinctive form of visual control to guide bimanual reaches Rachel Coats, John Wann

23.427 **Time-course of allocentric-to-egocentric conversion in memory-guided reach** Ying Chen, Patrick Byrne, J. Douglas Crawford

23.428 Impact of hand position during reaching on the manual following response induced by visual motion Hiroaki Gomi, Naotoshi Abekawa

23.429 Learning reward functions in grasping objects with position uncertainty via inverse reinforcement learning Vassilios Christopoulos, Paul Schrater

23.430 View-based neural encoding of goal-directed actions: a physiologically inspired neural theory Martin A Giese, Vittorio Caggiagno, Falk Fleischer

23.431 **No pain no gain: Assessment of the grasp penalty function** Urs Kleinholdermann, Volker H. Franz, Laurence T. Maloney

23.432 Visual feedback modulates BOLD activity in the posterior parietal cortex more so for visually-guided grasping than for visually-guided reaching Robert L. Whitwell, Philippe A. Chouinard, Melvyn A. Goodale

23.433 **Plans for action in posterior parietal cortex: An rTMS investigation** Christopher L. Striemer, Philippe A. Chouinard, Melvyn A. Goodale

23.434 Parietal regions specialized for saccades and reach in the human: a rTMS study Michael Vesia, Steve Prime, Xiaogang Yan, Lauren Sergio, J.D. Crawford

23.435 **Coding of curved hand paths in the Parietal Reach Region** Elizabeth Torres, Christopher Buneo, Richard Andersen

23.436 **Posterior Cortical Atrophy: An investigation of grasping** Benjamin Meek, Loni Desanghere, Jonathan Marotta

23.437 **Investigating action understanding: Activation of the middle temporal gyrus by irrational actions** Jan Jastorff, Simon Clavagnier, Gyorgy Gergely, Guy A Orban

23.438 **Role of visual guidance in reaching after right intraparietal sulcus resection** Jared Medina, Steven A. Jax, Sashank Prasad, H. Branch Coslett

23.439 **Visual Field Effects of Bimanual Grasping** Ada Le, Matthias Niemeier

Attention: Spatial selection and modulation

Orchid Ballroom, Boards 440–456 Saturday, May 8, 8:30 - 12:30 pm

23.440 Attention does alter apparent contrast: Evaluating comparative and equality judgments Katharina Anton-Erxleben, Jared Abrams, Marisa Carrasco

23.441 **Covert attention affects second-order contrast sensitivity** Antoine Barbot, Michael S. Landy, Marisa Carrasco

23.442 Comparison of effects of the spatial attention on stereo and motion discrimination thresholds Masayuki Sato, Keiji Uchikawa

23.443 Attention modulates S-cone and luminance signals differently in human V1 Jun Wang, Alex Wade

23.444 **Attractiveness is leaky (1): Center and Surround** Eiko Shimojo, Chihiro Saegusa, Junghyun Park, Alexandra Souverneva, Shinsuke Shimojo

23.445 Enhance or inhibit? Behavioral and ERP effects of distractor memory on attentional competition Stephen M. Emrich, Yongjin F. Lee, Stefan R. Bostan, Susanne Ferber

23.446 What's up with What versus Where? Bart Farell, Julian Fernandez

23.447 Change of object structure as a result of shifts of spatial attention Yangqing Xu, Steven Franconeri

23.448 Do the eyes really have it? Ocular and visuomanual judgments of spatial extent Marc Hurwitz, Derick Valadao, James Danckert

23.449 **Mind wandering preferentially attenuates sensory processing in the left visual field** Julia Kam, Camila Fujiwara, Todd Handy

23.450 **On the relationship between spatial and non-spatial attention** Nicola Corradi, Milena Ruffino, Simone Gori, Andrea Facoetti 23.451 Linguistic control of visual attention: Semantics constrain the spatial distribution of attention Gregory Davis, Bradley Gibson

23.452 The effect of attention on the multistable motion perception: Does it involve the perceived depth? Hua-Chun Sun, Shwu-Lih Huang

23.453 **Distractor filtering in media multitaskers** Matthew S. Cain, Stephen R. Mitroff

23.454 **The sensory component of inhibition of return** David Souto, Sabine Born, Dirk Kerzel

23.455 **Spatial properties of the Attentional Repulsion Effect** Anna A. Kosovicheva, Francesca C. Fortenbaugh, Lynn C. Robertson

23.456 Individual differences in attentional orienting predict performance outcomes during learning of a new athletic skill Ryan Kasper, James Elliott, Barry Giesbrecht

Binocular vision: Rivalry and bistability

Vista Ballroom, Boards 501–521

Saturday, May 8, 8:30 - 12:30 pm

23.501 Detecting contrast differences in binocular and dichoptic vision: we use monocular or binocular channels, whichever gives the MAX response Mark Georgeson, Tim Meese, Daniel Baker

23.502 Effects of the combination of color and orientation on resolution of binocular rivalry Satoru Abe, Eiji Kimura, Ken Goryo

23.503 **Dominance of Sharp over Blurred Image Features in Interocular Grouping during "Patchwork" Binocular Rivalry** Yu-Chin Chai, Thomas Papathomas, Xiaohua Zhuang

23.504 MIB and target saliency: how many salient features are necessary for the target to disappear? Dina Devyatko

23.505 **Crowding occurs before or at the site of binocular rivalry** Sangrae Kim, Sang Chul Chong

23.506 **Perceptual memory increases amplitude of neural response in sensory brain regions** Maartje Cathelijne de Jong, Zoe Kourtzi, Raymond van Ee

23.507 Differentiating the contributions of surface feature and boundary contour strengths in binocular rivalry Xuan Li, Yong G Su, Teng Leng Ooi, Zijiang J He

23.508 **Bistable percepts in the brain: fMRI contrasts monocular pattern rivalry and binocular rivalry** Athena Buckthought, Samuel Jessula, Janine D. Mendola

23.509 Zero correlation is not a hallmark of perceptual bistability: Variation in percept duration is driven by noisy neuronal adaptation Raymond van Ee

23.510 **The Brain changing its Mind: bistable perception and voluntary control investigated with frontoparietal TMS** T. A. de Graaf, M. C. de Jong, R. van Ee, A. T. Sack

23.511 Coherent global percepts increase steady-state visual evoked potential (SSVEP) Yee Joon Kim, Robert Shapley, Nava Rubin

23.512 **Percept-related changes found in the pupillary constrictions to physically-identical, dichoptic luminance changes** Eiji Kimura, Satoru Abe, Ken Goryo

23.513 Neural correlates of binocular rivalry in human superior colliculus Peng Zhang, Sheng He

23.514 Dominance times in binocular rivalry reflect lateralized cortical processing for faces and words Sheng He, Tingting Liu

23.515 **Expectation from temporal sequences influences binocular rivalry** Adrien Chopin, Madison Capps, Pascal Mamassian

23.516 **The effect of stimulus interruptions on "fast switchers" and "slow switchers": a neural model for bistable perception** Caitlin Mouri, Avi Chaudhuri

23.517 Visual Working Memory Content Modulates Competition in Binocular Rivalry Henry Chen, David E. Anderson, Andrew Hollingworth, Shaun Vecera, Cathleen M. Moore

23.518 Where does the mask matter? Testing a local interaction account of Motion-induced Blindness Erika T. Wells, Andrew B. Leber

23.519 **Why is Continuous Flash Suppression So Potent?** Eunice Yang, Randolph Blake

23.520 **Changes in Bistable Perception Induced by Fear Conditioning** Ji-Eun Kim, Tae-Ho Lee, Hanmo Kang, Chai-Youn Kim

23.521 **Spatial aspects of binocular rivalry in emotional faces** Kay Ritchie, Rachel Bannerman, Arash Sahraie

Face perception: Experience

Vista Ballroom, Boards 522–538 Saturday, May 8, 8:30 - 12:30 pm

23.522 **The speed of familiar face recognition** Bruno Rossion, Stéphanie Caharel, Corentin Jacques, Meike Ramon

23.523 **Tracking qualitative and quantitative information use during face recognition with a dynamic Spotlight** Luca Vizioli, Sebastien Miellet, Roberto Caldara

23.524 What's behind a face: semantic person identity coding in **FFA**, as revealed by multi-voxel pattern analysis Job van den Hurk, Bernadette M. Jansma

23.525 **Can we dissociate face perception and expertise?** Marijke Brants, Johan Wagemans, Hans Op de Beeck

23.526 Adaptation aftereffects to facial expressions viewed without visual awareness Sang Wook Hong, Eunice Yang, Randolph Blake

23.527 **Crossing the "Uncanny Valley": adaptation to cartoon faces can influence perception of human faces** Haiwen Chen, Richard Russell, Ken Nakayama, Margaret Livingstone

23.528 Adaptation to Up/Down Head Rotation in Face Selective Cortical Areas Ming Mei, Lisa Betts, Frances Wilkinson, Hugh Wilson

23.529 **Do bilinguals have a different hemispheric lateralization in visual processing from monolinguals?** Sze-Man Lam, Janet Hui-wen Hsiao

23.530 Face(book) perception: Is the own-race advantage due to perceptual learning? William G. Hayward, Sze-Man Lam, Simone K. Favelle

23.531 **An Own-Age Bias in Adults' Facial Age Judgments** Gizelle Anzures, Liezhong Ge, Zhe Wang, Shoji Itakura, Kang Lee

23.532 Photographic Memory of Unfamiliar Faces Under 30 Seconds Kang Lee, Stephen Link, Liezhong Ge

23.533 **Plastic representation of face view in human visual system** Taiyong Bi, Juan Chen, Fang Fang

23.534 **The Clark Kent Effect : What is the Role of Familiarity and Eyeglasses in Recognizing Disguised Faces?** Erin Moniz, Giulia Righi, Jessie J. Peissig, Michael J. Tarr
23.535 Race-specific perceptual discrimination improvement

following short individuation training with faces Rankin Williams McGugin, James Tanaka, Sophie Lebrecht, Michael Tarr, Isabel Gauthier

23.536 **The Effects of Familiarity on Genuine Emotion Recognition** Carol M Huynh, Gabriela I Vicente, Jessie J Peissig

23.537 **The role of learning in the perceptual organization of a face** Jennifer Bittner, Michael Wenger, Rebecca Von Der Heide, Daniel Fitousi

23.538 **Visual Short term Memory for One Item** Michael Mangini, Michael Villano, Charles Crowell

Scene perception: Objects and scenes

Vista Ballroom, Boards 539–554 Saturday, May 8, 8:30 - 12:30 pm

23.539 When Do Objects Become Scenes? Jiye Kim, Irving Biederman

23.540 **The Scene Superiority Effect** Richard Yao, Daniel J. Simons, John E. Hummel

23.541 What's behind the box? Measuring scene context effects with Shannon's guessing game on indoor scenes Michelle Greene, Aude Oliva, Jeremy Wolfe, Antonio Torralba

23.542 When the animal destroys the beach, the beach destroys the animal. Mutually assured destruction in gist processing Karla Evans, Jeremy Wolfe

23.543 The objects behind the scenes: TMS to area LO disrupts object but not scene categorization Caitlin Mullin, Jennifer Steeves

23.544 Visual cortex represents the statistical distributions of objects in natural scenes Dustin Stansbury, Thomas Naselaris, An Vu, Jack Gallant

23.545 **Faces and Places in the Brain: An MEG Investigation** Davide Rivolta, Laura Schmalzl, Romina Palermo, Mark Williams

23.546 **Gamma oscillations decompose the visual scene into object-based perceptual cycles: a computational model** Miconi Thomas, VanRullen Rufin

23.547 In search of neural signatures of visual binding : a MEG/ SSVEF study Charles Aissani, Benoit Cottereau, Anne-Lise Paradis, Jean Lorenceau

23.548 **Incongruent visual scenes : Where are they processed in the brain?** Florence Rémy, Nathalie Vayssière, Delphine Pins, Muriel Boucart, Michèle Fabre-Thorpe

23.549 **Neural coding of scene affordances** Teresa Pegors, Russell Epstein

23.550 Vision at a glance: the role of attention in the contextual facilitation of visual object recognition Nurit Gronau, Meytal Shachar

23.551 Effects of set size and heterogeneity in set representation by statistical properties Alexander Marchant, Jan de Fockert

23.552 **Object identification in spatially filtered scene background** Ching-Fan Chu, Chien-Chung Chen, Yei-Yu Yeh

23.553 **In search for a magnocellular deficit in Optic Neuritis patients** Celine Perez, Celine Cavezian, Pamela Laliette, Anne-Claire Viret, Isabelle Gaudry, Noa Raz, Netta Levin, Tamir Ben-Hur, Olivier Gout, Sylvie Chokron

23.554 **Sustained attention is involved only in dynamic change detection** Ryoichi Nakashima, Kazuhiko Yokosawa

Saturday AM

Saturday Afternoon Talks

Royal Ballroom 1-3

Perceptual organization: Contours and 2D form

Saturday, May 8, 2:45 - 4:15 pm Moderator: Elisabeth Hein

2:45 pm 24.11 **Distortions of illusory shape and motion by unseen motions** Barton L. Anderson, Michael Whitbread

3:00 pm 24.12 The role of mid-level representations in resolving object correspondence Elisabeth Hein, Cathleen Moore

3:15 pm 24.13 **The role of symmetry and volume in figure-ground organization** Tadamasa Sawada, Mary A. Peterson

3:30 pm 24.14 **CSI Berkeley Episode II: Perceptual organization and selective attention** Karen B. Schloss, Francesca C. Fortenbaugh, Eli D. Strauss, Stephen E. Palmer

3:45 pm 24.15 **Contour Grouping and Natural Shapes: Beyond Local Cues** James H. Elder, Timothy D. Oleskiw, Erich W. Graf, Wendy J. Adams

Binocular vision: Rivalry and mechanisms

Saturday, May 8, 5:15 - 6:45 pm Moderator: George Sperling

5:15 pm 25.11 Ocular and Image Components in Binocular Rivalry: Measuring their strengths and decay rates George Sperling

5:30 pm 25.12 Separate contributions of magno- and parvocellular streams to perceptual selection during binocular rivalry Rachel Denison, Sarah Hillenbrand, Michael Silver

5:45 pm 25.13 **Plasticity of interocular inhibition with prolonged binocular rivalry** Chris Klink, Jan Brascamp, Randolph Blake, Richard van Wezel

6:00 pm 25.14 Attentional facilitation of perceptual learning without awareness David Carmel, Anna Khesin, Marisa Carrasco

6:15 pm 25.15 Baseline fMRI pattern activity in early visual cortex predicts the initial dominant percept in subsequent binocular rivalry Po-Jang Hsieh, Jaron Colas, Nancy Kanwisher

6:30 pm 25.16 Left global visual hemineglect in high Autism-spectrum Quotient (AQ) individuals David Crewther, Daniel Crewther, Melanie Ashton, Ada Kuang

Royal Ballroom 4-5

Face perception: Brain mechanisms

Saturday, May 8, 2:45 - 4:15 pm Moderator: Bradley Duchaine

2:45 pm 24.21 **Functional lateralization of face processing** Ming Meng, Tharian Cherian, Gaurav Singal, Pawan Sinha

3:00 pm 24.22 Robust visual adaptation to face identity over the right occipito-temporal cortex: a steady-state visual potential **approach** Adriano Boremanse, Ernesto Palmero-Soler, Benvenuto Jacob, Bruno Rossion

3:15 pm 24.23 Early visually evoked electrophysiological responses over the human brain (P1, N170) show stable patterns of facesensitivity from 4 years to adulthood Dana Kuefner, Adélaïde de Heering, Corentin Jacques, Ernesto Palmero-Soler, Bruno Rossion

3:30 pm 24.24 **A genetic basis for face memory: evidence from twins** Jeremy Wilmer, Laura Germine, Christopher Chabris, Garga Chatterjee, Mark Williams, Ken Nakayama, Bradley Duchaine

3:45 pm 24.25 **Resting-state functional connectivity within the face processing network of normal and congenitally prosopagnosic individuals** Marlene Behrmann, Leslie Ungerleider, Fadila Hadj-Bouziane, Ning Liu, Galia Avidan

4:00 pm 24.26 The body inversion effect is mediated by face-selective not body-selective brain areas Talia Brandman, Galit Yovel

Scene perception

Saturday, May 8, 5:15 - 6:45 pm Moderator: Frans Cornelissen

5:15 pm 25.21 **Scene categorization and detection: the power of global features** James Hays, Jianxiong Xiao, Krista Ehinger, Aude Oliva, Antonio Torralba

5:30 pm 25.22 **The Good, the Bad, and the Scrambled: A Perceptual Advantage for Good Examples of Natural Scene Categories** Eamon Caddigan, Dirk B Walther, Li Fei-Fei, Diane M Beck

5:45 pm 25.23 **fMRI Decoding of Natural Scene Categories from Line Drawings** Dirk Walther, Barry Chai, Eamon Caddigan, Diane Beck, Li Fei-Fei

6:00 pm 25.24 **fMRI evidence for two distinct ventral cortical vision systems** Frans W. Cornelissen, Jan-Bernard Marsman, Remco Renken, Koen V. Haak

6:15 pm 25.25 **One cortical network for the visual perception of scenes and textures** Koen V. Haak, Remco Renken, Frans W. Cornelissen

6:30 pm 25.26 **The structure of scene representations across the ventral visual pathway** Dwight Kravitz, Cynthia Peng, Chris Baker

Keynote Address

Saturday, May 8, 7:45 pm Speaker: Carla Shatz

Saturday Afternoon Posters

Attention: Temporal selection and modulation

Royal Ballroom 6-8, Boards 301-309

Saturday, May 8, 2:45 - 6:45 pm

26.301 **The Effect of Extensive Repeated Viewing on Visual Recognition** John O'Connor, Matthew S. Peterson, Raja Parasurman

26.302 Is it better to burn out or fade away? The effect of sudden offsets on target recovery Philip C. Ko, Adriane E. Seiffert

26.303 **Temporal Feature Binding of Spatially Separated Features is Faster in the Fovea and across Hemifields** Tingting Liu, Sheng He, Gordon Legge

26.304 **Correlated effects of attention and awareness on contrast threshold elevation but not on afterimage formation** Jan Brascamp, Jeroen Van Boxtel, Tomas Knapen, Randolph Blake

26.305 **Temporal extension of figures: Evidence from the attentional blink** Lauren Hecht, Shaun Vecera

26.306 **Temporal resolution of attention in foveal and peripheral vision** Cristy Ho, Sing-Hang Cheung

26.307 **Two of a kind: temporal order errors in the attentional blink and in temporal order judgments** Frederic Hilkenmeier, Christian Olivers, Ingrid Scharlau

26.308 How flexible and fast is the focus of attention? Evidence from the Attentional Blink and Lag-1 sparing Lisa N. Jefferies, Shahab Ghorashi, Vincent Di Lollo

26.309 **Serial chaining of two cognitive operations: An fMRI and MEG study** Kimron Shapiro, Zhao Fan, Steve Johnston, Suresh Muthukumaraswamy, Krish Singh

Attention: Divided attention

Royal Ballroom 6-8, Boards 310–319 Saturday, May 8, 2:45 - 6:45 pm

26.310 **Evidence for Strategic, Fluid Allocation of Visual Attention** Jeffrey Doon, Ennio Mingolla, George A. Alvarez

26.311 **Reevaluating the sustained division of the attentional spotlight at high temporal resolution** Julien Dubois, James Macdonald, Rufin VanRullen

26.312 **Divided Attention and Subjective Visibility** Tashina Graves, Hakwan Lau

26.313 Does dividing attention help at all? Competition among multiple attended items Paige Scalf, Chandramalika Basak, Diane Beck 26.214 Judging paripheral change: Attentional and stimulus driven

26.314 Judging peripheral change: Attentional and stimulus-driven effects Jenna Kelly, Nestor Matthews

26.315 **Concurrent Task Performance and the Role of Attention in Change Detection** Gabriela Durán, Wendy S. Francis, Marlene Martínez

26.316 **Conspicuity of peripheral visual alerts** Jeffrey B. Mulligan, Kelly S. Steelman-Allen

26.317 **An overview of the attentional boost effect** Yuhong V. Jiang, Khena M. Swallow

26.318 **The effect of peripheral task on the training for enlarging useful visual field** Mitsuharu Ogiya, Satoshi Shioiri, Akio Nishimura, Ken-Ichiro Tsutsui, Kenji Kimura 26.319 **The Effects of Practice in a Useful Field of View task on Driving Performance** Lia E. Tsotsos, Alexa B. Roggeveen, Allison B. Sekuler, Brenda H. Vrkljan, Patrick J. Bennett

Attention: Special populations

Royal Ballroom 6-8, Boards 320–327 Saturday, May 8, 2:45 - 6:45 pm

26.320 On the Relationship between Magnocellular Pathway and Automatic Attentional Orienting: Evidences from Developmental Dyslexia Andrea Facoetti, Milena Ruffino, Simone Gori, Anna Bigoni, Mariagrazia Benassi, Roberto Bolzani, Massimo Molteni, Paolo Cecchini

26.321 Why the contralesional hemifield is scanned by patients with hemianopia but not with hemineglect: computational modeling of mechanisms of neural compensation Linda Lanyon, Jason Barton

26.322 **Processing visual scene statistical properties in patients with unilateral spatial neglect** Marina Pavlovskaya, Yoram Bonneh, Nachum Soroker, Shaul Hochstein

26.323 **Non-spatial attention engagement in Neglect patients** Simone Gori, Milena Ruffino, Milena Peverelli, Massimo Molteni, Konstantinos Priftis, Andrea Facoetti

26.324 **Differentiating Patients from Controls by Gazing Patterns** Po-He Tseng, Ian Cameron, Doug Munoz, Laurent Itti

26.325 **Cross-modal integration in a patient with partial damage to the Inferior and Superior Colliculus** Martijn van Koningsbruggen, Robert Rafal

26.326 Impaired selection- and response-related mechanisms in adult-ADHD Lilach Shalev, Yarden Dody, Carmel Mevorach

26.327 **Global and local attentional processing following optic neuritis** Celine Cavezian, Celine Perez, Mickael Obadia, Olivier Gout, Monte Buchsbaum, Sylvie Chokron

Neural mechanisms: Adaptation, awareness, action

Orchid Ballroom, Boards 401–411 Saturday, May 8, 2:45 - 6:45 pm

26.401 **BOLD activation in the visual cortex for spontaneous blinks during visual tasks** Cécile Bordier, Michel Dojat, Jean-Michel Hupé

26.402 Cortical adaption to reversing prisms in normal adults measured by fMRI Ling Lin, Brian Barton, Alyssa Brewer

26.403 Putting the Prisms Back On: Both Maps of Visual Space Persist, as Revealed by Rapid Cortical Re-adaptation to Left-Right Visual Field Reversal Alyssa A. Brewer, Brian Barton, Ling Lin

26.404 Novel insular cortex and claustrum activation observed during a visuomotor adaptation task using a viewing window paradigm Lee Baugh, Jane Lawrence, Jonathan Marotta

26.405 **Multiple scales of organization for object selectivity in ventral visual cortex** Hans Op de Beeck, Marijke Brants, Annelies Baeck, Johan Wagemans

26.406 **Theta-burst transcranial magnetic stimulation to V1 impairs subjective confidence ratings and metacognition** Dobromir Rahnev, Linda Bahdo, Moniek Munneke, Floris de Lange, Hakwan Lau

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26.407 Awareness-related activity in prefrontal and parietal cortices reflects more than superior performance capacity: A blindsight case study Matthew Davidson, Navindra Persaud, Brian Maniscalco, Dean Mobbs, Richard Passingham, Alan Cowey, Hakwan Lau

26.408 **Blindsight and enumeration: A case study** James Reed Jones, Don Dedrick, Lana Trick

26.409 **Unconscious Activation of the Prefrontal No-Go Network** Simon van Gaal, Richard Ridderinkhof, Steven Scholte, Victor Lamme

26.410 Functional specialisation in Supplementary Motor Area (SMA): A functional imaging test of the spatial vector transformation hypothesis Stephen Johnston, Charles Leek

26.411 Functional specialization in Supplementary Motor Area (SMA): Evidence from visuo-spatial transformation deficits in Parkinson's disease Charles Leek, R. Martyn Bracewell, John Hindle, Stephen Johnston

Perceptual learning: Specificity and transfer

Orchid Ballroom, Boards 412-426

Saturday, May 8, 2:45 - 6:45 pm

26.412 Interference and feature specificity in visual perceptual learning Li-Hung Chang, Yuko Yotsumoto, Jose Nanez, Takeo Watanabe, Yuka Sasaki

26.413 Task transfer effects of contrast training and perceptual learning Denton J. DeLoss, Jeffrey Bower, George J. Andersen

26.414 **Task-specific perceptual learning of texture identification** Zahra Hussain, Allison B. Sekuler, Patrick J. Bennett

26.415 Learning like an expert: a training study on the effects of visual noise in fingerprint identification Bethany Jurs

26.416 **Transfer of object learning across distinct visual learning paradigms** Annelies Baeck, Hans Op de Beeck

26.417 Perceptual learning with bisection stimuli can only be disrupted on a short timescale Kristoffer C. Aberg, Michael H. Herzog

26.418 **Explicit and implicit learning in motion discrimination tasks** Mariagrazia Benassi, Sara Giovagnoli, Roberto Bolzani

26.419 **Learning to discriminate face view** Nihong Chen, Taiyong Bi, Qiujie Weng, Dongjun He, Fang Fang

26.420 **Promoting generalization by hindering policy learning** Jacqueline M. Fulvio, C. Shawn Green, Paul R. Schrater

26.421 **The Role of Sleep in Implicit Statistical and Rule Learning** Kimberly MacKenzie, Jozsef Fiser

26.422 **Laterality-Specific Perceptual Learning on Gabor Detection** Nestor Matthews, Jenna Kelly

26.423 **Dissociating between long-term and short-term visual learning** Amit Yashar, Dominique Lamy

26.424 The stimulus specificity of motion perceptual learning does not arise from stimulus-specific improvements in visual memory or changes of decision strategy Alexander Petrov

26.425 **Perceptual learning in amblyopic children aged 8-16 with or without previous patching treatment** Ting Zhang, Xiang-Yun Liu, Cong Yu

26.426 **Transfer of perceptual learning to completely untrained locations after double training** Rui Wang, Jun-Yun Zhang, Stan Klein, Dennis Levi, Cong Yu

Motion: Mechanisms and Illusions

Orchid Ballroom, Boards 427–438 Saturday, May 8, 2:45 - 6:45 pm

26.427 **Detection of radial frequency motion trajectories** Charles C.-F. Or, Michel Thabet, Hugh R. Wilson, Frances Wilkinson

26.428 **No impact of luminance noise on chromatic motion perception** David Nguyen-Tri, Rémy Allard, Jocelyn Faubert

26.429 **Motion adaptation affects perceived shape** Paul Hibbard, Peter Scarfe, Michelle Robertson, Stacey Windeatt

26.430 **Phantom motion aftereffect using multiple-aperture stimuli: A dynamic Bayesian model** Alan L. F. Lee, Hongjing Lu

26.431 **The Accordion Grating illusion measured by a nulling paradigm** Enrico Giora, Simone Gori, Arash Yazdanbakhsh, Ennio Mingolla

26.432 **Spatial scaling for the Rotating Snakes illusion** Rumi Hisakata, Ikuya Murakami

26.433 **fMRI adaptation to anomalous motion in the "Rotating Snakes" patterns** Hiroshi Ashida, Ichiro Kuriki, Ikuya Murakami, Akiyoshi Kitaoka

26.434 **Is the Rotating Snakes an Optical Illusion?** Christopher R. L. Cantor, Humza J. Tahir, Clifton M. Schor

26.435 Minimum motion threshold correlates with the fixation instability of the more wobbling eye Ikuya Murakami

26.436 **Directional judgment between leftward and rightward motions modulated by angular deviation from the horizontal axis** Hiromasa Takemura, Ikuya Murakami

26.437 **Time distorts space in both directions during apparent motion** Chien-Te Wu, Michèle Fabre-Thorpe, Rufin VanRullen

26.438 Modeling and measurement of the human contrast sensitivity surface Paul Laddis, Luis Lesmes, Sergei Gepshtein, Thomas Albright

Eye movements: Smooth pursuit

Orchid Ballroom, Boards 439–446 Saturday, May 8, 2:45 - 6:45 pm

26.439 Integration of motion information for smooth pursuit during multiple object tracking (MOT) Zhenlan Jin, Scott Watamaniuk, Aarlenne Khan, Stephen Heinen

26.440 Anticipatory smooth pursuit eye movements in response to global motion Elio M. Santos, Martin Gizzi, Eileen Kowler

26.441 Compensation for equiluminant chromatic motion during smooth pursuit Masahiko Terao, Ikuya Murakami

26.442 **Pursuit eye movements on visual illusions** Vincent Sun, Ming-Chuan Fu

26.443 **Temporal Integration of Focus Position Signal during Compensation for Pursuit in Optic Flow** Jacob Duijnhouwer, Bart Krekelberg, Albert van den Berg, Richard van Wezel

26.444 **Bayesian analysis of perceived motion during smooth pursuit eye movement** Tom CA Freeman, Rebecca A Champion, Paul A Warren

26.445 **A recurrent Bayesian model of dynamic motion integration for smooth pursuit** Amarender Bogadhi, Anna Montagnini, Pascal Mamassian, Laurent Perrinet, Guillaume Masson

26.446 **Oculoceptive fields for smooth pursuit eye movements** Kurt Debono, Alexander C. Schütz, Karl R. Gegenfurtner

Memory: Encoding and retrieval

Orchid Ballroom, Boards 447-460

Saturday, May 8, 2:45 - 6:45 pm

26.447 Measuring the accuracy and precision of visual representations in validly and invalidly spatially pre-cued visual working memory Wilson Chu, Barbara Anne Dosher, Zhong-Lin Lu

26.448 **Figure-ground perception is impaired in medial temporal lobe amnesia** Morgan D. Barense, K.W. Joan Ngo, Mary A. Peterson

26.449 Frequency of exposure modulates cortical activity in the contextual associations network Elissa Aminoff, Moshe Bar

26.450 How does occlusion affect search and memory processes for targets and distractors? Carrick Williams

26.451 Wait a few seconds: Newly learned spatial statistics enhance visual short-term memory D. Alexander Varakin, Melissa R. Beck

26.452 **Unexpected events, predictive eye movements, and imita-tion learning** Abigail Noyce, Jessica Maryott, Robert Sekuler

26.453 Neural basis for monitoring of multiple features-location binding: an event-related f unctional magnetic resonance imaging study Sachiko Takahama, Izumi Ohzawa, Yoshichika Yoshioka, Jun Saiki

26.454 Neural Response Dynamics in Parietal Cortex for an Algebraic Processing Task Christopher Tyler

26.455 **A computational model for change detection in familiar environments** Dmitry Kit, Brian Sullivan, Kat Snyder

26.456 Using objects as symbols: Associative learning improves when confusable items serve as cues rather than as associates Adam November, Nicolas Davidenko, Michael Ramscar

26.457 Another look at mindsight Helene Gauchou, Ronald Rensink

26.458 **Speed-accuracy tradeoffs in cognitive tasks in action game players** A.F. Anderson, D. Bavelier, C.S. Green

26.459 The efficiency of encoding - how to get most images into visual memory Gesche M. Huebner, Karl R. Gegenfurtner

26.460 Similar Scenes Seen: What are the limits of the visual longterm memory fidelity? Olivier R. Joubert, Aude Oliva

Object recognition: Features and categories

Vista Ballroom, Boards 501-515

Saturday, May 8, 2:45 - 6:45 pm

26.501 Similarity-based multi-voxel pattern analysis reveals an emergent taxonomy of animal species along the object vision pathway Andrew Connolly, James Haxby

26.502 In search of functional brain atlases: Deriving common categorical representational patterns across individuals in ventral visual pathway J. Swaroop Guntupalli, Andrew C. Connolly, James V. Haxby

26.503 The Relationship between Multivariate Pattern Classification Accuracy and Hemodynamic Response Accuracy in Visual

Cortical Areas Peter J. Kohler, Sergey V. Fogelson, Eric A. Reavis, Jyothi S. Guntupalli, Peter U. Tse

26.504 Detrimental effect of head motion covariates on GLM and multivoxel classification analysis of FMRI data Kai Schreiber, Bart Krekelberg

26.505 The neural representation of spatial relationships by

anatomical binding Kenneth Hayworth, Mark Lescroart, Irving Biederman

26.506 Voxels in LO-but not V1-distinguish the axis structures of highly similar objects Mark D Lescroart, Irving Biederman

26.507 **Categorical representation of visually suppressed objects in visual cortex** Gideon Caplovitz, Michael Arcaro, Sabine Kastner

26.508 The basis of global and local visual perception revealed by psychophysical 'lesions' Cibu Thomas, Kestutis Kveraga, Moshe Bar

26.509 **Perceiving the Center of Human Figures** Jay Friedenberg, Tedd Keating

26.510 **Defining an object's micro-valence through implicit measures** Sophie Lebrecht, Michael Tarr

26.511 Why women wear heels: a new size illusion? Diane M. Beck, Barbara Emanuele, Silvia Savazzi

26.512 Motion Context Modulates Backward Masking of Shape Peter J. Lenkic, James T. Enns

26.513 Chinese character recognition is limited by overall complexity, not by number of strokes or stroke patterns On-Ting Lo, Sing-Hang Cheung

26.514 **Spatial Frequencies Mediating Music Reading** zakia hammal, frédéric gosselin, isabelle peretz, sylvie hebert

26.515 **The Visual Perception of Correlation in Scatterplots** Ronald Rensink, Gideon Baldridge

Search: Neural mechanisms and behavior

Vista Ballroom, Boards 516–526 Saturday, May 8, 2:45 - 6:45 pm

26.516 Simultaneous neurophysiological measurement of perceptual and response selection stages of processing during visual search Jason Arita, Geoffrey Woodman

26.517 **Neural correlates of visual search in natural scenes** Fei Guo, Koel Das, Barry Giesbrecht, Miguel P. Eckstein

26.518 **Constancy of the functional visual field across natural scenes** Matthew S. Mould, Kinjiro Amano, David H. Foster, John P. Oakley

26.519 **Direct Current Polarization of macaque area V4 reversibly affects saccadic reaction times in a visual discrimination task** Anne Martin, Rudiger von der Heydt

26.520 Independent Influence of Luminance and Color on Saccade Initiation During Target Selection In the Superior Colliculus Brian White, Douglas Munoz

26.521 **What, when and how of target detection in visual search.** Vidhya Navalpakkam, Pietro Perona

26.522 **Covert and overt selection on visual search** Joaquim Carlos Rossini, Michael von Grünau

26.523 Gaze capture by task-irrelevant, eye of origin, singletons even without awareness during visual search Li Zhaoping

26.524 Non-parametric test to describe response time and eye movement distributions in visual search Bruno Richard, Dave Ellemberg, Aaron Johnson

26.525 **Visual Similarity Predicts Categorical Search Guidance** Robert Alexander, Gregory Zelinsky

26.526 **Graphical comparison of means in within subject designs** John Hayes, Adam Preston, James Sheedy

Vista Ballroom, Boards 527-545

Saturday, May 8, 2:45 - 6:45 pm

26.527 Top-down and bottom-up controls in visual search: Evidence from a large task-irrelevant salient distracter Li Jingling

26.528 Guidance of Attention During Visual Search: Can Multiple Attentional Templates Operate Concurrently? Valerie Beck, Steven Luck

26.529 Further evidence on dimension-specific lateral inhibition in visual search Louis Chan, William Hayward

26.530 Inhibitory tagging of individual items is only found in very difficult visual search tasks Johan Hulleman

26.531 Independent and additive effects of repetition of target and distractor sets in active visual search Árni Ásgeirsson, Maike Aurich, Árni Kristjánsson

26.532 **Prediction prevents rapid resumption from being disrupted after the target's location has changed** Stefania Mereu, Jeffrey Zacks, Christopher Kurby, Alejandro Lleras

26.533 **Perceptual load corresponds to known factors influencing visual search** Zachary J.J. Roper, Joshua D. Cosman, Jonathan T. Mordkoff, Shaun P. Vecera

26.534 **Modulating the attentional saliency of object onsets in natural scenes** Peter De Graef, Geoffrey Hamon, Filip Germeys, Karl Verfaillie

26.535 **Saliency enhances perceived contrast but degrades detection** Dirk Kerzel, Sabine Born

26.536 Real-world Statistical Regularities Guide the Deployment of Visual Attention, Even in the Absence of Semantic Scene Recognition Ashley Sherman, George Alvarez

26.537 Knowing what not to look for: Difficulty ignoring irrelevant features in visual search Jeff Moher, Howard Egeth

26.538 **Probabilistic information influences attentional process** Takashi Kabata, Eriko Matsumoto

26.539 Bound to guide: A surprising, preattentive role for conjunctions in visual search Jeremy Wolfe

26.540 **Spatio-temporal mapping of exogenous and endogenous attention** Roger Koenig-Robert, Rufin VanRullen

26.541 The Dynamics of Top-Down and Bottom-Up Control of Visual Attention during Search in Complex Scenes Marc Pomplun, Alex Hwang

26.542 The salience of absence: when a hole is more than the sum of its parts Li Zhou, Li Zhaoping

26.543 Performance Costs and Benefits for Simultaneous Dynamic Events in Visual Search Meera Mary Sunny, Adrian von Muhlenen

26.544 Neural mechanisms underlying active ignoring in the ageing brain Helen Payne, Harriet Allen

26.545 **The effects of feature preview history and response strategy on inter-trial suppression of selective attention** Eunsam Shin, Alejandro Lleras

Spatial vision: Mechanisms and models

Vista Ballroom, Boards 546-557 Saturday, May 8, 2:45 - 6:45 pm

26.546 **Locating the functional vertical midline with a motion probe** Pascal Mamassian

26.547 Modeling the representation of location within two-dimensional visual space using a neural population code Sidney Lehky, Anne Sereno

26.548 **Faster periphery and slower fovea for coherent perception** Oren Yehezkel, Anna Sterkin, Yoran Bonneh, Uri Polat

26.549 Blur clarified Andrew Watson, Albert Ahumada

26.550 **Extended depth of focus spectacles for full visual field presbyopia correction via brain adaptation** Alex Zlotnik, Shai Ben Yaish, Oren Yehezkel, Michael Belkin, Zeev Zalevsky

26.551 **Orientation and shape tuning of van Lier aftereffect** Takao Sato, Yutaka Nakajima

26.552 Integration of visuospatial position information is modulated by retinal eccentricity and attention Jessica Wright, Adam Morris, Bart Krekelberg

26.553 Comparing properties of the spatial integration of local signals into perceived global structure Andrew Meso, Robert Hess

26.554 **Does size matter more in the same eye?** Chen Song, D. Samuel Schwarzkopf, Geraint Rees

26.555 **Visual sensitivity can scale with illusory size changes** Derek Arnold, Ryan Schindel

26.556 Explaining the Time Order Effect Thom Carney, Stanley Klein

26.557 Testing hypotheses regarding psychometric functions: Robustness to violations of assumptions Nicolaas Prins

Saturday PM

Royal Ballroom 1-3 Color and light

Sunday, May 9, 8:15 - 10:00 am Moderator: Qasim Zaidi

8:15 am 31.11 Chromatic variations suppress suprathreshold brightness variations Frederick Kingdom, Jason Bell, Gokhan Malkoc, Elena Gheorghiu

8:30 am 31.12 Uncovering multiple higher order chromatic mechanisms in cone contrast space Thorsten Hansen, Karl Gegenfurtner

8:45 am 31.13 Interaction Between S-cone and Luminance Signals in Surround Suppression Bei Xiao, Alex Wade

9:00 am 31.14 Decoding foveal stimulus chromaticity using the peripheral V1 BOLD response Jess Rowland, Alex Wade

9:15 am 31.15 Effects of image dynamic range on perceived surface gloss James Ferwerda, Jonathan Phillips

9:30 am 31.16 Interaction of diffuse and specular reflectance in the perception of object lightness and glossiness Maria Olkkonen, David Brainard

9:45 am 31.17 Roles of color & 3-D information in recognizing material changes Ali Yoonessi, Qasim Zaidi

Development: Mechanisms

Sunday, May 9, 11:00 - 12:45 pm Moderator: Daniel Dilks 11:00 am 32.11 **Components of attention in normal and atypical**

development Janette Atkinson, Oliver Braddick, Kate Breckenridge

11:15 am 32.12 **The Convexity Assumption: Infants use Knowledge of Objects to Interpret Static Monocular Information by 5 Months** Sherryse Corrow, Al Yonas, Carl Granrud

11:30 am 32.13 The innate "face" representation is more broadly tuned: 4-month-old infants individuate upright but not inverted horses Kate Crookes, Elinor McKone

11:45 am 32.14 **Texture-defined Figure/Ground Segmentation In Human Visual Development: A High-Density Electrical Mapping Study** Chuan Hou, Melanie Palomares, Anthony Norcia

12:00 pm 32.15 **Fusion of disparity and texture cues to slant is not mandatory in children** Marko Nardini, Rachael Bedford, Meera Desai, Denis Mareschal

12:15 pm 32.16 Sensitivity to Biological and Global Motion: Similar in their Protracted Development but Different in Susceptibility to Visual Deprivation Terri L. Lewis, Bat-Sheva Hadad, Daphne Maurer

12:30 pm 32.17 No Change in the Size of the Right Fusiform Face Area between Age Five and Adulthood Daniel D. Dilks, Eyal Dechter, Christina Triantafyllou, Boris Keil, Lawrence L. Wald, Matthew D. Tisdall, Andre van der Kouwe, Bruce Fischl, Rebecca Saxe, Nancy Kanwisher

Sunday Morning Talks

Royal Ballroom 4-5

Perceptual learning: Mechanisms and models

Sunday, May 9, 8:15 - 10:00 am Moderator: Paul Schrater

8:15 am 31.21 Learning shapes the spatiotemporal dynamics of visual processing Zoe Kourtzi, Sheng Li, Stephen Mayhew

8:30 am 31.22 Adaptive Sequencing in Perceptual Learning Everett Mettler, Philip Kellman

8:45 am 31.23 Augmented Hebbian Learning Accounts for the Complex Pattern of Effects of Feedback in Perceptual Learning Jiajuan Liu, Zhonglin Lu, Barbara Dosher

9:00 am 31.24 Changes induced by attentional training - capacity increase vs. allocation changes Hoon Choi, Takeo Watanabe

9:15 am 31.25 Accounting for speed-accuracy tradeoff in visual perceptual learning Charles Liu, Takeo Watanabe

9:30 am 31.26 **Learning internal models for motion extrapolation** Paul Schrater, Nate Powell

9:45 am 31.27 Attention mediates learned perceptual bias for bistable stimuli Benjamin T. Backus, Stuart Fuller

Attention: Brain imaging

Sunday, May 9, 11:00 - 12:45 pm Moderator: Yaoda Xu

11:00 am 32.21 **Decoding feature-based attentional priority signals in human cortex** Taosheng Liu, Luke Hospadaruk, David Zhu, Justin Gardner

11:15 am 32.22 Response profiles of macaque dorsolateral prefrontal cortex neurons during a rule-guided target selection and sustained attention task Therese Lennert, Julio Martinez-Trujillo

11:30 am 32.23 **A neural pooling rule for attentional selection in human visual cortex** Franco Pestilli, Marisa Carrasco, David Heeger, Justin Gardner

11:45 am 32.24 **Gain in the most informative sensory neurons predicts task performance** Miranda Scolari, John Serences

12:00 pm 32.25 Feature-based attention in the human thalamus and superior colliculus Keith A. Schneider

12:15 pm 32.26 The flipside of object individuation: Neural representation for object ensembles Jonathan S. Cant, Yaoda Xu

12:30 pm 32.27 Neural signatures of shape discrimination decisions at threshold Justin Ales, Lawrence Appelbaum, Anthony Norcia

Sunday Morning Posters

Spatial vision: Crowding and eccentricity

Royal Ballroom 6-8, Boards 301-317

Sunday, May 9, 8:30 - 12:30 pm

33.301 **The mechanism of word crowding** Deyue Yu, Melanie Akau, Susana Chung

33.302 Semantic and identical word priming reduces peripheral word crowding and reaction times Paul F. Bulakowski, Deyue Yu, Susana T.L. Chung

33.303 **Two locations are better than one: Improving peripheral reading speed by reducing spatio-temporal interactions of words** Mouna Attarha, Deyue Yu, Susana T.L. Chung

33.304 Effects of dioptric blur on foveal acuity and contour interaction for noisy Cs Sarah J Waugh, Monika A Formankiewicz, Norsham Ahmad, M Izzuddin Hairol

33.305 Effects of contrast on foveal acuity and contour interaction using luminance and contrast modulated Cs Monika A Formankiewicz, M Izzuddin Hairol, Sarah J Waugh

33.306 **Crowding and Multiple Magnification Theory** Rick Gurnsey, Gabrielle Roddy, Wael Chanab

33.307 **Position and orientation are bound in crowding** John Greenwood, Peter Bex, Steven Dakin

33.308 **Visual acuity and contour interaction for luminancemodulated and contrast-modulated Cs in normal foveal vision** M Izzuddin Hairol, Monika A Formankiewicz, Sarah J Waugh

33.309 Size illusion and crowding Jungang Qin, Bosco S. Tjan

33.310 **Effects of Kanizsa's illusory contours on crowding strength** Siu-Fung Lau, Sing-Hang Cheung

33.311 **Temporal crowding with normal observers and its interplay** with spatial crowding Einat Rashal, Yaffa Yeshurun

33.312 **Symmetry and Crowding Across the Visual Field** Gabrielle Roddy, Wael Chanab, Rick Gurnsey

33.313 **Size Pooling** Yvette Granata, Ramakrishna Chakravarthi, Sarah Rosen, Denis Pelli

33.314 **Pool party: objects rule** Sarah Rosen, Ramakrishna Chakravarthi, Denis Pelli

33.315 Object Crowding Julian M. Wallace, Bosco S. Tjan

33.316 **Objects crowded by noise flankers** Kilho Shin, Julian M. Wallace, Bosco S. Tjan

33.317 **Unconscious processing of emotion in crowded display** Nathan Faivre, Vincent Berthet, Sid Kouider

Perception and action: Navigation and mechanisms

Royal Ballroom 6-8, Boards 318-331

Sunday, May 9, 8:30 - 12:30 pm

33.318 **Perceiving pursuit and evasion by a virtual avatar** William Warren, Jonathan Cohen

33.319 **Follow the leader: Behavioral dynamics of following** Kevin Rio, Christopher Rhea, William Warren

33.320 Why does the rabbit escape the fox on a zig-zag path? Predator-prey dynamics and the constant bearing strategy Charles Z Firestone, William H Warren

33.321 The influence of external landmarks, the sun, and cast shadows on learning a wormhole environment Jonathan Ericson, William Warren

33.322 Learning a new city: Active and passive components of spatial learning Elizabeth Chrastil, William Warren

33.323 **Putting New Zealand on the map: Investigating cognitive maps in human navigation using virtual environments** Diane M. Thomson, John A. Perrone

33.324 Learning relative locations in single and multiple- destination route planning in the real labyrinth Kayoko Ohtsu, Yoshihiro Oouchi

33.325 Investigating the potential impact of presence on the accuracy of participants' distance judgments in photo-realistic and non-photorealistic immersive virtual environments Victoria Interrante, Lane Phillips, Brian Ries, Michael Kaeding

33.326 **Effects of augmented reality cues on driver performance** Michelle Rusch, Elizabeth Dastrup, Ian Flynn, John Lee, Shaun Vecera, Matt Rizzo

33.327 **Looking where you are going does not help path perception** Li Li, Joseph Cheng

33.328 **Simulation of the retina in a sensory substitution device** Barthélémy Durette, Nicolas Louveton, David Alleysson, Jeanny Hérault

33.329 How Path Integration Signals Create the Spatial Representations upon which Visual Navigation Builds Himanshu Mhatre, Anatoli Gorchetchnikov, Stephen Grossberg

33.330 Hardware and software computing architecture for robotics applications of neuroscience-inspired vision and navigation algorithms Chin-Kai Chang, Christian Siagian, Laurent Itti

33.331 **The Relationship Between Blink Rate and Navigation Task Performance** Kevin Barton, Daniel Smilek, Colin Ellard

Perceptual organization: Temporal processing

Orchid Ballroom, Boards 401–409 Sunday, May 9, 8:30 - 12:30 pm

33.401 **Integration of visual information across time** Mordechai Z. Juni, Todd M. Gureckis, Laurence T. Maloney

33.402 Fast grouping processes allow for response priming effects in a primed flanker paradigm Filipp Schmidt, Thomas Schmidt

33.403 **Backward-masking of figure-ground signal by feed forward inhibition** Hans Supèr, August Romeo

33.404 **Dynamic coupling of bistable stimuli reveals long-range connectivity** Frederic Benmussa, Charles Aissani, Anne-Lise Paradis, Jean Lorenceau

33.405 Dynamics of ménage à trois in moving plaid ambiguous perception Jean-Michel Hupé

33.406 **Temporal Dynamics in Convexity Context Effects** Elizabeth Salvagio, Mary A. Peterson

33.407 Spatiotemporal Boundary Formation: Similar Performance for Modal and Amodal Completion J. G. Chambeaud, J. F. Barraza

33.408 **Temporal dynamics of face amodal completion in human visual cortex** Juan Chen, Hua Yang, Fang Fang

33.409 **Figure-ground signals in early and object specific visual areas: A combined fMRI, EEG and rTMS study** Martijn E. Wokke, H. Steven Scholte, Victor A.F. Lamme

Perceptual organization: Objects

Orchid Ballroom, Boards 410–418

Sunday, May 9, 8:30 - 12:30 pm

33.410 Binary Division Constrains Human but not Baboon Categorical Judgements within Perceptual (colour) Continua Jules Davidoff, Julie Goldstein, Ian Tharp, Elley Wakui, Joel Fagot

33.411 The effect of temporal frequency on the local and global structure of Glass patterns Melanie Palomares, Anthony Norcia

33.412 Interpolation of Expanding/Contracting Objects behind an Occluding Surface Hideyuki Unuma, Hisa Hasegawa, Philip J. Kellman

33.413 **Object-based attention benefits demonstrate surface perception in two-dimensional figure-ground displays** Andrew Mojica, Brian Roller, Elizabeth Salvagio, Mary Peterson

33.414 Shape dimensions, perceptual organization and intermodal selective attention: anterior extrastriate fMRI Anthony Cate, Xiaojian Kang, Timothy Herron, E. William Yund, David Woods

33.415 **Contextual Modulation of Global Form Perception** Hsin-Hung Li, Chien-Chung Chen

33.416 Ubiquitous log odds: Distortion of frequency estimates in visual numerosity tasks Laurence Maloney, Hang Zhang

33.417 Inferential challenges for General Recognition Theory: Mean-shift Integrality and Perceptual Configurality Tamaryn Menneer, Michael Wenger, Leslie Blaha

33.418 **Hemifield modulation of approximate number judgments** Heeyoung Choo, Steve Franconeri

Motion: Biological motion

Orchid Ballroom, Boards 419–435 Sunday, May 9, 8:30 - 12:30 pm

33.419 **The Effects of TMS over STS and Premotor Cortex on the Perception of Biological Motion** Bianca van Kemenade, Neil Muggleton, Vincent Walsh, Ayse Pinar Saygin

33.420 **Contribution of body shape and motion cues to biological motion selectivity in hMT+ and EBA depends on cue reliability** James Thompson, Wendy Baccus, Olga Mozgova

33.421 Multi-voxel pattern analysis (MVPA) of the STS during biological motion perception Samhita Dasgupta, John Pyles, Emily Grossman

33.422 Attention-based motion analysis of biological motion perception Sarah Tyler, Javier O. Garcia, Emily D. Grossman

33.423 Perceptual biases in biological motion perception and other depth-ambiguous stimuli Nikolaus Troje

33.424 **Local motion versus global shape in biological motion: A reflexive orientation task** Masahiro Hirai, Daniel R. Saunders, Nikolaus F. Troje

33.425 Searching for a "super foot" with evolutionary-guided adaptive psychophysics Dorita H. F. Chang, Nikolaus F. Troje

33.426 Distributions of fixations on biological motion displays depend on the task: Direction discrimination vs. gender classification Daniel R. Saunders, David K. Williamson, Nikolaus F. Troje

33.427 The Perceived Sex of Biological Motion Displays is Influenced by Adaptation to Biological Motion but Not Adaptation to Static Faces Eric Hiris, Katie Ewing

33.428 Effects of social context on walking and the perceptions of walkers Robin Kramer, Robert Ward

33.429 Visual Sensitivity to Point-Light Actors Varies With the Action Observed Adam Doerrfeld, Kent Harber, Maggie Shiffrar

33.430 Multimodal integration of the auditory and visual signals in dyadic point-light interactions Lukasz Piwek, Karin Petrini, Frank Pollick

33.431 **Recognition of self-produced and friends' facial motion** Richard Cook, Cecilia Heyes, Alan Johnston

33.432 **Dissociation between biological motion and shape integration** Ayse Pinar Saygin, Shlomo Bentin, Michal Harel, Geraint Rees, Sharon Gilaie-Dotan

33.433 **Asymmetry in visual search for local biological motion signals** Li Wang, Kan Zhang, Sheng He, Yi Jiang

33.434 **Search asymmetry in perceiving walkers: an approaching walker is easier to be found than a deviating walker** Kazuya Ono, Michiteru Kitazaki

33.435 **Can you see me in the snow? Action simulation aids the detection of visually degraded human motions** Jim Parkinson, Anne Springer, Wolfgang Prinz

Attention: Numbers and things

Orchid Ballroom, Boards 436–444 Sunday, May 9, 8:30 - 12:30 pm

33.436 **Rapidly learned expectations alter perception of motion** Matthew Chalk, Aaron Seitz, Peggy Series

33.437 Seeing without Knowing: Three examples of the impact of unconscious perceptual processes Shaul Hochstein, Anna Barlasov Ioffe, Michal Jacob, Einat Shneor

33.438 **Tracking of food quantities by coyotes (Canis Latrans)** Kerry Jordan, Joseph Baker, Kati Rodzon, John Shivik

33.439 **The Impact of Distracting Web Advertisements on Brand Awareness and Reading Comprehension** Evan Palmer, Carolina Bates, Anjana Rajan, Andrew Miranda

33.440 **Clarifying the role of gaze cueing using biologically natural and unnatural gazes** Steven L. Prime, Jonathan J. Marotta

33.441 **Attraction without distraction: Effects of augmented reality cues on driver hazard perception** Mark Schall Jr., Michelle Rusch, John Lee, Shaun Vecera, Matt Rizzo

33.442 Attentional shifts due to irrelevant numerical cues: Behavioral investigation of a lateralized target discrimination paradigm Christine Schiltz, Giulia Dormal, Romain Martin, Valerie Goffaux

33.443 Looking ahead: Attending to anticipatory locations increases perception of control Laura Thomas, Adriane Seiffert

33.444 **Thinking of God Moves Attention** Alison L. Chasteen, Donna C. Burdzy, Jay Pratt

Search: Learning, memory and context

Orchid Ballroom, Boards 445–457 Sunday, May 9, 8:30 - 12:30 pm

33.445 **Training, Transfer, and Strategy in Structured and Unstructured Camouflage Search Environments** Daniel Blakely, Walter Boot, Mark Neider

33.446 The influence of expertise on comparative visual search performance Vera Bauhoff, Markus Huff, Stephan Schwan

33.447 History repeats itself: A role for observer-dependent scene context in visual search Barbara Hidalgo-Sotelo, Aude Oliva

33.448 **Observers are inconsistent and inaccurate in judging their own visual detection ability at different retinal locations** Camille Morvan, Hang Zhang, Laurence Maloney

33.449 Altering the rate of visual search through experience: The case of action video game players Bjorn Hubert-Wallander, C. Shawn Green, Michael Sugarman, Daphne Bavelier

33.450 **Effects of high-level ensemble representations on visual search** Amrita Puri, Shelley Morris, Jason Haberman, Jason Fischer, David Whitney

33.451 **Reducing Satisfaction of Search Errors in Visual Search** Kait Clark, Mathias S. Fleck, Stephen R. Mitroff

33.452 **Memory and attentional guidance in contextual cueing** Steven Fiske, Thomas Sanocki

33.453 It's a MAD visual world: How do we search it? Melina Kunar, Derrick Watson

33.454 **An abstract equivalent of visual search: Gain maximization fails in the absence of visual judgments** Riccardo Pedersini, Camille Morvan, Laurence T. Maloney, Todd S. Horowitz, Jeremy M. Wolfe

33.455 **Searching for two objects: Does knowing their relational alignment produce greater search guidance?** Joseph Schmidt, Gregory Zelinsky

33.456 The effect of non-emotional facial changes on time-based selection Elisabeth Blagrove, Derrick Watson

33.457 The stare-in-the-crowd effect in the real world: is direct gaze really detected faster than averted gaze? Hannah Masterman, Colin Ellard, Roxane Itier

Face perception: Emotional processing

Vista Ballroom, Boards 501-516

Sunday, May 9, 8:30 - 12:30 pm

33.501 **Cortical and Subcortical Correlates of Nonconscious Face Processing** Vanessa Troiani, Elinora Hunyadi, Meghan Riley, John Herrington, Robert Schultz

33.502 Separate neural loci are sensitive to facial expression and facial individuation Xiaokun Xu, Irving Biederman

33.503 **Affective Information Affects Visual Consciousness** Erika Siegel, Eric Anderson, Lisa Feldman Barrett

33.504 Contrast-Negation Impairs Gender but Not Emotion Discrimination Pamela Pallett, Ming Meng

33.505 **Dynamic Shifts in the Criteria for Facial Expression Recognition** Jun Moriya, Yoshihiko Tanno

33.506 **How fast can we recognize facial expressions of emotion?** Aleix Martinez, Shichuan Du 33.507 Image size reveals perception biases of similarity among facial expressions of emotion Shichuan Du, Aleix Martinez

33.508 **Individual differences in empathy and indices of face processing** Reiko Graham, Janine Harlow, Heidi Blocker, Chris Kelland Friesen, Roque Mendez

33.509 **Laying the foundations for an in-depth investigation of the whole space of facial expressions** Kathrin Kaulard, Christian Wallraven, Douglas W. Cunningham, Heinrich H. Bülthoff

33.510 **Out of sight, but not out of mind: Affect as a source of information about visual images** Eric Anderson, Dominique White, Erika Siegel, Lisa Barrett

33.511 **Preferential processing of fear faces: emotional content vs. low-level visual properties** Katie Gray, Wendy Adams, Matthew Garner

33.512 **Properties of a good poker face** Erik Schlicht, Shin Shimojo, Colin Camerer, Peter Battaglia, Ken Nakayama

33.513 **Testing emotional expression recognition with an adaptation of the "Bubbles" masking approach** Peter Gerhardstein, Daniel Hipp, Rory Corbet, Xing Zhang, Lijun Yin

33.514 **The Facial Width-to-Height Ratio as a Basis for Estimating Aggression from Emotionally Neutral Faces** Cheryl M. McCormick, Catherine J. Mondloch, Justin M. Carré, Lindsey Short

33.515 Visual redundancy enhances face identity perception but impairs face emotion perception Bo-Yeong Won, Yuhong V. Jiang

33.516 **What does the emotional face space look like?** Frédéric J.A.M. Poirier, Jocelyn Faubert

Face perception: Social cognition

Vista Ballroom, Boards 517–530 Sunday, May 9, 8:30 - 12:30 pm

33.517 **The time course of face-gender discrimination: Disentangling the use of color and luminance cues** Nicolas Dupuis-Roy, Daniel Fiset, Mélanie Bourdon, Frédéric Gosselin

33.518 **Reconfigurable face space for the perception of intergender facial resemblance** Harry Griffin, Alan Johnston

33.520 **Perception of gender is a distributed attribute in the human face processing network** Christian Kaul, Geraint Rees, Alumit Ishai

33.521 **Perception of race and sex differently depends on the low and high spatial frequency channels** Shinichi Koyama, Jia Gu, Haruo Hibino

33.522 Differential spatial and temporal neural response patterns for own- and other-race faces Vaidehi Natu, David Raboy, Alice O'Toole

33.523 **Poor memory for other race faces is not associated with deficiencies in holistic processing** Sacha Stokes, Elinor McKone, Hayley Darke, Anne Aimola Davies

33.524 Race-modulated N170 Response to the Thatcher Illusion: Evidence for the expertise theory of the other race effect Lawrence Symons, Kelly Jantzen, Amanda Hahn

33.525 **Effect of spatial frequency on other-race effect** Tae-Woong Yoon, Sang Chul Chong

33.526 **Race-specific norms for coding face identity and a functional role for norms** Regine Armann, Linda Jeffery, Andrew J. Calder, Isabelle Bülthoff, Gillian Rhodes

33.527 **Own-race Effect: an Attentional Blink Perspective** Yurong He, Yuming Xuan, Xiaolan Fu

33.528 When East meets West: gaze-contingent Blindspots abolish cultural diversity in eye movements for faces Sébastien Miellet, Roberto Caldara

33.529 **Social judgments from faces are universal** Junpeng Lao, Kay Foreman, Xinyue Zhou, Martin Lages, Jamie Hillis, Roberto Caldara

33.530 Is Social Categorization Alone Sufficient to Induce Opposing Face Aftereffects? Lindsey Short, Catherine Mondloch

Scene perception: Categorization and memory

Vista Ballroom, Boards 531–541 Sunday, May 9, 8:30 - 12:30 pm

33.531 Tiny Memory: How many pixels are required for good recognition memory? Yoana Kuzmova, Jeremy Wolfe

33.532 **Do expert searches remember what they have seen?** Erica Kreindel, Karla K. Evans, Jeremy M. Wolfe

33.533 **A taxonomy of visual scenes: Typicality ratings and hierarchical classification** Krista A. Ehinger, Antonio Torralba, Aude Oliva

33.534 **Predicting object and scene descriptions with an information-theoretic model of pragmatics** Michael Frank, Avril Kenney, Noah Goodman, Joshua Tenenbaum, Antonio Torralba, Aude Oliva

33.535 Humans in the Midst: Evidence for Top-Down Facilitation in Visual Search Quoc C Vuong, Katja M Mayer

33.536 Describing locations from memory: Effects of spatial reference direction on reference object selection Xiaoou Li, Weimin Mou, Laura Carlson

33.537 Is Boundary Extension Different When You've Been There? Memory for Familiar and Unfamiliar Campus Pictures Carmela V. Gottesman, Margaret P. Munger

33.538 **Broadening the Horizons of Scene Gist Recognition: Aerial and Ground-based Views** Lester Loschky, Katrina Ellis, Tannis Sears, Ryan Ringer, Joshua Davis

33.539 Adaptation for landmark identity and landmark location on a familiar college campus Lindsay Morgan, Sean MacEvoy, Geoffrey Aguirre, Russell Epstein

33.540 **How Accurate is Memory for Familiar Slope?** Anthony Stigliani, Frank Durgin, Zhi Li

33.541 **Does experience with a scene facilitate spatial layout judgments?** Noah Sulman, Thomas Sanocki

Object recognition: Selectivity and invariance

Vista Ballroom, Boards 542–556 Sunday, May 9, 8:30 - 12:30 pm

33.542 **Object selective responses without figure-ground segregation and visual awareness** Johannes J. Fahrenfort, Klaartje Heinen, Simon van Gaal, H. Steven Scholte, Victor. A. F. Lamme

33.543 **Decoding of object position using magnetoencephalography (MEG)** Thomas Carlson, Ryota Kanai, Hinze Hogendoorn, Juraj Mesik, Jeremy Turret

33.544 Perceiving and representing the orientation of objects: Evidence from a developmental deficit in visual orientation perception Emma Gregory, Michael McCloskey

33.545 **The "Inversion Effect" and Cortical Visual Processing** Viktoria Elkis, Dwight Kravitz, Chris Baker

33.546

The viewpoint debate revisited: What drives the interaction between viewpoint and shape similarity in object recognition? Pamela J Arnold, Charles Leek

33.547 **Differential viewpoint preference for objects and scenes reflects encoding and retrieval efficiency** J. Stephen Higgins, Ranxiao Frances Wang

33.548 Large Perspective Changes (>45°) Allow Metric Shape Perception Used to Recognize Quantitatively Different Objects Young Lim Lee, Geoffrey Bingham

33.549 **The role of visual orientation representation in the mental rotation of objects** David Rothlein, Michael McCloskey

33.550 **State-dependent TMS reveals rotation-invariant shape representations in Lateral Occipital Cortex and Occipital Face Area** Juha Silvanto, D. Samuel Schwarzkopf, Sharon Gilaie-Dotan, Geraint Rees

33.551 View-point dependent representation of objects in peripheral visual fields Naoki Yamamoto, Kiyoshi Fujimoto, Akihiro Yagi

33.552 **Conspicuity of Object Features Determines Local versus Global Mental Rotation Strategies** Farahnaz Ahmed, Alex Hwang, Erin Walsh, Marc Pomplun

33.553 **Invariant behavioural templates for object recognition in humans and rats** Ben Vermaercke, Hans Op De Beeck

33.554 **A Theory of Size-Invariance in Human Object Recognition** Li Zhao

33.555 **Robust object and face recognition using a biologically plausible model** Garrison Cottrell, Christopher Kanan

33.556 **Reading words and seeing style: The neuropsychology of word, font and handwriting perception** Jason Barton, Alla Sekunova, Claire Sheldon, Giuseppe Iaria, Michael Scheel

Sunday Afternoon Talks

Royal Ballroom 1-3

Eye movements: Top-down effects

Sunday, May 9, 2:45 - 4:15 pm Moderator: Anna Montagnini

2:45 pm 34.11 Anticipatory eye-movements under uncertainty: a window onto the internal representation of a visuomotor prior Anna Montagnini, David Souto, Guillaume Masson

3:00 pm 34.12 **Dynamic integration of saliency and reward information for saccadic eye movements** Alexander C. Schütz, Karl R. Gegenfurtner

3:15 pm 34.13 Visual Working Memory Influences the Speed and Accuracy of Simple Saccadic Eye Movements Andrew Hollingworth, Michi Matsukura, Steven J. Luck

3:30 pm 34.14 **The effect of previous implicit knowledge on eye movements in free viewing** Maolong Cui, Gergo Orban, Mate Lengyel, Jozsef Fiser

3:45 pm 34.15 A neural model of how rank-selective spatial working memory and the supplementary eye fields control sequences of saccadic eye movements Matthew Silver, Daniel Bullock, Stephen Grossberg, Mark Histed, Earl Miller

4:00 pm 34.16 **Dissociation of eye movement signals and perception during fixation** Laura Pérez Zapata, Antonio Aznar-Casanova, Hans Supèr

Spatial vision: Mechanisms and models

Sunday, May 9, 5:15 - 7:00 pm Moderator: Susana Chung

5:15 pm 35.11 **"Buffy contrast adaptation" with a single Gabor patch** Norma Graham, S. Sabina Wolfson, Ian Kwok, Boris Grinshpun

5:30 pm 35.12 The Role of Temporal Transients in Forward and Backward Masking John Foley

5:45 pm 35.13 Classification Images in Free-Localization Tasks with Gaussian Noise Craig Abbey, Miguel Eckstein

6:00 pm 35.14 **Optimal detection and estimation of defocus in natural images** Johannes Burge, Wilson Geisler

6:15 pm 35.15 **Spatial and Temporal Proximity of Objects for Maximal Crowding** Susana Chung, Saumil Patel

6:30 pm 35.16 **Targets uncrowd when they pop out** Bilge Sayim, Gerald Westheimer, Michael H. Herzog

6:45 pm 35.17 **Rapid Natural Image Identification Based on EEG data and Global Scene Statistics** Sennay Ghebreab, Steven Scholte, Victor Lamme, Arnold Smeulders

Royal Ballroom 4-5

Object recognition: Object and scene processing

Sunday, May 9, 2:45 - 4:15 pm Moderator: Gabriel Kreiman

2:45 pm 34.21 Contextual associations in the brain: past, present and future Moshe Bar

3:00 pm 34.22 **Mechanisms of perceptual organization provide auto-zoom and auto-localization for attention to objects** Stefan Mihalas, Yi Dong, Rudiger von der Heydt, Ernst Niebur

3:15 pm 34.23 **Robustness to image clutter in human visual cortex** Gabriel Kreiman, Yigal Agam, Hesheng Liu, Calin Buia, Alexander Papanastassiou, Alexandra Golby, Joseph Madsen

3:30 pm 34.24 Task dependence and level of processing in category-specific regions of the ventral stream Pinglei Bao, Bosco S. Tjan

3:45 pm 34.25 **Examining how the real-world size of objects is represented in ventral visual cortex** Talia Konkle, Aude Oliva

4:00 pm 34.26 **Depth Structure from Shading Enhances Face Discrimination** Chien-Chung Chen, Chin-Mei Chen, Christopher Tyler

Search: Eye movements and mechanisms

Sunday, May 9, 5:15 - 7:00 pm Moderator: Ruth Rosenholtz

5:15 pm 35.21 **Predicting contextual locations in natural scenes from neural activity** Koel Das, Fei Guo, Barry Geisbrecht, Miguel P. Eckstein

5:30 pm 35.22 **Materials: Easy to identify but hard to find** Loretta Myers, Jeremy Wolfe

5:45 pm 35.23 **An Ideal Saccadic Targeting Model Acting on Pooled Summary Statistics Predicts Visual Search Performance** Ruth Rosenholtz, Livia Ilie, Benjamin J. Balas

6:00 pm 35.24 Active search for multiple targets is inefficient Preeti Verghese

6:15 pm 35.25 **Neural basis of object memory during visual search** Kelly Shen, Martin Paré

6:30 pm 35.26 **Selective conjunctive suppression in visual search for motion – form conjunctions** Kevin Dent, Jason Braithwaite, Harriet Allen, Glyn Humphreys

6:45 pm 35.27 **Identifying social and non-social change in natural scenes: children vs.adults, and children with and without autism** Bhavin Sheth, James Liu, Olayemi Olagbaju, Larry Varghese, Rosleen Mansour, Stacy Reddoch, Deborah Pearson, Katherine Loveland

Sunday Afternoon Posters

Neural mechanisms: Neurophysiology and theory

Royal Ballroom 6-8, Boards 301-314

Sunday, May 9, 2:45 - 6:45 pm

36.301 The role of inhibition in formatting visual information in the retina and LGN Daniel Butts, Alexander Casti

36.302 **Predicting Orientation Selectivity in Primary Visual Cortex** Anushka Anand, Jennifer Anderson, Tanya Berger-Wolf

36.303 **'Black' dominance measured with different stimulus ensembles in macaque primary visual cortex V1** Chun-I Yeh, Dajun Xing, Robert M. Shapley

36.304 Recurrent amplification in V1 cortex as the mechanism of black-dominant visual perception Dajun Xing, Chun-I Yeh, Robert Shapley

36.305 **Relative Disparity in V2 Due to Inhibitory Peak Shifts of Absolute Disparity in V1** Karthik Srinivasan, Stephen Grossberg, Arash Yazdanbakhsh

36.306 Roles of Early Vision for the Dynamics of Border-Ownership Selective Cells Nobuhiko Wagatsuma, Takaaki Mishima, Tomoki Fukai, Ko Sakai

36.307 Chromatic Detection in Non-Human Primates: Neurophysiology and Comparison with Human Chromatic Sensitivity Charles Hass, Gregory Horwitz

36.308 **Response to motion contrast in macaque V2** Jie Lu, Anna Roe, Haidong Lu

36.309 **Encoding of brief time interval judgments in single neurons** J. Patrick Mayo, Marc A. Sommer

36.310 Direction selectivity of center-surround interactions in **macaque MT** Roberto Cipriani, Christopher Pack

36.311 **Responses of MT neurons to type II plaid stimuli** Farhan Khawaja, Christopher Pack

36.312 **How STS recognizes actions: Predicting single-neuron responses in higher visual cortex** Cheston Tan, Jedediah Singer, Thomas Serre, David Sheinberg, Tomaso Poggio

36.313 Origins of Shape Selectivity in the Lateral Intraparietal Area (LIP) Heida M. Sigurdardottir, David L. Sheinberg

36.314 Virtual Multi-Unit Electrophysiology: Inferring neural response profiles from fMRI data Rosemary Cowell, David Huber, Garrison Cottrell, John Serences

Perception and action: Pointing and hitting

Royal Ballroom 6-8, Boards 315-332

Sunday, May 9, 2:45 - 6:45 pm

36.315 Sequence effects during manual aiming: A departure from Fitts's Law? Darian Cheng, John DeGrosbois, Jonathan Smirl, Gordon Binsted

36.316 **The effect of target visibility on updating rapid pointing** Anna Ma-Wyatt, Emma Stewart 36.317 Comparing chromatic and luminance information in online correction of rapid reaching Adam Kane, Anna Ma-Wyatt

36.318 Effect of speed overestimation on manual hitting at low luminance Maryam Vaziri Pashkam, Patrick Cavanagh

36.319 Extrapolation of target movement is influenced by the preceding velocities rather than by the mean velocity Oh-Sang Kwon, David Knill

36.320 Perceiving and controlling actions: Visually perceived distances map onto different forms of throwing as a function of the ball's weight and constraints on throwing actions John Rieser, Aysu Erdemir, Gayathri Narasimham, Joseph Lappin, Herbert Pick

36.321 **Noise Modulation in the Dorsal and Ventral Visual Pathways** Jennifer Anderson, Michael Levine

36.322 Event-related potential (ERP) reflections of perceptual requirements during the planning of delayed action Leanna Cruikshank, Jeremy Caplan, Anthony Singhal

36.323 **Testing the spatial reference frames used for manual inter-ception** Joost C. Dessing, J. Douglas Crawford, W. Pieter Medendorp

36.324 **Spider-phobia influences conscious, but not unconscious, control of visually guided action** Kim-Long Ngan Ta, Geniva Liu, Allison A. Brennan, James T. Enns

36.325 **Motor output effect of objects presented in the blindspot** Damon Uniat, Frank Colino, John De Grosbois, Darian Cheng, Gordon Binsted

36.326 Extrinsic manipulations of the mental number line do not impact SNARC-related influences on the planning and control of action Jeffrey Weiler, Ali Mulla, Taryn Bingley, Matthew Heath

36.327 Visuomotor mental rotation: Reaction time is determined by the complexity of sensorimotor transformations supporting the response Kristina Neely, Matthew Heath

36.328 **EEG microstates during visually guided reaching** John de Grosbois, Frank Colino, Olav Krigolson, Matthew Heath, Gordon Binsted

36.329 **Rapid Visuomotor Integration of flanking valenced objects** Francisco Colino, John De Grosbois, Gavin Buckingham, Matthew Heath, Gordon Binsted

36.330 Digit magnitude does not influence the spatial parameters of goal-directed reaching movements Taryn Bingley, Matthew Heath

36.331 Bimanual Interaction in Pointing to a Common Visual Target with Unseen Hands Wenxun Li, Leonard Matin

36.332 **Quantitative Treatment of Bilateral Transfer** Leonard Matin, Wenxun Li

Perceptual learning: Sensory plasticity and adaptation

Orchid Ballroom, Boards 401–414 Sunday, May 9, 2:45 - 6:45 pm

36.401 Neural correlates of perceptual learning in the human visual cortex Janneke Jehee, Sam Ling, Jascha Swisher, Frank Tong

36.402 Perceptual learning recruits both dorsal and ventral extrastriate areas Yetta K. Wong, Jonathan R. Folstein, Isabel Gauthier

36.403 **Top-down attention is facilitati ve, but not obligatory, in perceptual learning to reduce sensory eye dominance** Jingping P. Xu, Zijiang J. He, Teng Leng Ooi

36.404 Short Term Adaptation of Visual Search Strategies in Simulated Hemianopia Sara Simpson, Mathias Abegg, Jason JS Barton

36.405 **Effects of adaptation on orientation discrimination** Erika Scilipoti, Leslie Welch

36.406 **Short-term components of visuomotor adaptation to prism-induced distortion of distance** Anne-Emmanuelle Priot, Rafael Laboissière, Claude Prablanc, Olivier Sillan, Corinne Roumes

36.407 **Does sleep influence how we see the world around us?** Huy Nguyen, Greg Whittaker, Scott Stevenson, Bhavin Sheth

36.408 **External Feedback Networks and Perceptual Learning** Marcus Grueschow, Hans-Jochen Heinze, Oliver Speck, John-Dylan Haynes

36.409 **Perceptual learning increases motion discrimination of low contrast Gabors in older observers** Jeffrey D. Bower, George J. Andersen

36.410 **Learning subliminal cues for predictive decision making** Yina Tsai, Tsung-Ren Huang, Takeo Watanabe

36.411 Estimating psychometric functions in nonstationary observers Ingo Fründ, N. Valentin Haenel, Felix A. Wichmann

36.412 **Pre-exposure interferes with perceptual learning for ambiguous stimuli** Loes van Dam, Marc Ernst, Benjamin Backus

36.413 **The Role of Gist in Dyslexia** Matthew H. Schneps, James Brockmole, Amanda Heffner-Wong, Marc Pomplun, Alex D. Hwang, Gerhard Sonnert

36.414 **Repeated contextual search cues lead to reduced BOLDonset times in early visual and left inferior frontal cortex** Stefan Pollmann, Angela Manginelli

Color and light: Lightness and brightness

Orchid Ballroom, Boards 415–431 Sunday, May 9, 2:45 - 6:45 pm

36.415 **The staircase Kardos effect: An anchoring role for lowest luminance?** Stephen Ivory, Alan Gilchrist

36.416 **Bayesian and neural computations in lightness perception** Michael E. Rudd

36.417 Illusory lightness perception due to signal compression and reconstruction Cornelia Fermuller, Yi Li

36.418 **Local computation of brightness on articulated surrounds** Masataka Sawayama, Eiji Kimura

36.419 **Can luminance contrast be estimated with real light?** James Schirillo, Matthew Riddle, Rumi Tokunaga, Alexander Logvinenko

36.420 **On the relationship between luminanc increment thresholds and apparent brightness** Marianne Maertens, Felix A. Wichmann

36.421 Feedback does not cleanse brightness judmements of contrast and assimilation effects Steven Kies, Charles Chubb

36.422 **Optic flow strongly affects brightness** Yury Petrov, Jiehui Qian

36.423 **The Neural Locus Underlying Perception of the Craik-O'Brien-Cornsweet Effect** Anthony D'Antona, Ari Rosenberg, Steven Shevell 36.424 Filling-in versus multiscale filtering: Measuring the speed and magnitude of brightness induction as a function of distance from an inducing edge Barbara Blakeslee, Mark McCourt

36.425 **Perception Begets Reality: A "Contrast-Contrast" Koffka Effect** Abigail Huang, Megha Shah, Alice Hon, Eric Altschuler

36.426 **Response priming driven by local contrast, not subjective brightness** Thomas Schmidt, Sandra Miksch, Lisa Bulganin, Florian Jäger, Felix Lossin, Joline Jochum, Peter Kohl

36.427 The effect of contrast intensity and polarity in achromatic watercolor effect Bo Cao, Arash Yazdanbakhsh, Ennio Mingolla

36.428 **Response classification analysis of the maintenance of contrast for an object** Steven Shimozaki

36.429 **Snake illusion, edge classification, and edge curvature** Dejan Todorović, Sunčica Zdravković

36.430 Impairment of Magnocellular and Parvocellular Visual Processing in Normal Aging: Rehabilitation by Yellow Filters or Placebo Effect? Quentin Lenoble, Hélène Amieva, Sandrine Delord

36.431 **Macular Pigment Reduces Visual discomfort** Max Snodderly, James Stringham

Attention: Capture

Orchid Ballroom, Boards 432–450

Sunday, May 9, 2:45 - 6:45 pm

36.432 **Orientation-specific control of attention** Feng Du, Richard Abrams

36.433 **Biological Motion Captures Attention** Jay Pratt, Petre Radulescu, Ruo Guo, Naseem Al-Aidroos, Richard Abrams

36.434 **The effect of motion onset and motion quality on attentional capture in visual search** Adrian von Muhlenen, Meera Mary Sunny

36.435 Interaction between stimulus-driven orienting and topdown modulation in attentional capture Hsin-I Liao, Su-Ling Yeh

36.436 **Overt and covert capture of attention by magnocellular and parvocellular singletons** Carly J. Leonard, Steven J. Luck

36.437 Attentional capture by objecthood is unaffected by salience in other dimensions Benjamin Tamber-Rosenau, Jeff Moher

36.438 Contingent attentional capture influences performance not only by depleting limited target processing resources, but also by changing attentional control settings Katherine S. Moore, Elise F. Darling, Jillian B. Steinberg, Erika A. Pinsker, Daniel H. Weissman

36.439 Attention capture by an invisible flicker not in the middle of gamma range Ming Zhang, Yang Zhang, Sheng He

36.440 **Relative Contributions of SPL and TPJ to Object-based Attentional Capture** Sarah Shomstein, Sarah Mayer-Brown, Erik Wing, Silas Larsen

36.441 **Covert attention can be captured by an illusory Focus of Expansion** Michael von Grünau, Tomas Matthews, Mikael Cavallet

36.442 The interaction between memorized objects and abrupt onsets in oculomotor capture: New insights in the architecture of oculomotor programming Matthew S. Peterson, Jason Wong

36.443 **Attention to faces: Effects of face inversion** Bettina Olk, Andrea M. Garay-Vado

36.444 **Hitting the brakes: Is attention capture reduced with slower responding?** Andrew B. Leber, Jennifer R. Lechak, Sarah M. Tower-Richardi

36.445 **Commonality between attentional capture and attentional blink** Jun Kawahara, Ken Kihara

36.446 Advance Knowledge of Potential Distractors Influences Competition between Color Salience and Perceptual Load Adam Biggs, Brad Gibson

36.447 Non-contingent attention capture by an onset Fook Chua

36.448 Attentional capture by masked colour stimuli Ulrich Ansorge

36.449 **Invisible causal capture in the tunnel effect** Gi Yeul Bae, Jonathan Flombaum

36.450 **The anatomy of superior parietal cortex links everyday distractibility with attentional capture** Mia Dong, Ryota Kanai, Bahador Bahrami, Geraint Rees

Attention: Brain and behavior I

Orchid Ballroom, Boards 451–459 Sunday, May 9, 2:45 - 6:45 pm

36.451 **MEG activity in visual areas of the human brain during target selection and sustained attention** Julio Martinez-Trujillo, Therese Lennert, Roberto Cipriani, Pierre Jolicoeur, Douglas Cheyne

36.452 **Bilateral Visual Orienting with Adults Using a Modified Posner Paradigm and a Candidate Gene Study** Rebecca Lundwall, James Dannemiller

36.453 **Neural signatures of local and global biases induced by automatic versus controlled attention** Alexandra List, Aleksandra Sherman, Anastasia V. Flevaris, Marcia Grabowecky, Satoru Suzuki

36.454 **Event-related potential evidence for a dual-locus model of global/local processing** Kirsten Dalrymple, Alan Kingstone, Todd Handy

36.455 Finding a salient stimulus: Contributions of monkey prefrontal and posterior parietal cortex in a bottom-up visual attention task Fumi Katsuki, Christos Constantinidis

36.456 **The Effect of Spatial Attention on Pupil Dynamics** Howard Hock, Lori Daniels, David Nichols

36.457 The Effects of Voluntary Attention on the Event-Related Potentials and Gamma-Band Response of EEG Allison E. Connell Pensky, Ayelet Landau, William Prinzmetal

36.459 Interactivity between the left intraparietal sulcus and occipital cortex in ignoring salient distractors: Evidence from neuropsychological fMRI Carmel Mevorach, Harriet Allen, John Hodsoll, Lilach Shalev, Glyn Humphreys

3D perception: Pictorial cues

Vista Ballroom, Boards 501–512 Sunday, May 9, 2:45 - 6:45 pm

36.501 Shape from Smear Roland Fleming, Daniel Holtmann-Rice

36.502 The perception of 3D shape from contour textures Eric Egan, James Todd

36.503 Haptic learning disambiguates but does not override texture cues to 3-D shape Xin Meng, Qasim Zaidi

36.504 **Contributions of orientation and spatial frequency modulations in the perception of slanted surfaces** Danny Tam, Jane Shin, Andrea Li

36.505 **A spherical harmonic model for 3D shape discrimination** Flip phillips, Eric Egan, Josh Lesperance, Kübra Kömek 36.506 **Depth cue combination in spontaneous eye movements** Dagmar Wismeijer, Casper Erkelens, Raymond vanEe, Mark Wexler

36.507 Relative contribution of outline (perspective) and shading cues to monocular depth perception Glen Harding, Marina Bloj, Julie Harris

36.508 **The influence of shape cues on detecting lighting inconsistencies** James O'Shea, Maneesh Agrawala, Martin Banks

36.509 A transfer-across-depth-cues study of the ability of infants to access a representation of 3-D shape from shading and line-

junction information Aki Tsuruhara, Tadamasa Sawada, So Kanazawa, Masami K. Yamaguchi, Albert Yonas

36.510 Large Amounts of Optical Blur Greatly Reduce Visual Acuity but Have Minimal Impacts upon 3-D Shape Discrimination Amanda Beers, J. Farley Norman, Jessica Swindle, Alexandria Boswell

36.511 **The perception of physical stability of 3D objects: The role of parts** Steven A. Cholewiak, Manish Singh, Roland Fleming, Bina Pastakia

36.512 Visualizing the relations between slices and wholes is facilitated by co-location Bing Wu, Roberta L. Klatzky, George Stetten

Face perception: Features

Vista Ballroom, Boards 513–528 Sunday, May 9, 2:45 - 6:45 pm

36.513 **Integration of facial features is sub-optimal** Jason Gold, Bosco Tjan, Megan Shotts, Patrick Mundy

36.514 There can be only one: Change detection is better for singleton faces, but not for faces in general Whitney N. Street, Sean Butler, Melinda S. Jensen, Richard Yao, James W. Tanaka, Daniel J. Simons

36.515 **The SHINE toolbox for controlling low-level image properties** Verena Willenbockel, Javid Sadr, Daniel Fiset, Greg Horne, Frédéric Gosselin, James Tanaka

36.516 **The role of contour information in the spatial frequency tuning of upright and inverted faces** Daniel Fiset, Verena Willenbockel, Mélanie Bourdon, Martin Arguin, Frédéric Gosselin

36.517 Different spatial frequency tuning for face identification and facial expression recognition in adults Xiaoqing Gao, Daphne Maurer

36.518 Using Spatial Frequency to Distinguish the Perceptual Representations of Identity and Emotional Expressions Danelle A. Wilbraham, James T. Todd

36.519 Facial contrast polarity affects FFA uniquely in humans and **monkeys** Xiaomin Yue, Kathryn Devaney, Daphne Holt, Roger Tootell

36.520 **The Recognition of Faces, Airplanes, and Novel Objects is Impaired by Contrast Reversal** Amanda Killian, Quoc Vuong, Jean Vettel, Jessie Peissig

36.521 Hemispheric specialization for the processing of horizontal and vertical manipulations of the eye region in faces Michael D. Anes, Daniel E. Kochli

36.522 How first-order information contributes to face discrimination in nonhuman primates Jessica Taubert, Lisa Parr, David Murphy-Aagten

36.523 **Recognizing people from dynamic video: Dissecting identity information with a fusion approach** Alice O'Toole, Samuel Weimer, Joseph Dunlop, Robert Barwick, Julianne Ayyad, Jonathan Phillips

36.524 **Face viewpoint aftereffect in peripheral vision** Marwan Daar, Hugh R. Wilson

36.525 **Is Face-Space a Solution to the Invariance Problem?** Idan Blank, Galit Yovel

36.526 **The role of features and spatial relations in adaptation of facial identity** Paul Pichler, Ipek Oruç, Jason Barton

36.527 **Visual attractiveness is leaky (2): hair and face** Chihiro Saegusa, Eiko Shimojo, Junghyun Park, Shinsuke Shimojo

36.528 **An attractiveness function for human faces** Christopher Said, Alexander Todorov

Scene perception: Mechanisms

Vista Ballroom, Boards 529-539

Sunday, May 9, 2:45 - 6:45 pm

36.529 Neural Coding of Scene Volume: the Size of Space Represented across the PPA and LOC Soojin Park, Talia Konkle, Aude Oliva

36.530 Using V1-Based Models to Predict Blur Detection and Perception in Natural Scenes Pei Ying Chua, Michelle P.S. To, David J. Tolhurst

36.531 **Spatiotemporal chromatic statistics of the natural world** Filipe Cristino, P. George Lovell, Iain D. Gilchrist, David J. Tolhurst, Tomasz Troscianko, Chris P. Benton

36.532 Anisotropic Gain Control Pools Are Tuned In Temporal Frequency As Well As Spatial Frequency And Orientation Yeon Jin Kim, Edward A. Essock

36.533 The Nature of Perceptual Averaging: Automaticity, Selectivity, and Simultaneity Alice R. Albrecht, Brian J. Scholl

36.534 Effective Acuity for Low-Pass Filtering of Real World Images Amy A. Kalia, Gordon E. Legge, Christopher S. Kallie

36.535 Factors influencing the detectability of pedestrians in urban environments David Engel, Cristóbal Curio

36.536 **Framework and implementation for perception** Lior Elazary, Laurent Itti

36.537 Black, White, or Neutral Gray Blank Screens Have Differential Effects on Scene Gist Masking Tyler Freeman, Lester Loschky, Ryan Ringer, Caroline Kridner

36.538 Attention modulates gist performance between central and peripheral vision Adam Larson, Lester Loschky, Ryan Ringer, Caroline Kridner

36.539 Multi-Event Scene Perception at an Ecologically Representative Scale Thomas Sanocki, Noah Sulman

Binocular vision: Stereo mechanisms

Vista Ballroom, Boards 540-547

Sunday, May 9, 2:45 - 6:45 pm

36.540 **The limit of spatial resolution for joint stereo disparity / motion perception** Fredrik Allenmark, Jenny Read

36.541 **Effects of image statistics on stereo coding in human vision** Keith May, Li Zhaoping, Paul Hibbard

36.542 **Using numerosity to explore monocular regions in binocular scenes** Katharina M Zeiner, Manuel Spitschan, Julie M Harris

36.543 **Neural activity in higher dorsal visual areas relates to the discrimination of disparity-defined depth position** Matthew Patten, Andrew Welchman

36.544 **Visual Fusion and Binocular Rivalry in Cortical Visual Areas** Stefan Kallenberger, Constanze Schmidt, Torsten Wüstenberg, Hans Strasburger 36.545 **Binocular coordination: Reading stereoscopic sentences in**

depth Elizabeth Schotter, Hazel Blythe, Julie Kirkby, Keith Rayner, Simon Liversedge

36.546 **Suppression in Intermittent Exotropia during fixation** Ignacio Serrano-Pedraza, Vina Manjunath, Olaoluwakitan Osunkunle, Michael P. Clarke, Jenny C. A. Read

36.547 **"What" constrains "where": Perceptual interactions between object shape and object location** Valentinos Zachariou, Marlene Behrmann, Roberta Klatzky

Temporal processing: Mechanisms and models

Vista Ballroom, Boards 548-556

Sunday, May 9, 2:45 - 6:45 pm

36.548 **Targets lurking behind a mask: Suppression of onset transient causes mislocalization of targets** Arielle Veenemans, Patrick Cavanagh

36.549 **Apparent contrast peaks, rather than plateaus, as a function of stimulus duration** Hector Rieiro, Susana Martinez-Conde, Jose Luis Pardo-Vazquez, Nishit Srivastava, Stephen L. Macknik

36.550 **The temporal profile of visual information sampling and integration** Caroline Blais, Martin Arguin, Frédéric Gosselin

36.551 **Temporal extinction in hemi-neglect patients** Marie de Montalembert, Pascal Mamassian

36.552 **Reaction time and event-related potentials to visual, auditory and vestibular stimuli** Michael Barnett-Cowan, Hugh Nolan, John S. Butler, John J. Foxe, Richard B. Reilly, Heinrich H. Bülthoff

36.553 **The effects of aging on surround modulation of backward contrast masking** Lindsay E. Farber, Allison B. Sekuler, Patrick J. Bennett

36.554 **Temporal and spatial grouping: questions derived from studies in patients with schizophrenia** Laurence Lalanne, Anne Giersch

36.555 **Oppel-Kundt illusion weakens with shortening of the time presentations** Tadas Surkys, Algis Bertulis, Arunas Bielevicius, Aleksandr Bulatov

36.556 **Controlling the timing of oscillations in neural activity and consciousness with rhythmic visual stimulation** Kyle Mathewson, Christopher Prudhomme, Monica Fabiani, Diane Beck, Gabriele Gratton, Alejandro Lleras

Royal Ballroom 1-3

Binocular vision: Models and mechanisms

Monday, May 10, 8:15 - 10:00 am Moderator: Zhong-Lin Lu

8:15 am 41.11 Evidence that disparities defined by luminance and contrast are sensed by independent mechanisms B.M. Sheliga, E.J. FitzGibbon, F.A. Miles

8:30 am 41.12 Local and non-local effects on surface-mediated stereoscopic depth Barbara Gillam, Harold Sedgwick, Phillip Marlow

8:45 am 41.13 Biases and thresholds for depth perception from monocular regions of binocular scenes Julie M. Harris, Danielle Smith

9:00 am 41.14 Depth magnitude and binocular disparity: a closer look at patent vs. qualitative stereopsis Debi Stransky, Laurie Wilcox

9:15 am 41.15 **Shape aftereffects require awareness** Timothy Sweeny, Marcia Grabowecky, Satoru Suzuki

9:30 am 41.16 **Phase-Independent Contrast Combination in Binocular Vision** Jiawei Zhou, Chang-Bing Huang, Zhong-Lin Lu, Yifeng Zhou

9:45 am 41.17 **Perisaccadic Stereopsis from Zero Retinal Disparity** Zhi-Lei Zhang, Christopher Cantor, Clifton Schor

Perception and action: Pointing, reaching, and grasping

Monday, May 10, 11:00 - 12:30 pm Moderator: Eli Brenner

11:00 am 42.11 Why we need continuous visual control to intercept a moving target Eli Brenner, Jeroen BJ Smeets

11:15 am 42.12 **The 'automatic pilot' for the hand in patients with hemispatial neglect** Stephanie Rossit, Robert McIntosh, Paresh Malhotra, Stephen Butler, Monika Harvey

11:30 am 42.13 Neural substrates of target selection for reaching movements in superior colliculus Joo-Hyun Song, Robert Rafal, Robert McPeek

11:45 am 42.14 **Developmental studies of visual-motor integration: A comparative approach** Lynne Kiorpes, Gardiner von Trapp, Amelie Pham, Jesse Lingeman, Kasey Soska, Karen Adolph, Claes von Hofsten, Kerstin Rosander

12:00 pm 42.15 Mapping Shape to Visuomotor Mapping: Generalization to Novel Shapes Marc Ernst, Loes van Dam

12:15 pm 42.16 **Divergent representations of manipulable and nonmanipulable objects revealed with repetition blindness** Irina Harris, Alexandra Murray, William Hayward, Claire O'Callaghan, Sally Andrews

Monday Morning Talks

Royal Ballroom 4-5

Attention: Time

Monday, May 10, 8:15 - 10:00 am Moderator: Khena Swallow

8:15 am 41.21 **Do We Experience Events in Terms of Time or Time in Terms of Events?** Brandon M. Liverence, Brian J. Scholl

8:30 am 41.22 **The Attentional Boost Effect and Temporal Synchrony** Khena Swallow, Yuhong Jiang

8:45 am 41.23 Attentional modulation of the temporal contrast sensitivity Isamu Motoyoshi

9:00 am 41.24 Silent updating: cross-dimensional change suppression Jordan Suchow, George Alvarez

9:15 am 41.25 **Competing for consciousness: Reduced object substitution masking with prolonged mask exposure** Stephanie Goodhew, Troy Visser, Ottmar Lipp, Paul Dux

9:30 am 41.26 **Delayed reentrant processing impairs visual awareness: An object substitution masking study** Paul E. Dux, Troy A. W. Visser, Stephanie C. Goodhew, Ottmar V. Lipp

9:45 am 41.27 Explicit Auditory Discrimination Improves During the Visual Attentional Blink Keren Haroush, Shaul Hochstein

Object recognition: Categories

Monday, May 10, 11:00 - 12:30 pm Moderator: Sharon Gilaie-Dotan

11:00 am 42.21 Location information in category-selective areas: retinotopic or spatiotopic? Julie Golomb, Nancy Kanwisher

11:15 am 42.22 **The functional neuroanatomy of object agnosia: A case study** Christina Konen, Mayu Nishimura, Marlene Behrmann, Sabine Kastner

11:30 am 42.23 **Fast decoding of natural object categories from intracranial field potentials in monkey's visual cortex** Maxime Cauchoix, Thomas Serre, Gabriel Kreiman, Denis Fize

11:45 am 42.24 **Giving the brain a hand: Evidence for a hand selective visual area in the human left lateral occipito-temporal cortex** Stefania Bracci, Magdalena Ietswaart, Cristiana Cavina-Pratesi

12:00 pm 42.25 **Top-down engagement modulates the neural expressions of visual expertise** Assaf Harel, Sharon Gilaie-Dotan, Rafael Malach, Shlomo Bentin

12:15 pm 42.26 Trade-off between spatial resolution and grayscale coding for letter recognition MiYoung Kwon, Gordon Legge

Monday Morning Posters

Eye movements: Selection and cognition

Royal Ballroom 6-8, Boards 301-315

Monday, May 10, 8:30 - 12:30 pm

43.301 **Orientation statistics at fixation** Deep Ganguli, Jeremy Freeman, Umesh Rajashekar, Eero Simoncelli

43.302 Second-order saliency predicts observer eye movements when viewing natural images Aaron Johnson, Azarakhsh Zarei

43.303 What is the shape of the visual information that drives saccades in natural images? Evidence from a gaze-contingent display Tom Foulsham, Robert Teszka, Alan Kingstone

43.304 **Temporal scramble disrupts eye movements to naturalistic videos** Helena Wang, Jeremy Freeman, Elisha P. Merriam, Uri Hasson, David J. Heeger

43.305 **Suboptimal Choice of Saccade Endpoint in Search with Unequal Payoffs** John F. Ackermann, Michael S. Landy

43.306 **Eye movements during picture exploration and natural action** Céline Delerue, Muriel Boucart, Mary Hayhoe

43.307 Eye movement preparation affects target selection for manual reaching Michael Hegenloh, Donatas Jonikaitis

43.308 **Eye-hand coordination in finding and touching a target among distractors** Hang Zhang, Camille Morvan, Louis-Alexandre Etezad-Heydari, Laurence Maloney

43.309 Eye movement transition depends on tasks and stored information in **3-D** object recognition Yoshiyuki Ueda, Jun Saiki

43.310 **Saccade target selection in subjects cued to remember single or multiple visual features** David C Cappadocia, Michael Vesia, Patrick A Byrne, Xiaogang Yan, J Douglas Crawford

43.311 **Dynamic interactions between visual working memory and saccade planning** John Spencer, Sebastian Schneegans, Andrew Hollingworth

43.312 Visual information extraction for static and dynamic facial expression of emotions: an eye-tracking experiment Cynthia Roy, Caroline Blais, Daniel Fiset, Frédéric Gosselin

43.313 **Differences in Own- and Other-race Face Scanning in Infants** Andrea Wheeler, Gizelle Anzures, Paul Quinn, Olivier Pascalis, Alan Slater, Kang Lee

43.314 Are letters the correct unit to measure eye behaviour in reading? Testing the effect of character size on the launch site effect Marina Yao-N'dre, Eric Castet, Françoise Vitu

43.315 **Line bisection in simulated homonymous hemianopia** Anish Mitra, Jaya Viswanathan, Mathias Abegg, Jason Barton

Memory: Brain mechanisms of working and short-term memory

Royal Ballroom 6-8, Boards 316-330

Monday, May 10, 8:30 - 12:30 pm

43.316 Electrophysiological evidence of interhemispheric resource recruitment during visual working memory Benjamin D. Lester, Trafton Drew, Edward K. Vogel

43.317 In and out of consciousness - the role of visual short-term **memory** Carson Pun, Stephen M. Emrich, Susanne Ferber

43.318 Working memory, feature-based attention, and their interaction modulate the perception of motion direction in human observers Diego Mendoza, Megan Schneiderman, Julio Martinez-Trujillo

43.319 **The Role of Selective Attention in Visual Working Memory Capacity: An ERP study** Johanna Kreither, Javier Lopez-Calderon, Francisco Aboitiz, Steven Luck

43.320 What are the differences between comparing visual working memory representations with perceptual inputs and comparing two perceptual representations? Joo-Seok Hyun, Steven Luck

43.321 **Role of LIP persistent activity in visual working memory** Kevin Johnston, Emiliano Brunamonti, Neil Thomas, Martin Pare

43.322 A biased-competition account of VSTM capacity limits as revealed by fMRI Niklas Ihssen, David Linden, Kimron Shapiro

43.323 $\alpha\text{-oscillations}$ and the fidelity of visual memory \mbox{Jie} Huang, Robert Sekuler

43.324 **An electrophysiological measure of visual short-term memory capacity within and across hemifields** Jean-Francois Delvenne, Laura Kaddour, Julie Castronovo

43.325 A contribution of persistent FEF activity to object-based working memory? Kelsey Clark, Behrad Noudoost, Tirin Moore

43.326 Using Multi-Voxel Pattern Analysis to explore the role of retinotopic visual cortex in visual short-term memory: mapped memories or plain prospective attention? Alejandro Vicente-Grabovetsky, Rhodri Cusack

43.327 **Dissociating feature complexity from number of objects in VSTM storage using the contralateral delay activity** Maha Adamo, Kristin Wilson, Morgan D. Barense, Susanne Ferber

43.328 Accessing a working memory representation delays updating that representation Judith Fan, George Alvarez

43.329 **Visual Short-Term Memory Load Induced Blindness** Nikos Konstantinou, Bahador Bahrami, Geraint Rees, Nilli Lavie

43.330 **Comparing Working Memory for Visual Item versus Relational Information** Christopher Ackerman, Susan Courtney

Attention: Deciding where we look

Orchid Ballroom, Boards 401–412 Monday, May 10, 8:30 - 12:30 pm

43.401 **Role of different salient features in guiding gaze of monkeys with unilateral lesion of primary visual cortex** Laurent Itti, Masatoshi Yoshida, David Berg, Takuro Ikeda, Rikako Kato, Kana Takaura, Tadashi Isa

43.402 The effects of 2nd-order feature interactions in predicting human gaze Farhan Baluch, Laurent Itti

43.403 **Explaining visual fixation durations in scene perception: Are there indeed two distinct groups of fixations?** Sebastian Pannasch, Johannes Schulz, Boris Velichkovsky

43.404 The role of "rescue saccades" in tracking objects through occlusions Gregory Zelinsky, Andrei Todor

43.405 **Overt and Covert attention interact with curvature-based perceptual singularities** Liana Diesendruck, Ohad Ben-Shahar

43.406 Can't Take My Eyes Off of You: Delayed Attentional Disengagement Based on Attention Set Walter Boot, James Brockmole

43.407 Fatal attraction or reluctance to part: Is oculomotor disengagement independent of the initial capture of the eyes? Sabine Born, Dirk Kerzel, Jan Theeuwes

43.408 **Fixations on Low Resolution Images** Tilke Judd, Frédo Durand, Antonio Torralba

43.409 **Eye movements while viewing captioned and narrated videos** Nicholas M. Ross, Eileen Kowler

43.410 **Modeling gaze priorities in driving** Brian Sullivan, Constantin Rothkopf, Mary Hayhoe, Dana Ballard

43.411 **The Dynamics of Gaze When Viewing Dynamic Faces** Melissa Vo, Tim Smith, John Henderson

43.412 An Eye for Art: Effects of Art Expertise on the Visual Exploration of Drawings Johan Wagemans, Karen De Ryck, Peter De Graef

Attention: Mechanisms and models

Orchid Ballroom, Boards 413-424

Monday, May 10, 8:30 - 12:30 pm

43.413 **Comparing signal detection models of perceptual decision confidence** Brian Maniscalco, Hakwan Lau

43.414 The Attentional Attraction Field: Modeling spatial and temporal effects of spatial attention Orit Baruch, Yaffa Yeshurun

43.415 **Pre-Stimulus EEG Oscillations Reveal Periodic Sampling Of Visual Attention** Niko Busch, Rufin VanRullen

43.416 The role of salience-driven control in visual selection Mieke Donk

43.417 Unifying two theories of local versus global perception: Attention to relative spatial frequency is the medium for shapelevel integration Anastasia V. Flevaris, Shlomo Bentin, Lynn C. Robertson

43.418 How objects and spatial attention interact: Prefrontal-parietal interactions determine attention switching costs and their individual differences Nicholas C Foley, Stephen Grossberg, Ennio Mingolla

43.419 **Re-thinking the active-passive distinction in attention from a philosophical viewpoint** Carolyn Suchy-Dicey, Takeo Watanabe

43.420 Application of a Bottom-Up Visual Surprise Model for Event Detection in Dynamic Natural Scenes Randolph Voorhies, Lior Elazary, Laurent Itti

43.421 Perception of simultaneity is impaired in correspondence to the amount of allocated attention: Evidence from a visual prior entry study Katharina Weiß, Ingrid Scharlau

43.422 **fMRI evidence for top-down influences on perceptual distraction** Jocelyn Sy, Barry Giesbrecht

43.423 Modulation of attention decision thresholds is responsible for inter-trial biases of attention in the distractor previewing effect Yuan-Chi Tseng, Joshua Glaser, Alejandro Lleras

43.424 **Visual attention related to difficulty in n-back tasks** Sheila Crewther, Gemma Lamp, Andrea Sanchez-Rockliffe, David Crewther

Attention: Inattention and attention blindness

Orchid Ballroom, Boards 425–438 Monday, May 10, 8:30 - 12:30 pm

43.425 Attentional blink magnitude is predicted by the ability to keep irrelevant material out of working memory Karen Arnell, Shawn Stubitz

43.426 **Attentional Blink without Masking** Vincent Berthet, Sid Kouider

43.427 **Word Superiority within the Attentional Blink** Elena Gorbunova, Maria Falikman

43.428 **T1 difficulty modulates the attentional blink only when T1 is unmasked** Simon Nielsen, Tobias Andersen

43.429 **Boosting back to the future: Explaining order reversals in the attentional blink** Christian Olivers, Frederic Hilkenmeier, Martijn Meeter, Ingrid Scharlau

43.430 **Specific Task Strategies Affect Repetition Blindness** Winnie Chan, William Hayward

43.431 High perceptual load does not induce inattentional blindness or early selection Joshua Cosman, Shaun Vecera

43.432 Blind, Blinder, Blindest: Individual differences in change blindness and inattentional blindness Melinda S. Jensen, Daniel J. Simons

43.433 Change Blindness: A Comparison of Selective Attention of Novice and Experienced Drivers Andrew F. Osborn, D. Alfred Owens

43.434 Synchronous Motion-Induced Blindness and Disappearance of a Ring Seiichiro Naito

43.435 **Attention modulates perceptual rivalry within after-images** Peter Tse, Peter Kohler, Eric Reavis

43.436 **Distractor Evaluation affects Awareness under High Load** Rashmi Gupta, Narayanan Srinivasan

43.437 **Gist perception requires attention** Michael Cohen, George Alvarez, Ken Nakayama

43.438 **The Attentional Cost of Feature-based Inhibition** Lucy Andrews, Jason Braithwaite, Derrick Watson, Johan Hulleman, Glyn Humphreys

Perceptual organization: Grouping and segmentation

Orchid Ballroom, Boards 439–458 Monday, May 10, 8:30 - 12:30 pm

43.439 **Target Discrimination Performance Reveals That Competition For Figural Status Entails Mutual Inhibition** Laura Cacciamani, Mary A. Peterson

43.440 Contour Shape Processing: Contrast Polarity and Perceived Aspect Ratio Branka Spehar, Luke Vu

43.441 **One complex representation is more than two simple ones: Insight from schizophrenia** Anne Giersch, Mitsouko Van Assche

43.442 Grouping of orientation but not position cues in the absence of awareness D. Samuel Schwarzkopf, Geraint Rees

43.443 Finding the egg in the snow: The effects of spatial proximity and collinearity on contour integration in adults and children Bat-Sheva Hadad, Daphne Maurer, Terri L. Lewis

43.444 The role of grouping in shape formation: New effects due to the directional symmetry Jurgis Skilters, Maria Tanca, Baingio Pinna

43.445 **Visual grouping in Gabor lattices: a psychophysical and computational study** Nathalie Van Humbeeck, Johan Wagemans, Roger Watt

43.446 Creating links in empty space: an fMRI study of perceptual organization Mitsouko van Assche, Anne Giersch

43.447 Perceptual Organization based on Gestalts: Emergent Features in Two-Line Space Anna Stupina, James Pomerantz

43.448 Classification of seismic images depends on perceptual skill more than geological expertise Walter Gerbino, Chiara Micelli

43.449 **Representing grating-texture surface begins with spreading of grating-texture from the surface boundary contour** Yong R Su, Teng Leng Ooi, Zijiang J He

43.450 **Contribution of motion parallax to depth ordering, depth magnitude and segmentation** Ahmad Yoonessi, Curtis Baker

43.451 **Local propagation of border-ownership** Vicky Froyen, Jacob Feldman, Manish Singh

43.452 Neural adaptation reveals cultural tuning in local/global processing David J. Kelly, Luca Vizioli, Ania Dzieciol, Roberto Caldara

43.453 Detection of Closure Reverses Unilateral Field Advantage for Repetition Detection Serena Butcher, Marlene Behrmann

43.454 **The visual attractor illusion** Tal Makovski, Khena M. Swallow, Yuhong V. Jiang

43.455 **Collinear Facilitation Is Recovered Across Disparities by Embedding in a Slanted Surface** Pi-Chun Huang, Chien-Chung Chen, Christopher Tyler

43.456 **The effect of background grouping on central task in patients with parietal lobe lesions** Setu Havanur, Glyn Humphreys, Harriet Allen

43.457 **A new approach to modeling Figure-Ground Organization** Joseph Catrambone, Stephen Sebastian, Peter Kvam, Tadamasa Sawada, Robert Steinman, Zygmunt Pizlo

43.458 On the relative dominance of global and local shape features in generalization: Moderating variables and general principles Bart Ons, Johan Wagemans

Motion: Mechanisms and models

Vista Ballroom, Boards 501–512 Monday, May 10, 8:30 - 12:30 pm

43.501 **Role of form cues in second-order motion pooling** Carlos Cassanello, Mark Edwards, Shin'ya Nishida, David Badcock

43.502 **The role of form cues in the pooling of 1D and 2D motion signals** Mark Edwards, Carlos Cassanello, David Badcock, Shin'ya Nishida

43.503 **Different pooling of motion information for perceptual speed discrimination and behavioral speed estimation** Claudio Simoncini, Laurent U. Perrinet, Anna Montagnini, Pascal Mamassian, Guillaume S. Masson

43.504 **A dynamical neural model of motion integration** Émilien Tlapale, Guillaume S. Masson, Pierre Kornprobst

43.505 A model of figure-ground segregation from texture accretion and deletion in random dot motion displays Timothy Barnes, Ennio Mingolla 43.506 Humans assume isotropic orientation structure when solving the 'aperture problem' for motion David Kane, Peter Bex, Steven Dakin

43.507 Feature invariant spatial pooling of first- and second-order motion signals for solution of aperture problem Kazushi Maruya, Shin'ya Nishida

43.508 **Neural responses involved in 1D motion spatial pooling** Kaoru Amano, Kazushi Maruya, Shin'ya Nishida

43.509 Low-level mechanisms do not explain paradoxical motion percepts Davis M. Glasser, Duje Tadin

43.510 **A Bio-Inspired Evaluation Methodology for Motion Estimation** Pierre Kornprobst, Emilien Tlapale, Jan Bouecke, Heiko Neumann, Guillaume S. Masson

43.511 Monkey and humans exhibit similar direction suppression effects Catherine Lynn, William Curran

43.512 Human MT+ response saturates rapidly as a function of sampling density in natural dynamic scenes Szonya Durant, Johannes. M. Zanker

Face perception: Neural processing

Vista Ballroom, Boards 513–529 Monday, May 10, 8:30 - 12:30 pm

43.513 **Characterizing the face processing network in the human brain: a large-scale fMRI localizer study** Laurence Dricot, Bernard Hanseeuw, Christine Schiltz, Bruno Rossion

43.514 The contribution of Fourier amplitude spectrum differences to the early electrophysiological (i.e. P1) amplitude difference between face and nonface object categories Corentin Jacques, Bruno Rossion

43.515 **Dynamics of face detection revealed by fMRI: the right FFA gets it first** Fang Jiang, Laurence Dricot, Jochen Weber, Giulia Righi, Michael Tarr, Rainer Goebel, Bruno Rossion

43.516 **Cerebral lateralization of the face-cortical network in lefthanders: only the FFA does not get it right** Henryk Bukowski, Bruno Rossion, Christine Schiltz, Bernard Hanseeuw, Laurence Dricot

43.517 **Dissociable temporal components of neural similarity in face perception: An ERP study** David Kahn, Alison Harris, David Wolk, Geoffrey Aguirre

43.518 Delineate the temporal sequence and mechanisms for perceiving individual faces Xin Zheng, Catherine J. Mondloch, Sidney J. Segalowitz

43.519 DIY ERPs Nicholas A. Del Grosso, Darcy Dubuc, Michael D. Anes

43.520 Dynamic and static faces: Electrophysiological responses to emotion onsets, offsets, and non-moving stimuli Laura Dixon, James Tanaka

43.521 **TMS evidence for feedforward and feedback mechanisms of face and body perception** David Pitcher, Brad Duchaine, Vincent Walsh, Nancy Kanwisher

43.522 **Turn that frown upside-down! Inferring facial actions from pairs of images in a neurally plausible computational model** Joshua Susskind, Adam Anderson, Geoffrey Hinton

43.523 **Preference bias is induced by task-irrelevant motion only if it is weak** Kazuhisa Shibata, Takeo Watanabe

43.524 **Neural representation of face perception in the fusiform face area** Manabu Shikauchi, Tomohiro Shibata, Shigeyuki Oba, Shin Ishii

Monday Morning Posters

43.525 Orientation-encoding in the FFA is selective to faces: Evidence from multivoxel pattern analysis Fernando Ramírez, Radoslaw Martin Cichy, John-Dylan Haynes

43.526 **Complex Contextual Processing in V1 during Face Categorizations** Fraser Smith, Lucy Petro, Philippe Schyns, Lars Muckli

43.527 Does he look scared to you? Effects of trait anxiety upon neural dissimilarity measures for ambiguous and pure emotional expressions Anwar Nunez-Elizalde, Alex Hawthorne Foss, Geoffrey Aguirre, Sonia Bishop

43.528 **Right middle fusiform gyrus processes facial features interactively: evidence from a balanced congruency design** Valerie Goffaux, Christine Schiltz, Rainer Goebel

43.529 The Role of Isolated Face Features and Feature Combinations in the Fusiform Face Area Lindsay Dachille, Thomas James

Multisensory processing: Visual-auditory interactions

Vista Ballroom, Boards 530–547

Monday, May 10, 8:30 - 12:30 pm

43.530 **The Auditory Capture of Visual Timing Extends to Short-Range Apparent Motion** Hulusi Kafaligonul, Gene Stoner

43.531 **Crossmodal interaction in metacontrast masking** Su-Ling Yeh, Yi-Lin Chen

43.532 **Task-irrelevant sound facilitates visual motion detection** Robyn Kim, Ladan Shams

43.533 Audiovisual relative timings determine sound-induced flash fission versus flash fusion effects Trevor Hine, Amanda White

43.534 **Synchronized sound bursts disrupt visual apparent motion** Emmanuel Guzman-Martinez, Marcia Grabowecky, Satoru Suzuki

43.535 **Pitch changes cue cardinal visual-spatial location only during alignments of allo- and egocentric space** Julia Mossbridge, Marcia Grabowecky, Satoru Suzuki

43.536 **Learning arbitrary visuoauditory mappings during interception of moving targets** Tobias Reh, Joost C. Dessing, J. Douglas Crawford, Frank Bremmer

43.537 **The role of luminance transients in the generation of the sound-induced flash illusion** Amanda White, Trevor Hine, Mark Chappell

43.538 **Reciprocal interference from sound and form information in stimulus identification** Genevieve Desmarais, Megan Fisher, Jeffrey Nicol

43.539 **The effects of characteristic and spatially congruent sounds on visual search in natural visual scenes** Daniel K. Rogers, Jason S. Chan, Fiona N. Newell

43.540 **Viewing condition shifts the perceived auditory soundscape** Adria E. N. Hoover, Laurence R. Harris, Jennifer K. E. Steeves

43.541 **Aurally aided visual search in depth using 'virtual' crowds of people** Jason S. Chan, Corrina Maguinness, Simon Dobbyn, Paul McDonald, Henry J. Rice, Carol O'Sullivan, Fiona N. Newell

43.542 **Classification of Natural Sounds from Visual Cortex Activity** Petra Vetter, Fraser Smith, Lucy Petro, Lars Muckli

43.543 **Learning to bind faces and voices: a gender-congruency advantage** Elan Barenholtz, Meredith Davidson, David Lewkowicz, Lauren Kogelschatz

43.544 **Audiovisual Phonological Fusion and Asynchrony** Melissa Troyer, Jeremy Loebach, David Pisoni

43.546 Integration and the perceptual unity of audio-visual utterances Shoko Kanaya, Kazuhiko Yokosawa

43.547 **Crossmodal constraints on human visual awareness: Auditory semantic context modulates binocular rivalry** Yi-Chuan Chen, Su-Ling Yeh, Charles Spence

3D perception: Spatial layout

Vista Ballroom, Boards 548-556

Monday, May 10, 8:30 - 12:30 pm

43.548 **Comparing different measures of space perception across real and virtual environments** Sarah H. Creem-Regehr, Michael N. Geuss, Tina R. Ziemek, Garrett C. Allen, Jeanine K. Stefanucci, William B. Thompson

43.549 **Perceived slant from optic flow in active and passive viewing of natural and virtual surfaces** Carlo Fantoni, Corrado Caudek, Fulvio Domini

 $43.550\ \mbox{Scale}\ \mbox{expansion}\ \mbox{in the estimation of slant}\ \mbox{Frank}\ \mbox{Durgin, Zhi}\ \mbox{Li}$

43.551 **Slant perception differs for planar and uneven surfaces** Zhi Li, Frank Durgin

43.552 Looking for skies without gravity – differentiating viewing directions without vestibular information change Oliver Toskovic

43.553 **Memory for others' height is scaled to eye height** Elyssa Twedt, L. Elizabeth Crawford, Dennis Proffitt

43.554 **Perception of the height of a barrier is scaled to the body** Jeanine Stefanucci, Michael Geuss

43.555 When does cortical arousal enhance performance in visual perception tasks? Adam J Woods, John Philbeck

43.556 **Depth perception and the horizontal vertical illusion depend on figural proportions** H. A. Sedgwick, Ann M. Nolan

Tuesday Morning Talks

Royal Ballroom 1-3

Perceptual organization: Grouping and segmentation

Tuesday, May 11, 8:15 - 10:00 am Moderator: Steven Franconeri

8:15 am 51.11 Two Processes in Feature Misbinding: (1) Enabling Misbinding and (2) Contributing Features Yang Sun, Steven Shevell

8:30 am 51.12 **Warped spatial perception within and near objects** Timothy Vickery, Marvin Chun

8:45 am 51.13 Evidence For A Modular Filling-in Process During Contour Interpolation Brian Keane, Philip Kellman

9:00 am 51.14 Grouping by common fate occurs for only one group at a time Brian Levinthal, Steven Franconeri

9:15 am 51.15 **Early activation of contextual associations during object recognition** Kestas Kveraga, Avniel Ghuman, Karim Kassam, Elissa Aminoff, Matti Hamalainen, Maximilien Chaumon, Moshe Bar

9:30 am 51.16 Color Contrast Polarity of Boundary Edge Affects Amodal and Modal Surface Completion Teng Leng Ooi, Yong R. Su, Zijiang J. He

9:45 am 51.17 Border ownership signals reflect visual object continuity Philip O'Herron, Rudiger von der Heydt

Neural mechanisms: Cortex

Tuesday, May 11, 11:00 - 12:45 pm Moderator: Melissa Saenz

11:00 am 52.11 **Perceptual learning and changes in white matter in the aged brain revealed by diffusion-tensor imaging (DTI)** Yuko Yotsumoto, Li-Hung Chang, Rui Ni, David Salat, George Andersen, Takeo Watanabe, Yuka Sasaki

11:15 am 52.12 **Retinotopic Organization of Visual-Callosal Fibers in Humans** Melissa Saenz, Christof Koch, Ione Fine

11:30 am 52.13 Flexibility of temporal receptive windows (TRWs) in the human brain Miki M. Fukui, Nava Rubin

11:45 am 52.14 Gamma-aminobutyric acid concentration is reduced in visual cortex in schizophrenia and correlates with orientation-specific surround suppression Michael Silver, Richard Maddock, Ariel Rokem, Jong Yoon

12:00 pm 52.15 **Dynamic synthesis of curvature in area V4** Jeffrey Yau, Anitha Pasupathy, Scott Brincat, Charles Connor

12:15 pm 52.16 **Encoding a salient stimulus in the lateral intraparietal area (LIP) during a passive fixation task.** Fabrice Arcizet, Koorosh Mirpour, Weisong Ong, James Bisley

12:30 pm 52.17 **Visual responses of the dorsomedial area V6A to the presentation of objects to be grasped** Patrizia Fattori, Annalisa Bosco, Rossella Breveglieri, Claudio Galletti

Royal Ballroom 4-5 Motion: Mechanisms

Tuesday, May 11, 8:15 - 10:00 am Moderator: Mehrdad Jazayeri

8:15 am 51.21 Monkey and humans exhibit similar motion-processing mechanisms William Curran, Catherine Lynn

8:30 am 51.22 **Responses of macaque MT neurons to multi-stable moving patterns** Mehrdad Jazayeri, Pascal Wallisch, J. Anthony Movshon

8:45 am 51.23 **Distinct binocular mechanisms for 3D motion perception** Thaddeus B. Czuba, Bas Rokers, Alexander C. Huk, Lawrence K. Cormack

9:00 am 51.24 **Brain areas involved in perception of motion in depth: a human fMRI study** Hwan Sean Lee, Sylvia van Stijn, Miriam Schwalm, Wolf Singer, Axel Kohler

9:15 am 51.25 Visual Illusion Contributes to the Break of the Curveball Zhong-Lin Lu, Arthur Shapiro, Chang-Bing Huang

9:30 am 51.26 **Recovering the functional form of the slow-andsmooth prior in global motion perception** Hongjing Lu, Tungyou Lin, Alan Lee, Luminita Vese, Alan Yuille

9:45 am 51.27 **Investigating the relationship between actual speed and perceived visual speed in humans** John A. Perrone, Peter Thompson, Richard J. Krauzlis

Attention: Object attention and object tracking

Tuesday, May 11, 11:00 - 12:45 pm Moderator: Todd Horowitz

11:00 am 52.21 **Beam me up, Scotty! Exogenous attention teleports but endogenous attention takes the shuttle** Ramakrishna Chakravarthi, Rufin VanRullen

11:15 am 52.22 **Reward Driven Prioritization Modulates Objectbased Attention in Human Visual Cortex** Jeongmi Lee, Sarah Shomstein

11:30 am 52.23 **Probing the distribution of attention to targets and distractors in multiple object tracking** Edward Vogel, Andrew McCollough, Trafton Drew, Todd Horowitz

11:45 am 52.24 **Object attention sharpens the tuning of the perceptual template and interacts with task precision** Barbara Dosher, Songmei Han, Zhonglin Lu

12:00 pm 52.25 **Predictability matters for multiple object tracking** Todd Horowitz, Yoana Kuzmova

12:15 pm 52.26 **Splitting attention over multiple objects** Steven Franconeri, Sarah Helseth, Priscilla Mok

12:30 pm 52.27 Chasing vs. Stalking: Interrupting the Perception of Animacy Tao Gao, Brian J. Scholl

Tuesday Morning Posters

Memory: Objects and features in working and short-term memory

Royal Ballroom 6-8, Boards 301–316 Tuesday, May 11, 8:30 - 12:30 pm

53.301 **Dual Memory Systems Store Direction of Motion Information for Multiple Moving Objects** Haluk Ogmen, Christopher Shooner, Srimant Tripathy, Harold Bedell

53.302 Feature coactivation in object file reviewing: Response time distribution analyses Jun Saiki

53.303 **Dual processes in the recognition of objects in visual working memory** Yu-Chen Tseng, Cheng-Ta Yang, Yei-Yu Yeh

53.304 **Spatio-Temporal Working Memory is Impaired by Multiple Object Tracking** Yuming Xuan, Hang Zhang, Xiaolan Fu

53.305 **Feature binding across visual and manual domains: Evidence from a VSTM study** Raju Sapkota, Shahina Pardhan, Ian van der Linde

53.306 Feature-based versus Object-based forgetting in Visual Working Memory Akina Umemoto, Edward Awh

53.307 Using eye movements to measure attention to objects and features in visual working memory Melonie Williams, Geoffrey Woodman

53.308 Attention is not required to maintain feature bindings in visual working memory Amanda van Lamsweerde, Melissa Beck

53.309 Visual working memory for multiple feature changes: evidence from synaesthesia Anina Rich, Therese English, David Fencsik

53.310 Strategic Control of Visual Working Memory for Global and Local Features Michael Patterson, Wan Ting Low

53.311 The time course of consolidation of ensemble feature in visual working memory Hee Yeon Im, Justin Halberda

53.312 Ensemble statistics influence the representation of items in visual working memory George Alvarez, Timothy Brady

53.313 **Complexity and similarity in visual memory** Benoit Brisson, Michel-Pierre Coll, Sébastien Tremblay

53.314 **The effect of grouping on visual working memory** Seongmin Hwang, Sang Chul Chong

53.315 **Don't stop remembering: Motivational effects on visual short-term memory maintenance** Motoyuki Sanada, Koki Ikeda, Kenta Kimura, Toshikazu Hasegawa

53.316 **The role of attention in working memory for emotional faces** Paul MJ Thomas, Margaret C Jackson, David EJ Linden, Jane E Raymond

Perceptual learning: Mechanisms and models

Royal Ballroom 6-8, Boards 317–331 Tuesday, May 11, 8:30 - 12:30 pm

53.317 Greater focused attention to a task target leads to stronger task-irrelevant learning Tsung-Ren Huang, Takeo Watanabe

53.318 Different properties between reward-driven exposure-based and reward-driven task involved perceptual learning Dongho Kim, Takeo Watanabe

53.319 **Visual Learning with Reliable and Unreliable Features** Robert Jacobs, A. Emin Orhan, Melchi Michel

53.320 **Brain plasticity associated with supervised and unsupervised learning in a coherent-motion detection task** Mark W. Greenlee, Katharina Rosengarth, Tina Plank

53.321 Category Learning Produces the Atypicality Bias in Object Perception Justin Kantner, James Tanaka

53.322 Cholinergic enhancement augments the magnitude and specificity of perceptual learning in the human visual system: a pharmacological fMRI study Ariel Rokem, Michael Silver

53.323 **Learn to be fast: gain accuracy with speed** Anna Sterkin, Oren Yehezkel, Uri Polat

53.324 Changes in Fixation Strategy May account for a portion of **Perceptual Learning observed in visual tasks** Patrick J. Hibbeler, Dave Ellemberg, Aaron Johnson, Lynn A. Olzak

53.325 **ERP evidence for the involvement of high-level brain mechanisms in perceptual learning** Gong-Liang Zhang, Lin-Juan Cong, Yan Song, Cong Yu

53.326 Increases in perceptual capacity as a function of perceptual learning: behavioral regularities and possible neural mechanisms Michael Wenger, Rebecca Von Der Heide, Jennifer Bittner, Daniel Fitousi

53.327 **Local Perceptual Learning for Motion Pattern Discrimination: a Neural Model** Stefan Ringbauer, Florian Raudies, Heiko Neumann

53.328 **Does perceptual learning require consciousness or atten-tion?** Julia D. I. Meuwese, H. Steven Scholte, Victor A. F. Lamme

53.329 **Role of attention in visual perceptual learning: evidences from event-related potentials** Yulong Ding, Zhe Qu, You Wang, Xiaoli Chen

53.330 Implicit Learning of Background Texture while Learning to Break Camouflage Xin Chen, Jay Hegdé

53.331 Understanding how people learn the features of objects as **Bayesian inference** Joseph L. Austerweil, Thomas L. Griffiths

Color and light: Surfaces and materials

Orchid Ballroom, Boards 401–410 Tuesday, May 11, 8:30 - 12:30 pm

53.401 Lightness estimation errors in a 3D context Yoana Dimitrova, Peter McOwan, Alan Johnston

53.402 **The effects of color categorization on shadow perception** James Christensen, William Miller

53.403 **Perception of surface glossiness in infants** Jiale Yang, Yumiko Otsuka, So Kanazawa, Masami K. Yamaguchi, Isamu Motoyoshi

53.404 **Hue torus** Rumi Tokunaga, Alexander Logvinenko

53.405 **Both the complexity of illumination and the presence of surrounding objects influence the perception of gloss** Susan F. te Pas, Sylvia C. Pont, Katinka van der Kooij

53.406 **Real-world illumination measurements with a multidirectional photometer** Yaniv Morgenstern, Richard F. Murray, Wilson S. Geisler

53.407 **A Model of Illumination Direction Recovery Applied to Dynamic Three-Dimensional Scenes** Holly E. Gerhard, Laurence T. Maloney

53.408 Dissimilarity Scaling of Lightness Across Changes of Illuminant and Surface Slant Sean C. Madigan, David H. Brainard

53.409 Effects of microscale and mesoscale structure on surface appearance Suparna Kalghatgi, James Ferwerda

53.410 **Effects of material on the color appearance of real objects** Martin Giesel, Karl R. Gegenfurtner

Spatial vision: Cognitive factors

Orchid Ballroom, Boards 411–415 Tuesday, May 11, 8:30 - 12:30 pm

53.411 **Implicit verbal categories modulate spatial perception** Alexander Kranjec, Gary Lupyan

53.412 Magnitude estimation of visual displays: numerosity, area, and mean size Hunjae Lee, Sang Chul Chong

53.413 **The use of spatial frequencies for visual word recognition in each cerebral hemisphere** Karine Tadros, Nicolas Dupuis-Roy, Daniel Fiset, Martin Arguin, Frédéric Gosselin

53.414 **Preview search and inhibition of the semantic category** Marie Shoda, Jun-ichi Nagai

53.415 Visual enumeration: A bi-directional mapping process between symbolic and non-symbolic representations of number? Julie Castronovo, Virginie Crollen, Xavier Seron

Attention: Visual working memory

Orchid Ballroom, Boards 416–422 Tuesday, May 11, 8:30 - 12:30 pm

53.416 Do Visual Working Memory Representations Automatically Bias Deployments of Covert Attention? Nancy B. Carlisle, Geoffrey F. Woodman

53.417 **Visual memory encoding is independent of attention** Annelinde R.E. Vandenbroucke, Ilja G. Sligte, Victor A.F. Lamme

53.418 **Shared VSTM resources for enumerating sets and for encoding their colors** Sonia Poltoratski, Yaoda Xu

53.419 **Filtering Efficiency in Visual Working Memory** Roy Luria, Edward Vogel

53.420 Enumeration by location: Exploring the role of spatial information in numerosity judgments Harry Haladjian, Zenon Pylyshyn, Charles Gallistel

53.421 Visual working memory supports configuration, but not maintenance or application, of attentional control settings Lingling Wang, Steven Most

53.422 **Rapid Recovery of Moving Targets Following Task Disruption** David Fencsik, Skyler Place, Melanie Johnson, Todd Horowitz

Multisensory processing: Cross-modal perception

Orchid Ballroom, Boards 423–436 Tuesday, May 11, 8:30 - 12:30 pm

53.423 **The Contribution of Left and Right Visual Fields to Perceived Orientation** Ryan R Dearing, Laurence R Harris, Richard T Dyde

53.424 **Perceptual orientation judgements in astronauts: pre-flight results** Richard T Dyde, James E Zacher, Michael R Jenkin, Heather L Jenkin, Laurence R Harris

53.425 Not peripersonal space but the working area of the hand determines the presence and absence of the visual capture of the felt hand location in a mirror along the sagittal plane Takako Yoshida, Yuki Miyazaki, Tenji Wake

53.426 **Multi-modally perceived direction of self-motion from orthogonally directed visual and vestibular stimulation** Kenzo Sakurai, Toshio Kubodera, Philip Grove, Shuichi Sakamoto, Yôiti Suzuki

53.427 **Veridical walking inhibits vection perception** Shin'ichi Onimaru, Takao Sato, Michiteru Kitazaki

53.428 Visual and Auditory deterministic signals can facilitate tactile sensations R. Doti, J.E. Lugo, J. Faubert

53.429 **Kinesthetic information modulates visual motion perception** Bo Hu, David Knill

53.430 **Does it feel shiny? Haptic cues affect perceived gloss** Iona S Kerrigan, Wendy J Adams, Erich W Graf

53.431 **Effective tactile noise can decrease luminance modulated thresholds** J.E. Lugo, R. Doti, J. Faubert

53.432 **Semantic congruency, attention, and fixation position modulate conscious perception when viewing a bistable figure** Jhih-Yun Hsiao, Yi-Chuan Chen, Charles Spence, Su-Ling Yeh

53.433 Formal congruency and spatiotemporal proximity in multisensory integration Elena Makovac, Walter Gerbino

53.434 Unusual bilateral referred sensations in a lower limb amputee during mirror therapy: Evidence for a phantom limb within a phantom limb, and cross-hemispheric reorganization David Peterzell, Thomas Rutledge, J. Hampton Atkinson, Kathleen Parkes, Matthew Golish, John McQuaid

53.435 **Evaluative model of cross-modal correspondences** Dragan Jankovic

53.436 Divided Attention and Sensory Integration: The Return of the Race Model Thomas U. Otto, Pascal Mamassian

Multisensory processing: Synesthesia

Orchid Ballroom, Boards 437–444 Tuesday, May 11, 8:30 - 12:30 pm

53.437 Color Input into Motion Processing in Grapheme-Color Synesthetes Katie Wagner, David Brang, V.S. Ramachandran, Karen Dobkins

53.438 Determinants of synesthetic color choice for Japanese characters Michiko Asano, Kazuhiko Yokosawa

53.439 When the Inducing Grapheme Changes and When the Induced Synesthetic Color Changes Suhkyung Kim, Chai-Youn Kim

53.440 Vividness of visual imagery predicts spatial priming in grapheme-color synesthetes Bryan D Alvarez, Lynn C Robertson

53.441 New results in neuroscience, behavior, and genetics of synesthesia Stephanie Nelson, Molly Bray, Suzanne Leal, David Eagleman

53.442 **10 Color-grapheme synesthetes with highly similar learned associations** Nathan Witthoft, Jonathan Winawer

53.443 **Motion induced pitch: a case of visual-auditory synesthesia** Casey Noble, Julia Mossbridge, Lucica Iordanescu, Aleksandra Sherman, Alexandra List, Marcia Grabowecky, Satoru Suzuki

53.444 Electrophysiological Evidence Supporting the Automaticity of Synaesthetic Number-Forms Michelle Jarick, Colin Hawco, Todd Ferretti, Mike Dixon

Temporal processing: Perception of time

Orchid Ballroom, Boards 445-456

Tuesday, May 11, 8:30 - 12:30 pm

53.445 **The effect of luminance signal on adaptation-based duration compression** Inci Ayhan, Aurelio Bruno, Shin'ya Nishida, Alan Johnston

53.446 **Orientation-specific flicker adaptation dilates static time** Laura Ortega, Emmanuel Guzman-Martinez, Marcia Grabowecky, Satoru Suzuki

53.447 Influences of stimulus predictability on its perceived duration Aurelio Bruno, Inci Ayhan, Alan Johnston

53.448 **Is Subjective Duration a Signature of Coding Efficiency?** David Eagleman, Vani Pariyadath

53.449 Individual differences in time perception indicate different modality-independent mechanisms for different temporal durations Sharon Gilaie-Dotan, Ryota Kanai, Geraint Rees

53.450 **Audiovisual integration: the duration of uncertain times** Jess Hartcher-O'Brien, Max di Luca, Marc Ernst

53.451 **Spatially Localized Time Shifts in Visual Experience** Hinze Hogendoorn, Frans A.J. Verstraten, Alan Johnston

53.452 **Does audiovisual temporal recalibration store without stimulation?** Tonja-Katrin Machulla, Massimiliano Di Luca, Marc O. Ernst

53.453 **Color-motion asynchrony depends on stimulus repetition** Thomas Sprague, David Eagleman

53.454 **The spatial selectivity of neural timing mechanisms for tactile events** Alice Tomassini, Monica Gori, David Burr, Giulio Sandini, Concetta Morrone

53.455 **The curse of inconsistent auditory-visual perceptual asynchronies** Daniel Linares, Alex Holcombe

53.456 Visually-evoked but context-dependent distortions in time perception Michael Esterman, Leon Gmeindl

Development: Early

Vista Ballroom, Boards 501–512

Tuesday, May 11, 8:30 - 12:30 pm

53.501 **Perception of the Müller-Lyer illusion in 3- to 8- month old infants** Yuka Yamazaki, Midori Takashima, So Kanazawa, Masami K Yamaguchi

53.502 **Lateralization of visual categories in infancy** Anna Franklin, Di Catherwood, Emma Axelsson, James Alvarez

53.503 **Children hear better than they see!** Dave Ellemberg, Franco Lepore, Christine Turgeon

53.504 Infant Preferences for Upright Faces are Driven More by High, Than Low, Spatial Frequencies Karen Dobkins, Vanitha Sampath, Katie Wagner

53.505 **Chromatic (Red/Green) and Luminance Contrast Sensitivity in Monozygotic and Dizygotic Twin Infants** Rain Bosworth, Marie Chuldzhyan, Karen Dobkins

53.506 Developmental Differences in Attentional Resolution due to Task Complexity Kerstin Wolf, Till Pfeiffer

53.507 Visual statistical learning with and without an attention cue in infancy Rachel Wu, Natasha Kirkham

53.508 **Calibration of the visual by the haptic system during development** Monica Gori, Luana Giuliana, Sciutti Alessandra, Giulio Sandini, David Burr

53.509 **Linking tools and actions in the developing brain** Tessa Dekker, Mark H. Johnson, Denis Mareschal, Martin I. Sereno

53.510 **Smooth Pursuit Eye Movements and Depth from Motion Parallax in Infancy** Elizabeth Nawrot, Mark Nawrot, Albert Yonas

53.511 A salience-mapping method for testing infants' visual working memory for speed vs. luminance Erik Blaser, Zsuzsa Kaldy, Henry Lo, Marisa Biondi

53.512 **The neural correlates of imitation in children** Angie Eunji Huh, Susan Jones, Karin James

Perception and action: Mechanisms

Vista Ballroom, Boards 513-522

Tuesday, May 11, 8:30 - 12:30 pm

53.513 Does an auditory distractor allow humans to behave more randomly? Yoshiaki Tsushima, Ken Nakayama

53.514 Visual decision making is most influenced by past experience of weak signals Shigeaki Nishina, Dongho Kim, Takeo Watanabe

53.515 Consciousness Thresholds of Motivationally Relevant Stimuli: Faces, Dangerous Animals and Mundane Objects Elizabeth C. Broyles, Evelina Tapia, Adam M. Leventhal, Bruno G. Breitmeyer

53.516 Effects of Movement Observation on Execution Altered by Response Features and Background Images Stephen Killingsworth, Daniel Levin

53.517 Modeling the visual coordination task in de Rugy et al.: It's perception, perception, perception Geoffrey P. Bingham, Winona Snapp-Childs, Andrew D. Wilson

53.518 **The stability of rhythmic movement coordination depends on relative speed** Winona Snapp-Childs, Andrew D. Wilson, Geoffrey P. Bingham

53.519 Reduction of the flash-lag effect in active observation depends upon the learning of directional relationship between hand and stimulus movemenets Makoto Ichikawa, Yuko Masakura

53.520 **The Effectivity of Stroboscopic Training on Anticipation Timing** Alan Reichow, Karl Citek, Marae Blume, Cynthia Corbett, Graham Erickson, Herb Yoo

53.521 **Performance Affects Perception of Ball Speed in Tennis** Mila Sugovic, Jessica Witt

53.522 **Visual Acuity is Essential for Optimal Visual Performance of NFL Players** Herb Yoo, Alan Reichow, Graham Erickson

Object recognition: Recognition processes

Vista Ballroom, Boards 523–538 Tuesday, May 11, 8:30 - 12:30 pm

53.523 **Object recognition based on hierarchically organized structures of natural objects** Xiaofu He, Joe Tsien, Zhiyong Yang

53.524 **Statistics of natural objects and object recognition** Meng Li, Zhiyong Yang

53.525 **The role of Weibull image statistics in rapid object detection in natural scenes** Iris Groen, Sennay Ghebreab, Victor Lamme, Steven Scholte

53.526 **Influence of Local Noise Structure on Object Recognition** Henry Galperin, Peter Bex, Jozsef Fiser

53.527 **A computational model for material recognition** Lavanya Sharan, Ce Liu, Ruth Rosenholtz, Edward Adelson

53.528 **The role of feedback projections in a biologically realistic, high performance model of object recognition** Dean Wyatte, Randall O'Reilly

53.529 **GPGPU-based real-time object detection and recognition system** Daniel Parks, Archit Jain, John McInerney, Laurent Itti

53.530 **Top-Down Processes of Model Verification Facilitate Visual Object Categorization under Impoverished Viewing Conditions after 200 ms** Giorgio Ganis, Haline Schendan

53.531 **The Speed of Categorization: A Priority for People?** Michael Mack, Thomas Palmeri

53.532 **Top-down models explain key aspects of a Speed-of-Sight character recognition task** Garrett Kenyon, Shawn Barr, Michael Ham, Vadas Gintautas, Cristina Rinaudo, Ilya Nemenman, Marian Anghel, Steven Brumby, John George, Luis Bettencourt

53.533 **Comparing Speed-of-Sight studies using rendered vs. natural images** Kevin Sanbonmatsu, Ryan Bennett, Shawn Barr, Cristina Renaudo, Michael Ham, Vadas Gintautas, Steven Brumby, John George, Garrett Kenyon, Luis Bettencourt

53.534 **Electrophysiological evidence for early visual categorisation at AT 80 MS** Emmanuel Barbeau, Denis Fize, Holle Kirchner, Catherine Liégeois-Chauvel, Jean Régis, Michèle Fabre-Thorpe

53.535 **Temporal Interference in Object Recognition** Thomas McKeeff, Lukas Strnad, Alfonso Caramazza

53.536 Top-down processes modulate occipitotemporal cortex to facilitate cognitive decisions with visually impoverished objects after 200 ms: Evidence from neural repetition effects Haline Schendan, Lisa Lucia

53 537 **Comparison between di**

53.537 **Comparison between discrimination and identification processes using line-drawing stimuli** Kosuke Taniguchi, Tadayuki Tayama

53.538 The interaction of structural and conceptual information determines object confusability Daniel Kinka, Kathryn Roberts, Cindy Bukach

Face perception: Disorders

Vista Ballroom, Boards 539–552 Tuesday, May 11, 8:30 - 12:30 pm

53.539 **Face detection in acquired prosopagnosia** Brad Duchaine, Lucia Garrido, Chris Fox, Giuseppe Iaria, Alla Sekunova, Jason Barton

53.540 **The right anterior temporal and right fusiform variants of acquired prosopagnosia** Alla Sekunova, Brad Duchaine, Lúcia Garrido, Michael Scheel, Linda Lanyon, Jason Barton

53.541 **Residual face-selectivity of the N170 and M170 is related to the status of the occipital and fusiform face areas in acquired prosopagnosia** Ipek Oruc, Teresa Cheung, Kirsten Dalrymple, Chris Fox, Giuseppe Iaria, Todd Handy, Jason Barton

53.542 **Non-identity based facial information processing in developmental prosopagnosia** Garga Chatterjee, Bradley Duchaine, Ken Nakayama

53.543 **Recognition of static versus dynamic faces in prosopagnosia** David Raboy, Alla Sekunova, Michael Scheel, Vaidehi Natu, Samuel Weimer, Brad Duchaine, Jason Barton, Alice O'Toole

53.544 **Neural differences between developmental prosopagnosics and super-recognizers** Richard Russell, Xiaomin Yue, Ken Nakayama, Roger B.H. Tootell

53.545 **Impaired face recognition despite normal face-space coding and holistic processing: Evidence from a developmental prosopagnosic** Tirta Susilo, Elinor McKone

53.546 Holistic perception of facial expression in congenital prosopagnosia Romina Palermo, Megan Willis, Davide Rivolta, C. Ellie Wilson, Andrew Calder

53.547 Are deficits in emotional face processing preventing perception of the Thatcher illusion in a case of prosopagnosia? Natalie Mestry, Tamaryn Menneer, Hayward Godwin, Rosaleen McCarthy, Nicholas Donnelly

53.548 Acquired prosopagnosia as a face-specific disorder: Ruling out the visual similarity hypothesis Thomas Busigny, Markus Graf, Eugène Mayer, Bruno Rossion

53.549 **Typical and atypical development of a mid-band spatial frequency bias in face recognition** Hayley C. Leonard, Dagmara Annaz, Annette Karmiloff-Smith, Mark H. Johnson

53.550 **Configural and Feature-based Processing of Human Faces and Their Relation to Autistic Tendencies** Scott Reed, Paul Dassonville

53.551 Relationships Among Emotion Categories: Emotion Aftereffects In High-Functioning Adults with Autism M.D. Rutherford

53.552 The Let's Face It! Program: The assessment and treatment of face processing deficits in children with autism spectrum disorder Jim Tanaka, Julie Wolf, Robert Schultz

Tuesday Afternoon Talks

Royal Ballroom 1-3 Memory: Encoding and retrieval

Tuesday, May 11, 2:45 - 4:15 pm Moderator: Scott Murray

2:45 pm 54.11 Evidence For a Fixed Capacity Limit in Visual Selection Edward Ester, Keisuke Fukuda, Edward Vogel, Edward Awh

3:00 pm 54.12 **Spatial working memory is limited by fixed resolution representations of location** Megan Walsh, Leon Gmeindl, Jonathan Flombaum, Amy Shelton

3:15 pm 54.13 **Encoding of a scene into memory is enhanced at behaviorally relevant points in time** Jeffrey Lin, Amanda Pype, Scott Murray, Geoffrey Boynton

3:30 pm 54.14 **Magnetic stimulation of frontal brain areas: visual working memory suffers, other forms of visual short-term memory not** Ilja G. Sligte, H. Steven Scholte, Victor A.F. Lamme

3:45 pm 54.15 Selective Remembering: Multivoxel Pattern Analysis of Cortical Reactivation During Retrieval of Visual Images Brice Kuhl, Jesse Rissman, Marvin Chun, Anthony Wagner

4:00 pm 54.16 **Object features limit the precision of working memory** Daryl Fougnie, Christopher L. Asplund, Tristan J. Watkins, René Marois

Spatial vision: Crowding and mechanisms

Tuesday, May 11, 5:15 - 7:00 pm

Moderator: Jeremy Freeman

5:15 pm 55.11 **Crowding and metamerism in the ventral stream** Jeremy Freeman, Eero Simoncelli

5:30 pm 55.12 Reduced Neural Activity with Crowding is Independent of Attention and Task Difficulty Rachel Millin, A. Cyrus Arman, Bosco S. Tjan

5:45 pm 55.13 Crowding and cortical reorganization at and around the PRL: model and predictions Anirvan Nandy, Bosco Tjan

6:00 pm 55.14 **Crowding combines** Denis G. Pelli, Jeremy Freeman, Ramakrishna Chakravarthi

6:15 pm 55.15 **Saccade-distorted image statistics explain targetflanker and flanker-flanker interactions in crowding** Bosco S. Tjan, Anirvan S. Nandy

6:30 pm 55.16 Crowded by drifting Gabors: Is crowding based on physical or perceived stimulus position? Gerrit W. Maus, Jason Fischer, David Whitney

6:45 pm 55.17 **Letter crowding increases with flanker complexity** Jean-Baptiste Bernard, Susana Chung

Royal Ballroom 4-5

Attention: Models and mechanisms of search

Tuesday, May 11, 2:45 - 4:15 pm Moderator: Arni Kristjansson 2:45 pm 54.21 **Is object recognition serial or parallel?** Alec Scharff,

John Palmer

3:00 pm 54.22 Attention and Uncertainty Limit Visual Search in Noisy Conditions Richard Hetley, Barbara Dosher, Zhong-Lin Lu

3:15 pm 54.23 Selective attention to transparent motion is by blocking and not by attenuation John Palmer, Victor D. Nguyen, Cathleen M. Moore

3:30 pm 54.24 There are no attentional costs when selecting multiple movement goals Donatas Jonikaitis, Heiner Deubel

3:45 pm 54.25 **How Does Reflexive Visuospatial Attention Speed Target Processing?** Naseem Al-Aidroos, Maha Adamo, Jacky Tam, Susanne Ferber, Jay Pratt

4:00 pm 54.26 **"Reversals of fortune" in visual search: Fast modulatory effects of financial reward upon visual search performance** Arni Kristjansson, Olafia Sigurjonsdottir, Jon Driver

Perceptual learning: Plasticity and adaptation

Tuesday, May 11, 5:15 - 7:00 pm Moderator: Sara Mednick

5:15 pm 55.21 Adaptation to low signal to noise decreases visual sensitivity Stephen Engel, Peng Zhang, Min Bao

5:30 pm 55.22 Learning enhances fMRI pattern-based selectivity for visual forms in the human brain Jiaxiang Zhang, Zoe Kourtzi

5:45 pm 55.23 **REM sleep prevents interference in the texture discrimination task** Sara Mednick

6:00 pm 55.24 **Transfer in perceptual learning as extrapolation** C. Shawn Green, Daniel Kersten, Paul Schrater

6:15 pm 55.25 **Uniformative trials are more effective than informative trials in learning a long term perceptual bias** Sarah J. Harrison, Benjamin T. Backus

6:30 pm 55.26 **Recovery of stereopsis in human adults with strabismus through perceptual learning** Jian Ding, Dennis Levi

6:45 pm 55.27 Feedback inhibits untrained motion directions in perceptual learning Jonathan Dobres, Takeo Watanabe

Tuesday Afternoon Posters

Binocular vision: Stereopsis

Royal Ballroom 6-8, Boards 301-316

Tuesday, May 11, 2:45 - 6:45 pm

56.301 **Stereopsis in People with Eyes of Different Lengths: Adaptation via Receptor Geometry or Post-receptoral Mechanisms?** Martin Banks, Kaccie Li, Jaclyn Wray, Bjorn Vlaskamp, Austin Roorda

56.302 **Do People of Different Heights have Different Horopters?** Emily A. Cooper, Johannes Burge, Martin S. Banks

56.303 The effect of local matching on perceived slant in stereopsis Rui Ni

56.304 Effects of orientation and noise on the detection of cyclopean form Lisa O'Kane, Ross Goutcher

56.305 **Multiple Planes in Stereo-Transparency** Adam Reeves, David Lynch, Minh Tran, Rebecca Grayem

56.306 **A Neural Model of Binocular Transparent Depth Perception** Florian Raudies, Ennio Mingolla, Heiko Neumann

56.307 **Crossed-line stereograms and the processing of stereo transparency** Ross Goutcher, Lisa O'Kane

56.308 **Binocular Capture: The effects of mismatched Spatial frequency and opposite contrast polarity** Avesh Raghunandan, Shawn Andrus, Laura Nennig

56.309 Interactions between monocular occlusions and binocular disparity in the perceived depth of illusory surfaces Inna Tsirlin, Laurie Wilcox, Robert Allison

56.310 **Relative disparity computation underlies the effects of surround area binocular correlation on depth perception** Shuntaro Aoki, Hiroshi Shiozaki, Ichiro Fujita

56.311 The effects of binocular disparity on the detection of curved trajectories are independent of motion direction Russell Pierce, Zheng Bian, George Andersen

56.312 A Comparison of Stereoacuity at 6m of Collegiate Baseball Players in Primary Gaze and Batting Stance Graham Erickson, Herb Yoo, Alan Reichow

56.313 A Comparison of Self-Reported and Measured Autostereogram Skills with Clinical Indicators of Vergence Ability Patricia Cisarik, Neal Davis, Scott Steinman

56.314 Long distance disparity processing in the human visual cortex: an EEG source imaging study Benoit Cottereau, Anthony Norcia, Tzu-Hsun Tsai, Suzanne Mckee

56.315 Responses of disparity-sensitive V3/V3A neurons to anticorrelated random-dot stereograms Yasutaka Okazaki, Ichiro Fujita

56.316 Developmental Differences in Stereoscopic Discrimination: Is perceptual grouping responsible for depth discrimination deficits in adults? Aliya Solski, Debbie Giaschi, Laurie Wilcox

Motion: Flow, depth, and spin

Royal Ballroom 6-8, Boards 317–331 Tuesday, May 11, 2:45 - 6:45 pm

56.317 **Segmentation of action streams: comparison between human and statistically optimal performance** Dominik Endres, Cornelia Beck, Jan Bouecke, Lars Omlor, Heiko Neumann, Martin Giese 56.318 Apparent size biases the perception of speed in rotational **motion** Andrés Martín, Javier Chambeaud, José Barraza

56.319 Discriminating between upward and downward 3-D motion from projected velocity Myron L. Braunstein, Zheng Bian, George J. Andersen

56.320 **The aperture problem in three dimensions** Jay Hennig, Thad Czuba, Lawrence Cormack, Alexander Huk, Bas Rokers

56.321 Use of optic flow and visual direction in steering toward a target Shuda Li, Diederick C. Niehorster, Li Li

56.322 **Global and local influence of form information on human heading perception** Diederick C. Niehorster, Joseph C. K. Cheng, Li Li

56.323 **Rotation is used to perceive path curvature from optic flow** Jeffrey Saunders

56.324 A Visuomotor Aftereffect Requires Effort To Self Locomote Paired With A Mismatch of Optic Flow Elizabeth Hopkins, Dennis Proffitt, Tom Banton

56.325 **Improving Driver Ability to Avoid Collisions when Following a Snowplow** Peter Willemsen, Michele Olsen, Sara Erickson, Albert Yonas

56.326 **Perception of apparent motion relies on postdictive interpolation** Zoltan Nadasdy, Shinsuke Shimojo

56.327 Curved apparent motion induced by amodal completion and the launching effect Sung-Ho Kim, Manish Singh, Jacob Feldman

56.328 Planar configuration rather than depth adjacency determines the strength of induced motion Arash Yazdanbakhsh, Jasmin Leveille

56.329 From Motion to Object: How Visual Cortex Does Motion Vector Decomposition to Create Object-Centered Reference Frames Jasmin Leveille, Stephen Grossberg, Massimiliano Versace

56.330 **Visual discrimination of arrival times: Troublesome effects of stimuli and experimental regime** Klaus Landwehr, Robin Baurès, Daniel Oberfeld, Heiko Hecht

56.331 Looking off effect – shift of face direction caused by a rotating object Kotaro Hashimoto, Kazumichi Matsumiya, Ichiro Kuriki, Satoshi Shioiri

Neural mechanisms: Human electrophysiology

Orchid Ballroom, Boards 401-408

Tuesday, May 11, 2:45 - 6:45 pm

56.401 Early VEP magnitude is modulated by structural sparseness and the distribution of spatial frequency contrast in natural scenes Bruce C Hansen, Theodore Jacques, Aaron P Johnson, Dave Ellemberg

56.402 **Relative latency of visual evoked responses to reversals in contrast, orientation, and motion direction** Oliver Braddick, Jin Lee, Katie McKinnon, Isobel Neville, John Wattam-Bell, Janette Atkinson

56.403 Orientation selectivity in primary visual cortex using MEG: an inverse oblique effect? Loes Koelewijn, Julie R. Dumont, Suresh D. Muthukumaraswamy, Anina N. Rich, Krish D. Singh

56.404 Neural Mechanism of Inverse Oblique Effect on Broad-band Noise Stimuli: An ERP Study Yan Song, Bin Yang, Fang Wang, Xiaoli Ma 56.405 **EEG and MEG Time Functions Are the Same** Stanley Klein, David Kim, Thom Carney

56.406 Lorazepam reduces stimulus visibility by impairing recurrent processing in visual cortex Anouk M van Loon, H. Steven Scholte, Victor A. F. Lamme

56.407 **Perceptual Echoes At 10Hz In Human EEG** James Macdonald, Rufin VanRullen

56.408 The spatial distribution of VEP responses to temporal modulations of motion contrast in human adults J.D. Fesi, R.O. Gilmore

Attention: Tracking

Orchid Ballroom, Boards 409–425

Tuesday, May 11, 2:45 - 6:45 pm

56.409 Neural measures of interhemispheric information transfer during attentive tracking Trafton Drew, Todd S. Horowitz, Jeremy Wolfe, Edward K. Vogel

56.410 **The coordinate systems used in visual tracking** Piers Howe, Yair Pinto, Todd Horowitz

56.411 Effects of Distinct Distractor Objects in Multiple Object Tracking Cary Feria

56.412 Adaptive Training in Multiple Object Tracking Expands Attentional Capacity Todd W Thompson, John DE Gabrieli, George A Alvarez

56.413 **A Cost for Hemifield "Crossover" During Attentional Tracking** Jonathan Gill, George Alvarez

56.414 Individual differences in the shape of visual attention during object tracking Amanda Pype, Jeffrey Lin, Scott Murray, Geoffrey Boynton

56.415 **Eye Movements Across Scene Rotations in Multiple Object Tracking** Frank Papenmeier, Markus Huff, Georg Jahn, Friedrich W. Hesse

56.416 **Inability to perceive the spatial relationship of objects revolving too quickly to attentively track** Alex Holcombe, Daniel Linares, Maryam Vaziri-Pashkam

56.417 Tracking seven is not the same as tracking three: The roles of parallel and serial resources in object tracking Jonathan Flombaum

56.418 **The spatial representation in multiple-object tracking** Markus Huff, Frank Papenmeier, Georg Jahn

56.419 Reallocating Attention in Multiple-Object Tracking Without Explicit Cues Justin Ericson, James Christensen

56.420 Shrinking or Falling? Naturalistic Optical Transformations Do Not Increase Multiple Object Tracking Capacity Chris Brown, Dinithi Perera, Evan Palmer

56.421 Event-related Potentials Reveal "Intelligent Suppression" during Multiple Object Tracking Matthew M. Doran, James E. Hoffman

56.422 Blink-induced masking and its effect on Multiple Object Tracking: It's easier to track those that stop during interrupted viewing Deborah Aks, Harry Haladjian, Alyssa Kosmides, Seetha Annamraju, Hristiyan Kourtev, Zenon Pylyshyn

56.423 **Attentional tracking in the absence of consciousness** Eric A. Reavis, Peter J. Kohler, Sheng He, Peter U. Tse

56.424 **Spatial Reference in Multiple Object Tracking** Georg Jahn, Papenmeier Frank, Huff Markus

56.425 **Investigating virtual object structure in multiple object tracking** Nicole L. Jardine, Adriane E. Seiffert

Attention: Endogenous and exogenous

Orchid Ballroom, Boards 426–429 Tuesday, May 11, 2:45 - 6:45 pm

56.426 **Effects of central cue reliabilities on discrimination accuracy and detection speed** Alex Close, Giovanni D'avossa, Ayelet Sapir, John Parkinson

56.427 **Revealing the space in symbolically-controlled spatial attention** Alexis Thompson, Bradley Gibson

56.428 **The influence of goal-directed attention on unattended stimulus-driven responses** David Bridwell, Sam Thorpe, Ramesh Srinivasan

56.429 **The D2 dopamine receptor agonist bromocriptine enhances voluntary but not involuntary spatial attention in humans** William Prinzmetal, Ariel Rokem, Ayelet Landau, Deanna Wallace, Michael Silver, Mark D'Esposito

Perceptual organization: Contours and 2D form

Orchid Ballroom, Boards 430–444 Tuesday, May 11, 2:45 - 6:45 pm

56.430 A Computational Mid-level Vision Approach for Shape-Specific Saliency Detection Cristobal Curio, David Engel

56.431 Using classification images to reveal the critical features in global shape perception Ilmari Kurki, Aapo Hyvärinen, Jussi Saarinen

56.432 **Boundary information and filling-in in afterimage perception** Jeroen J.A. van Boxtel, Christof Koch

56.433 **Temporal dynamics of contour and surface processing of texture-defined second-order stimuli** Evelina Tapia, Bruno G. Breitmeyer, Jane Jacob

56.434 Mind the Gap: The Effect of Support Ratio and Retinal Size on Contour Interpolation Mohini N. Patel, Bat-Sheva Hadad, Daphne Maurer, Terri L. Lewis

56.435 More than a simple curve: Evidence for mechanisms which are selective for curves containing inflections Jason Bell, Sinthujaa Sampasivam, David McGovern, Frederick A. A. Kingdom

56.436 Curve completion as minimum action in the primary visual cortex Guy Ben-Yosef, Ohad Ben-Shahar

56.437 **Parameter exploration of contextually modulated collinear Gabor patches** Jennifer F. Schumacher, Christina F. Quinn, Cheryl A. Olman

56.438 Holes are perceived as shaped in a speeded perceptual **task** Rolf Nelson, Sherri Conklin, Laura Parker, Jason Reiss

56.439 **Spatiotemporal contour integration in the human brain** Shu-Guang Kuai, Wu Li, Cong Yu, Zoe Kourtzi

56.440 **An improved model for contour completion in V1 using learned feature correlation statistics** Vadas Gintautas, Benjamin Kunsberg, Michael Ham, Shawn Barr, Steven Zucker, Steven Brumby, Luis M A Bettencourt, Garrett T Kenyon

56.441 **Why do certain spatial after-effects increase with eccentricity?** Elena Gheorghiu, Frederick A. A. Kingdom, Jason Bell, Rick Gurnsey 56.442 **The Effects of Closure on Contour Shape Learning** Patrick Garrigan, Livia Fortunato, Ashley LaSala

56.443 **Kanizsa illusory contour perception in children: a novel approach using eye-tracking** Kimberly Feltner, Kritika Nayar, Karen E. Adolph, Lynne Kiorpes

56.444 Switching Percepts of Ambiguous Figures: Specific skills or a General Ability? Aysu Suben, Brian J. Scholl

3D perception: Distance and size

Orchid Ballroom, Boards 445–451

Tuesday, May 11, 2:45 - 6:45 pm

56.445 **A surprising influence of retinal size on disparity-defined distance judgments** Arthur Lugtigheid, Andrew Welchman

56.446 The intrinsic bias influences the size-distance relationship in the dark Liu Zhou, Zijiang J. He, Teng Leng Ooi

56.447 **The importance of a visual horizon for distance judgments under severely degraded vision** Kristina Rand, Margaret Tarampi, Sarah Creem-Regehr, William Thompson

56.448 **Ground surface advantage in exocentric distance judgment** ZHENG BIAN, George Andersen

56.449 **Perception of Distance in the Most Fleeting of Glimpses** Daniel Gajewski, John Philbeck

56.450 Tool use affects perceived shape: An indirect measure of perceived distance ${\rm Jessica}\ {\rm Witt}$

56.451 **Arousal and imbalance influence size perception** Michael Geuss, Jeanine Stefanucci, Justin de Benedictis-Kessner, Nicholas Stevens

Eye movements: Perisaccadic perception

Vista Ballroom, Boards 501-516

Tuesday, May 11, 2:45 - 6:45 pm

56.501 **Perceptual grouping of contour elements survives saccades** Maarten Demeyer, Peter De Graef, Karl Verfaillie, Johan Wagemans

56.502 **The effect of perceptual grouping on perisaccadic spatial distortion** Jianliang Tong, Zhi-Lei Zhang, Christopher Cantor, Clifton Schor

56.503 **Updating for perception: An ERP-study of post-saccadic perceptual localization** Jutta Peterburs, Kathrin Gajda, Christian Bellebaum, Klaus-Peter Hoffmann, Irene Daum

56.504 **Background is remapped across saccades.** Oakyoon Cha, Sang Chul Chong

56.505 Translation of a visual stimulus during a saccade is more detectable if it moves perpendicular, rather than parallel, to the saccade Trinity Crapse, Marc Sommer

56.506 **Preview benefit facilitates word processing in Fixation Related Brain Potentials** Isabella Fuchs, Stefan Hawelka, Florian Hutzler

56.507 **Dynamic recurrent processing for coordinate transformation explains saccadic suppression of image displacement** Fred H Hamker, Arnold Ziesche, Heiner Deubel

56.508 **The influence of saccades on visual masking** Alessio Fracasso, David Melcher

56.509 A model of perisaccadic flash mislocalization in the presence of a simple background stimulus ${\rm Jordan}\ {\rm Pola}$

56.510 **Phase-encoded fmri investigation of retinotopic remapping responses** Tomas Knapen, Jascha Swisher, Benjamin Wolfe, Frank Tong, Patrick Cavanagh

56.511 **Perisaccadic response properties of MT neurons** Till S. Hartmann, Frank Bremmer, Bart Krekelberg

56.512 **Borders between areas with different colors influence perisaccadic mislocalization** Femke Maij, Maria Matziridi, Eli Brenner, Jeroen B.J. Smeets

56.513 **Peri-saccadic mislocalization centered at salient stimulus instead of saccade goal** Gang Luo, Tyler Garass, Marc Pomplun, Eli Peli

56.514 **Rapid development of spatiotopic representations as revealed by inhibition of return** Yoni Pertzov, Ehud Zohary, Galia Avidan

56.515 **TMS over the Human Frontal Eye Field Distorts Perceptual Stability across Eye Movements** Florian Ostendorf, Juliane Kilias, Christoph Ploner

56.516 **Pre-saccadic attention during development** Thérèse Collins, Florian Perdreau, Jacqueline Fagard

Development: Lifespan

Vista Ballroom, Boards 517–528 Tuesday, May 11, 2:45 - 6:45 pm

56.517 Sensory transmission, rate of extraction and asymptotic performance in visual backward masking as a function of age, stimulus intensity and similarity Gerard Muise

56.518 **Aging and the use of implicit standards in the visual perception of length** Ashley Bartholomew, J. Farley Norman, Jessica Swindle, Alexandria Boswell, Hideko Norman

56.519 **Older adults misjudge deceleration** Harriet Allen, Mike G Harris

56.520 Modulatory effects of binocular disparity and aging upon the perception of speed J. Farley Norman, Cory Burton, Leah Best

56.521 **The effects of age in the discrimination of curved and linear paths** Amy H. Guindon, Zheng Bian, George J. Andersen

56.522 **Aging and common fate** Karin S. Pilz, Eugenie Roudaia, Patrick J. Bennett, Allison B. Sekuler

56.523 Assessing the effect of aging on spatial frequency selectivity selectivity of visual mechanisms with the steady state visually evoked potential (ssVEP) Stanley W. Govenlock, Allison B. Sekuler, Patrick J. Bennett

56.524 Effect of aging on the use of orientation and position in shape perception. Eugenie Roudaia, Patrick J. Bennett, Allison B. Sekuler

56.525 **Effects of aging on discriminating emotions from pointlight walkers** Justine M. Y. Spencer, Allison B. Sekuler, Patrick J. Bennett, Martin A. Giese, Karin S. Pilz

56.526 **The Ebbinghaus Illusion as a function of age: complete psychometric functions** Laurence Thelen, Roger Watt

56.527 Age and guile vs. youthful exuberance: Sensory and attentional challenges as they affect performance in older and younger drivers Lana Trick, Ryan Toxopeus, David Wilson

56.528 **The role of ageing on searching for a multisensory object in 3-dimensional arrays** Annalisa Setti, Jason S. Chan, Corrina Maguinness, Kate E. Burke, RoseAnne Kenny, Fiona N. Newell

Face perception: Eye movements

Vista Ballroom, Boards 529–541 Tuesday, May 11, 2:45 - 6:45 pm

56.529 **Dissociating holistic from featural face processing by means of fixation patterns** Meike Ramon, Goedele van Belle, Philippe Lefèvre, Bruno Rossion

56.530 **Gaze contingent methods reveal a loss of holistic perception for inverted faces** Goedele Van Belle, Karl Verfaillie, Peter De Graef, Bruno Rossion, Philippe Lefèvre

56.531 **Ultra-rapid saccades to faces : the effect of target size** Marie A. Mathey, Sébastien M. Crouzet, Simon J. Thorpe

56.532 **Power spectrum cues underlying ultra-fast saccades towards faces** Sébastien M. Crouzet, Simon J. Thorpe

56.533 **Human and foveated ideal observer eye movement strategies during an emotion discrimination task** Matthew Peterson, Miguel Eckstein

56.534 **Location of pre-stimulus fixation strongly influences subsequent eye-movement patterns during face perception** Joseph Arizpe, Dwight Kravitz, Galit Yovel, Chris Baker

56.535 **Scan Patterns Predict Facial Attractiveness Judgments** Dario Bombari, Fred Mast

56.537 Gaze direction mediates the effect of an angry expression on attention to faces Anne P. Hillstrom, Christopher Hanlon

56.538 **Fear expressions enhance eye gaze discrimination** Daniel H. Lee, Joshua M. Susskind, Adam K. Anderson

56.539 **First fixation toward the geometric center of human faces is common across tasks and culture** Helen Rodger, Caroline Blais, Roberto Caldara

56.540 You must be looking at me: the influence of auditory signals on the perception of gaze Raliza S. Stoyanova, Michael P. Ewbank, Andrew J. Calder

56.541 Enhanced detection in change via direct gaze: Evidence from a change blindness study Takemasa Yokoyama, Kazuya Ishibashi, Shinichi Kita

Face perception: Parts and configurations

Vista Ballroom, Boards 542–556 Tuesday, May 11, 2:45 - 6:45 pm

56.542 **Face identification and the evaluation of holistic indexes: CFE and the whole-part task** Yaroslav Konar, Patrick Bennett, Allison Sekuler

56.543 **The influence of horizontal structure on face identification as revealed by noise masking** Matthew V. Pachai, Allison B. Sekuler, Patrick J. Bennett

56.544 **Facial Perception as a Configural Process** Devin Burns, Joseph Houpt, James Townsend

56.545 **Attentional weighting in configural face processing** Fitousi Daniel, Michael Wenger, Rebecca Von Der Heide, Jennifer Bittner

56.546 Internal and external features of the face are represented holistically in face -selective regions of visual cortex Jodie Davies-Thompson, Alan Kingstone, Andrew W. Young, Timothy J. Andrews

56.547 Beliefs alone alter holistic face processing...If response bias is not taken into account Isabel Gauthier, Jennifer Richler, Olivia Cheung 56.548 Interactive Processing of Componential and Configural Information in Face Perception Ruth Kimchi, Rama Amishav

56.549 What Did the Early United States Presidents Really Look Like?: Gilbert Stuart Portraits as a "Rosetta Stone" to the Pre-Photography Era Eric Altschuler, Ahmed Meleis

56.550 **Downloadable Science: Comparing Data from Internet and Lab-based Psychology Experiments** Laura Germine, Ken Nakayama, Eric Loken, Bradley Duchaine, Christopher Chabris, Garga Chatterjee, Jeremy Wilmer

56.551 **Heads, bodies and holistic processing in person recognition** Rachel Robbins, Max Coltheart

56.552 **Response patterns in human Superior Temporal Sulcus discriminate the direction of observed head turns** Johan D Carlin, Russell Thompson, Nikolaus Kriegeskorte, James Rowe, Andrew J Calder

56.553 **Does your EBA response to my bum look big? Differential sensitivity to body orientation in the extrastriate body area** Rebecca P. Lawson, Michael P. Ewbank, Rik N. Henson, Andrew J. Calder

56.554 **The timing of categorical face perception** Long Sha, Ming Meng

56.555 **The composite face effect: possible roles and evidence for perceptual and decisional factors** Rebecca Von Der Heide, Michael Wenger, Jennifer Bittner, Daniel Fitousi

56.556 **Perception and Visual Working Memory Emphasize Different Aspects of Face Processing** Allison Yamanashi Leib, Elise Piazza, Shlomo Bentin, Lynn Robertson

Wednesday Morning Talks

Royal Ballroom 1-3

Eye movements: Updating

Wednesday, May 12, 8:15 - 10:00 am Moderator: Tamara Watson

8:15 am 61.11 **Dynamics of eye position signals in macaque dorsal areas explain peri-saccadic mislocalization** Adam Morris, Michael Kubischik, Klaus-Peter Hoffman, Bart Krekelberg, Frank Bremmer

8:30 am 61.12 **A study of peri-saccadic remapping in area MT** Wei Song Ong, James W Bisley

8:45 am 61.13 Persistence of Visual Mislocalizations across Eye Movements in a Case of Impaired Visual Location Perception: Implications for Visual Updating and Visual Awareness Michael McCloskey, Emma Gregory

9:00 am 61.14 The spatial coordinate system for trans-saccadic information storage I-Fan Lin, Andrei Gorea

9:15 am 61.15 Temporal encoding of visual space by means of fixational eye movements David Richters, Ehud Ahissar, Michele Rucci

9:30 am 61.16 **Where are you looking? Pseudogaze in afterimages** Daw-An Wu, Patrick Cavanagh

9:45 am 61.17 **An equivalent noise investigation of saccadic suppression** Tamara Watson, Bart Krekelberg

3D perception: Depth cues and spatial layout

Wednesday, May 12, 11:00 - 12:45 pm Moderator: Martin S. Banks

11:00 am 62.11 **Analyzing the Cues for Recognizing Ramps and Steps** Gordon E. Legge, Deyue Yu, Christopher S. Kallie, Tiana M. Bochsler, Rachel Gage

11:15 *am* 62.12 **Direct Physiological Evidence for an Economy of Action: Bioenergetics and the Perception of Spatial Layout** Jonathan Zadra, Simone Schnall, Arthur L. Weltman, Dennis Proffitt

11:30 am 62.13 **Testing the generalizability of perceptual-motor calibration on spatial judgments** Benjamin R. Kunz, Sarah H. Creem-Regehr, William B. Thompson

11:45 am 62.14 **Blur and Disparity Provide Complementary Distance Information for Human Vision** Robert T. Held, Emily A. Cooper, Martin S. Banks

12:00 pm 62.15 Effects of Shape and Surface Material on Perceived Object Rotation Axis Gizem Kucukoglu, Roland Fleming, Katja Doerschner

12:15 pm 62.16 Veridical Perception of Non-rigid 3-D Shapes from Motion Cues Anshul Jain, Qasim Zaidi

 $12{:}30\ \text{pm}\ 62{.}17$ Interactions between disparity, parallax and perspective: Linking 'Reverspectives', hollow masks and the apparent motion seen in random dot stereograms Brian Rogers

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Perception and action: Navigation and mechanisms

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8:15 am 61.21 Route selection in complex environments emerges from the dynamics of steering and obstacle avoidance Brett Fajen, William Warren

8:30 am 61.22 Adaptation of visual straight ahead requires an unrestricted field of view Tracey Herlihey, Simon Rushton, Cyril Charron

8:45 am 61.23 Anticipating the actions of others: The goal keeper problem Gabriel Diaz, Brett Fajen

9:00 am 61.24 **Perceptual Body Illusion Affects Action** Sandra Truong, Regine Zopf, Matthew Finkbeiner, Jason Friedman, Mark Williams

9:15 am 61.25 Active is good for auditory timing but passive is good for visual timing Lucica Iordanescu, Marcia Grabowecky, Satoru Suzuki

9:30 am 61.26 **Human Echolocation I** Lore Thaler, Stephen R. Arnott, Melvyn A. Goodale

9:45 am 61.27 **Human Echolocation II** Stephen R. Arnott, Lore Thaler, Melvyn A. Goodale

Face perception: Social cognition

Wednesday, May 12, 11:00 - 12:30 pm Moderator: Roberto Caldara

11:00 am 62.21 **Turning neutral to negative: subcortically processed angry faces influence valence decisions** Jorge Almeida, Petra Pajtas, Bradford Mahon, Ken Nakayama, Alfonso Caramazza

11:15 am 62.22 **Laughter produces transient and sustained effects on the perception of facial expressions** Aleksandra Sherman, Timothy Sweeny, Marcia Grabowecky, Satoru Suzuki

11:30 am 62.23 **Reverse correlation in temporal FACS space reveals diagnostic information during dynamic emotional expression classification** Oliver Garrod, Hui Yu, Martin Breidt, Cristobal Curio, Philippe Schyns

11:45 am 62.24 Attenuation of the dorsal-action pathway suppresses fear prioritization: An evolutionary link between emotion and action Greg West, Adam Anderson, Jay Pratt

12:00 pm 62.25 The Speed of Race Roberto Caldara, Luca Vizioli

12:15 pm 62.26 Internal Representations of Facial Expressions Reveal Cultural Diversity Rachael E. Jack, Roberto Caldara, Philippe G. Schyns

Wednesday Morning Posters

Scene perception: Aesthetics

Orchid Ballroom, Boards 401-409

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63.401 Shot Structure and Visual Activity: The Evolution of Hollywood Film Jordan DeLong, Kaitlin Brunick, James Cutting

63.402 **Video content modulates preferences for video enhancement** Philip (Matt) Bronstad, PremNandhini Satgunam, Woods Russell, Peli Eli

63.403 **Photo Forensics: How Reliable is the Visual System?** Hany Farid, Mary Bravo

63.404 **What velvet teaches us about 3D shape perception** Maarten Wijntjes, Katja Doerschner, Gizem Kucukoglu, Sylvia Pont

63.405 **Re-examination of methods for measuring pictorial balance perception using Japanese calligraphy** Sharon Gershoni, Shaul Hochstein

63.406 Representational Fit in Position and Perspective: A Unified Aesthetic Account Jonathan S. Gardner, Stephen E. Palmer

63.407 Aesthetics of Spatial Composition: Semantic Effects in Two-Object Pictures Mieke H.R. Leyssen, Sarah Linsen, Jonathan S. Gardner, Stephen E. Palmer

63.408 Aesthetic Preferences in the Size of Images of Real-world **Objects** Sarah Linsen, Mieke H.R. Leyssen, Jonathan S. Gardner, Stephen E. Palmer

63.409 Perceptual, semantic and affective dimensions of the experience of representational and abstract paintings Slobodan Markovic

Color and light: Categories, culture and preferences

Orchid Ballroom, Boards 410-420

Wednesday, May 12, 8:30 - 12:30 pm

63.410 What do we know about how humans choose grey levels for images? Marina Bloj, David Connah, Graham Finlayson

63.411 **Color categories and perceptual grouping** Lucy Pinto, Paul Kay, Michael A Webster

63.412 **Cross-Cultural Studies of Color Preferences: US, Japan, and Mexico** Kazuhiko Yokosawa, Natsumi Yano, Karen B. Schloss, Lilia R. Prado-León, Stephen E. Palmer

63.413 **The Color of Emotionally Expressive Faces** Zoe Xu, Karen B. Schloss, Stephen E. Palmer

63.414 **Is Object Color Memory Categorical?** Ana Van Gulick, Michael Tarr

63.415 The Good the Bad and the Ugly: Effects of Object Exposure on Color Preferences Eli D. Strauss, Karen B. Schloss, Stephen E. Palmer

63.416 Effects of school spirit on color preferences: Berkeley 's Blue-and-Gold vs. Stanford's Red-and-White Rosa M. Poggesi, Karen B. Schloss, Stephen E. Palmer

63.417 An Ecological Account of Individual Differences in Color **Preferences** Stephen Palmer, Karen Schloss

63.418 Desaturated color scaling does not depend on color context: an MLDS experiment Delwin Lindsey, Angela Brown

63.419 **Individual Differences in Preference for Harmony** William S. Griscom, Stephen E. Palmer

63.420 **Adaptation and visual discomfort** Igor Juricevic, Arnold Wilkins, Michael Webster

Attention: Brain and behavior II

Orchid Ballroom, Boards 421-430

Wednesday, May 12, 8:30 - 12:30 pm

63.421 **The spatial distribution of visual attention in early visual cortex** Sucharit Katyal, David Ress

63.422 Interactions of sustained spatial attention and surround suppression: an SSVEP study Ayelet Landau, Anna Kosovicheva, Michael Silver

63.423 Attentional modulation in perception of speed occurs in the first motion-processing stage Fumie Sugimoto, Akihiro Yagi

63.424 fMRI responses in human MT+ depend on task and not the attended surface Erik Runeson, Geoffrey Boynton, Scott Murray

63.425 **Feature binding signals in visual cortex** Seth Bouvier, Anne Treisman

63.426 **Spatial cueing effects in perceptual decisions of humans, monkeys, and bees** Stephen C Mack, Dorion B Liston, Richard J Krauzlis, Lisa Bogusch, Randolf Menzel, Miguel P Eckstein

63.427 Gaze position-dependent modulation of the primary visual cortex from the eye proprioceptive representation – an offline TMS-fMRI study Daniela Baslev, Tanja Kassuba

63.428 **Timing of attentional selection in frontal eye field and event-related potentials over visual cortex during pop-out search** Braden Purcell, Richard Heitz, Jeremiah Cohen, Geoffrey Woodman, Jeffrey Schall

63.429 **Timings of attentional "disengagement" and "reengagement" estimated with steady-state visual evoked potential** Yoshiyuki Kashiwase, Kazumichi Matsumiya, Ichiro Kuriki, Satoshi Shioiri

63.430 Control of memory-driven attentional bias in selective attention: Electrophysiological evidence Risa Sawaki, Steven Luck

Attention: Features and objects

Orchid Ballroom, Boards 431–449 Wednesday, May 12, 8:30 - 12:30 pm

63.431 **Multi-level neural mechanisms of object-based attention** Elias Cohen, Frank Tong

63.432 **Object-Based Attentional Selection is Affected by Visual Search Strategy** Adam S. Greenberg, Steven Yantis

63.433 When two objects are easier than one: Effects of object occlusion W. Trammell Neill, Yongna Li

63.434 **The Role of Surface Feature and Spatiotemporal Continuity in Object-Based Inhibition of Return** Caglar Tas, Michael Dodd, Andrew Hollingworth

63.435 **Attentional control settings can be object-based** Stacey Parrott, Brian Levinthal, Steven Franconeri

63.436 **Studying Object-Based Attention with a Steady/Pulsed-Pedestal Paradigm** Benjamin A. Guenther, James M. Brown, Shruti Narang, Aisha P. Siddiqui 63.437 **The time course of space- and object-based attentional prioritization** Leslie Drummond, Sarah Shomstein

63.438 **How does a subliminal cue influence object-based atten-tion?** Wei-Lun Chou, Su-Ling Yeh

63.439 Effect of Feature-Based Cueing on Perceptual Experience Jason Rajsic, Daryl Wilson

63.440 Feature-based attention enhances motion processing during dominance and suppression in binocular rivalry Miriam Spering, Marisa Carrasco

63.441 Measuring the spatial spread of feature-based attention to orientation Alex White, Marisa Carrasco

63.442 **The spread of attention across features of a surface** Zachary Raymond Ernst, Geoffrey M Boynton, Mehrdad Jazayeri

63.443 Feature Exchange: the unstable contribution of features in the maintenance of objects moving along ambiguous trajectories Arthur Shapiro, Gideon Caplovitz

63.444 **Global feature-based attention distorts feature space** Marc Zirnsak, Fred Hamker

63.445 **Attention is Directed by Prioritization in Cases of Certainty** Alexandra Fleszar, Anna Byers, Sarah Shomstein

63.446 **Cue Position Alters Perceived Object Space** Francesca C. Fortenbaugh, Lynn C. Robertson

63.447 Neural representation of targets and distractors during object individuation and identification Su Keun Jeong, Yaoda Xu

63.448 Number and Area Perception Engage Similar Representations: Evidence from Discrimination Tasks Darko Odic, Ryan Ly, Tim Hunter, Paul Pietroski, Jeffrey Lidz, Justin Halberda

63.449 Representations of "Event Types" in Visual Cognition: The Case of Containment vs. Occlusion Brent Strickland, Brian J. Scholl

Spatial vision: Masking

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63.450 **Visual performance fields in noise** Jared Abrams, Marisa Carrasco

63.451 **Orientation uncertainty reveals different detection strategies in noise** Remy Allard, Patrick Cavanagh

63.452 Mutual effects of orientation and contrast within and between the eyes: from summation to suppression John Cass

63.453 **Effects of arbitrary structural choices on the parameters of early spatial vision models** Hannah M.H. Dold, Sven Dähne, Felix A. Wichmann

63.454 On the fate of missed targets Dov Sagi, Andrei Gorea

63.455 **Do illusory contours prevent spatial interactions?** Lynn Olzak, Patrick Hibbeler, Thomas Wickens

63.456 Orientation Dependence of Contextual Suppression Derived from Psychophysical Reverse-Correlation Christopher A. Henry, Michael J. Hawken

63.457 **ON/OFF channel asymmetry or consequences of a Luminance nonlinearity** Stanley J. Komban, Jose-Manuel Alonso, Qasim Zaidi

63.459 When simultaneous presentation results in backward masking Maria Lev, Uri Polat

63.460 Characteristics of dichoptic lateral masking of contrast detection Erwin Wong

63.461 **Shape discrimination in migraineurs** Doreen Wagner, Gunter Loffler, Velitchko Manahilov, Gael E. Gordon, Gordon N. Gordon, Peter Storch

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Hotel Floorplan



Lobby Level (1st Floor)



Ballroom Level (2nd Floor)



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