Introduction

- Face pareidolia refers to the perception of illusory faces in inanimate objects.
- Like humans, monkeys may also experience face pareidolia [1, 2].
- Pareidolia images produce stronger fMRI activations in macaque face patches compared to control images [3, 4].
- What drives the face-cell responses to pareidolia images?
- Is the face-like configuration required?

Methods and data

- RSVP-style image presentation: 100 ms ON, 200 ms OFF
- 7 monkeys (5 macaca mulatta, 1 macaca nemestrina)
- 64/96/128 channel NCi microwire bundle array (Microprobes for Life Sciences, Gaithersburg, MD), central or anterior IT
- Pareidolia (100)
- Matched controls (100)
- Scrambled (100)

Pareidolia selectivity is associated with face selectivity

- Face selectivity correlates positively with pareidolia selectivity

Pareidolia selectivity does not reflect perceived ‘faceness’

A. Breaking up the facial configuration
- Quadrant scrambling significantly reduces but does not abolish the effects of pareidolia and object identity

B. Human behavioral ratings
- Face selectivity units do not correlate with human behavioral ratings of ‘faceness’ of pareidolia images (BF<0.75)

Conclusions

1. Face selectivity and selectivity for face pareidolia are highly correlated in macaque IT neurons.
2. Face selective neural sites are less sensitive to (non-color) attributes that link pareidolia and control images.
3. Scrambling the global feature arrangement of the pareidolia images removes the perceptual experience of a face, but does not abolish (albeit reduces) pareidolia selectivity (even for unfamiliar pareidolias).
4. Average face cell responses to pareidolia images are more face selective than responses to control images.
5. Pareidolia selectivity can be inferred from responses to non-pareidolia, non-face images.

In conclusion, pareidolia and face selectivity are closely related, but can be dissociated from the perceptual experience of a face.