Bio

I am a Cognitive Neuroscientist trying to understand how the visual system works. I am originally from Denmark, but have lived and worked in the US since 2007. I received my PhD in Cognitive Neuroscience in 2013 from Dartmouth College, and since then I have been a post-doctoral scholar at Stanford University, working with Professor Tony Norcia.

My work focuses on the domain of mid-level visual processing, which begins in primary visual cortex ~100 ms after stimulus onset, and then unfolds over the next several hundred ms, in several, mostly topographically organized visual areas. In this deceptively short time-span, the visual system infers information about the shape, location and movement of the elements in the visual world, but also resolves the perceptual organization of the scene: figure-ground relationships, perceptual grouping, constancy operations and much more. These distinct classes of information are encoded by separate neural populations, but are also deeply interdependent, and in many cases represented at multiple stages of visual processing. This means that the basic representation of the visual scene, which provides the foundation for all higher-level vision and acting in the world, is in fact instantiated in a complex and inter-related network of brain areas. I use psychophysics, EEG and functional MRI to probe this network and enhance our understanding of the visual brain as an information processing machine and generator of our vivid experience of the world. My work builds on ideas going back as far as the Gestalt psychologists of the early 20th century, but has direct implications for cutting-edge applications in computer vision and the treatment of visual and neurological disorders.

ACADEMIC APPOINTMENTS

• Social Science Research Associate, Psychology

LINKS

• My website: http://web.stanford.edu/~pjkohler/

Publications

PUBLICATIONS

• Revisiting the functional significance of binocular cues for perceiving motion-in-depth. Nature communications
  Kohler, P. J., Meredith, W. J., Norcia, A. M.
  2018; 9 (1): 3511

• Measuring Integration Processes in Visual Symmetry with Frequency-Tagged EEG. SCIENTIFIC REPORTS
  Alp, N., Kohler, P., Kogo, N., Wagemans, J., Norcia, A.
  2018; 8: 6969

• Dynamics of perceptual decisions about symmetry in visual cortex. NEUROIMAGE
  Kohler, P. J., Cottereau, B. R., Norcia, A. M.


• Motion-induced position shifts are influenced by global motion, but dominated by component motion. *Vision Research*. Kohler, P. J., Cavanagh, P., Tse, P. U. 2015; 110: 93-99


• Unconscious neural processing differs with method used to render stimuli invisible. *Frontiers in Psychology*. Fogelson, S. V., Kohler, P. J., Miller, K. J., Granger, R., Tse, P. U. 2014; 5


• Motion fading is driven by perceived, not actual angular velocity. *Vision Research*
Kohler, P. J., Caplovitz, G. P., Hsieh, P., Sun, J., Tse, P. U.
2010; 50 (11): 1086-1094

- The whole moves less than the spin of its parts *ATTENTION PERCEPTION & PSYCHOPHYSICS*
  Kohler, P. J., Caplovitz, G. P., Tse, P. U.
  2009; 71 (4): 675-679

- Therapeutic effects of a restraint procedure on posttraumatic place learning in fimbria-fornix transected rats *BRAIN RESEARCH*
  Mala, H., Castro, M. R., Knippel, J., Kohler, P. J., Lassen, P., Moensen, J.
  2008; 1217: 221-231