Peter J. Kohler, PhD

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Education

PhD, Cognitive Neuroscience, Dartmouth College, Hanover NH *September 2008 – August 2013*
Thesis title: "Motion and Position Interact at Both Early and Late Stages of the Human Visual System"
Advisor: Peter U. Tse

B.Sc. in Psychology, University of Copenhagen, Denmark *September 2004 – July 2007*

Research Experience

Post-doctoral Scholar, Stanford University *September 2013 – present*

Doctoral Student, Dartmouth College *September 2008 – August 2013*

Graduate Volunteer Researcher, Dartmouth College *October 2007 – June 2008*

Awards & Honors

- **2013 Recipient:** William M. Smith Promise Award in the Brain Sciences.
- **2012 Attended:** Cold Spring Harbor Laboratory: Computational Neuroscience in Vision.
- **2011 Recipient:** Marie Center 1982 Award for Research Excellence.

Media Features

- Focus.de: *Dieser Punkt wird zur Marionette des Gehirns*
- New Scientist: *How to move a dot with your mind*
- Huffington Post: *Research Uncovers How and Where Imagination Occurs in the Brain*
- Popular Science: *How Imagination Works*

Peer-reviewed Publications

Kohler, P.J., Meredith, W.J. and Norcia, A.M. (in revision). Revisiting the functional significance of binocular cues for perceiving motion in depth. In *Nature Communications*.

Kohler, P.J., Cottereau, B.R. and Norcia, A.M. (in revision). Image Segmentation Based on Relative Motion and Relative Disparity Cues in Topographically Organized Areas of Human Visual Cortex. In *Scientific Reports*.

Alp, N., **Kohler**, P.J., Kogo, N., Wagemans, J. and Norcia, A.M. (2018). Measuring Integration Processes in Visual Symmetry with Frequency-Tagged EEG. In *Scientific Reports* 8:6969.

Kanayet, F., Mattarella-Micke, A., **Kohler**, P.J., Norcia, A.M., McCandliss, B. and McClelland, J.M. (2018). Distinct representations of magnitude and spatial position within parietal cortex during number-space mapping. In *Journal of Cognitive Neuroscience* 30, 200-218.

Kohler, P.J., Cottereau, B.R. and Norcia, A.M. (2018). Dynamics of Perceptual Decisions About Symmetry in Visual Cortex. In *NeuroImage* 167, 316-330.

Norcia, A.M., Pei, F. & **Kohler**, P. J. (2017). Evidence for long-range spatio-temporal interactions in infant and adult visual cortex. In *Journal of Vision* 17(6):12.

Kohler, P.J., Cavanagh, P., & Tse, P.U. (2017). Motion-induced position shifts activate early visual cortex. In *Frontiers in Neuroscience* 11:168.

Kohler, P.J., Clarke, A., Yakovleva, A., Liu, Y. & Norcia, A.M. (2016). Representation of maximally regular textures in human visual cortex. In *Journal of Neuroscience* 36(3) (714 –729).

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McCarthy, J.D., **Kohler**, P.J., Tse, P.U. & Caplovitz, G.P. (2015). Extrastriate Visual Areas Integrate Form Features over Space and Time to Construct Representations of Stationary and Rigidly Rotating Objects. In *Journal of Cognitive Neuroscience 27* (2158-2173).

Kohler, P.J., Cavanagh, P., & Tse, P.U. (2015). Motion-induced position shifts are influenced by global motion, but dominated by component motion. In *Vision Research 110*, Part A (93-99).

Schlegel, A., Alexander, P., Fogelson, S.V., Li, X., Lu, Z., **Kohler**, P.J., Riley, E., Tse, P.U., & Meng, M. (2015). The artist emerges: Visual art learning alters neural structure and function. In *NeuroImage 105* (440-451).

Kohler, P.J., Caplovitz, G.P. & Tse, P.U. (2014). The global slowdown effect: Why does perceptual grouping reduce perceived speed? In *Attention, Perception and Psychophysics 76(3)* (780-792).

Fogelson, S.V., **Kohler**, P.J., Miller, K.J., Granger, R., and Tse, P.U. (2014). Unconscious neural processing differs with method used to render stimuli invisible. In *Frontiers in Psychology* 5:601.

Schlegel, A.S., **Kohler**, P.J., Fogelson, S.V., Alexander, P., Konuthula, D. & Tse, P.U. (2013). Network structure and dynamics of the mental workspace. In *Proceedings of the National Academy of Sciences 110*(40) (16277-16282).

Kohler, P.J., Fogelson, S.V. Reavis, E.A., Meng, M., Guntupalli, J.S., Hanke, M., Halchenko, Y.O., Connolly, A.C., Haxby, J.V. & Tse, P.U. (2013). Pattern classification precedes regional-average hemodynamic response in early visual cortex. In *NeuroImage 78* (249–260).

Reavis, E.A., **Kohler**, P.J., Caplovitz, C.P., Wheatley, T. & Tse, P.U. (2013). Effects of attention on visual experience during monocular rivalry. In *Vision Research 83* (76-81).

Parkinson, C., **Kohler**, P.J., Sievers, B. & Wheatley, T. (2012). Associations between auditory pitch and visual elevation do not depend on language: Evidence from a remote population. In *Perception, 47(7)* (854-861).

Porter, K.B., Caplovitz, G.P, **Kohler**, P.J., Ackerman, C.M. & Tse, P.U. (2011). Rotational and translational motion interact independently with form. In *Vision Research, 51* (2478-2487).

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

Kohler, P.J., Caplovitz, G.P. & Tse, P.U. (2009). The whole moves less than the spin of its parts. In *Attention, Perception & Psychophysics 71 (4)* (675-679).

Mala, H., Castro, M.R., Knippel, J., **Kohler**, P.J., Lassen, P. & Mogensen, J. (2008). Therapeutic effects of a restraint procedure on posttraumatic place learning in fimbria-fornix transected rats. In *Brain Research 1217* (221-231).

Book Chapters

Caplovitz, G.P Hsieh, P.-J., **Kohler**, P.J. & Porter, K.B. (2017). The Spinning Ellipse Speed Illusion. In *Oxford Compendium of Visual Illusions* (pp. 170-173): Oxford University Press.

Tse, P.U., Reavis, E.A., **Kohler**, P.J., Caplovitz, G.P., & Wheatley, T. (2013). How Attention can Alter Appearances. In *Handbook of Experimental Phenomenology* (pp. 291-315): John Wiley & Sons, Ltd.

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Presentations

Conference Talks

2018 May — "Characterizing late-developing binocular motion mechanisms in human visual cortex" *Vision Sciences Society 2018*, St. Petersburg, FL

2017 May — "Neural responses to motion in 2 and 3 dimensions" *Vision Sciences Society 2017*, St. Petersburg, FL

2015 May — "Parametric responses to rotation symmetry in mid-level visual cortex" *Vision Sciences Society 2015*, St. Petersburg, FL

2013 May — "Neural correlates of perceptually bistable motion-based grouping" *Vision Sciences Society 2012*, Naples, FL

Invited Talks

2018 February — "Symmetry as a fundamental feature dimension in mid-level vision" Department of Psychology, York University, Toronto

2017 July — "Steady-state visual evoked potentials in EEG experiments" Core Outreach Workshop, University of Lincoln, Nebraska

2016 February — "Texture regularity processing in human visual cortex" NASA Ames Research Center, Moffett Field, CA

2015 December — "Perceptual organization at multiple stages of cortical processing" Danish Centre For Magnetic Resonance, Hvidovre, Denmark

2015 August — "Perceptual organization at multiple stages of cortical processing" Cognitive Neuroscience Research Unit, Aalborg, Denmark

2015 August — "Perceptual organization at multiple stages of cortical processing" Department of Psychology, Lund University, Sweden

2015 August — "Perceptual organization at multiple stages of cortical processing" Fraunhofer Heinrich Hertz Institute, Berlin, Germany

2014 January — "The Influence of Local and Global Motion on Shifts in Perceived position" Institut de Neurosciences de la Timone, Marseille, France

2014 January — "Probing the neural underpinnings of Motion-induced Position Shifts" Université Paris Descartes, France

Posters

Kohler, P.J., Cottereau, B.R. & Norcia, A.M. (2016). Cortical areas encoding visual segmentation cues from relative motion and relative disparity. Poster at *FENS Forum of Neuroscience 2016*, Copenhagen, Denmark.

Kohler, P.J., Cottereau, B.R. & Norcia, A.M. (2016). Identifying cortical areas involved in perceptual decisions about symmetry. Poster at *Vision Sciences Society 2016*, St. Petersburg, FL.

Kohler, P.J. & Norcia, A.M. (2015). Does SNR of visually evoked BOLD responses change with rapid multiplexed fMRI? Poster at *Cognitive Neuroscience Society 2015*, San Francisco, CA.

Kohler, P.J., Harder, L.H., & Tse, P.U. The influence of local and global motion on perceived position. Poster at *Vision Sciences Society 2013*, Naples, FL.

Kohler, P.J., Cavanagh, C.E.P., & Tse, P.U. The influence of motion integration on shifts in perceived position. Poster at *European Conference on Visual Perception 2012*, Alghero, Italy.

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Posters (continued)

Kohler, P.J., Fogelson, S.F., Reavis, E.A. & Tse, P.U. (2011). The neural basis of lightness constancy in the visual system. Poster at *Vision Sciences Society 2011,* Naples, FL.

Kohler, P.J., Zafer, M., Reavis, E.A., & Tse, P.U. (2010). The Ebbinghaus illusion requires consciousness of the inducers. Poster at *Association for the Scientific Study of Consciousness 14*, Toronto, Canada.

Kohler, P.J., Fogelson, S.V., Reavis, E.A., Guntupalli, J.S. & Tse, P.U. (2010). The Relationship Between Multivariate Pattern Classification Accuracy and Hemodynamic Response Level in Visual Cortical Areas. Poster at *Vision Sciences Society 2010*, Naples, FL.

Kohler, P.J., Caplovitz, G.P. & Tse, P.U. (2009). The whole moves less than the spin of its parts. Poster at *Vision Sciences Society 2009*, Naples, FL.

Teaching and Mentoring

Supervision of Student Research | Stanford, CA
- Nihan Alp. PhD student visiting from University of Leuven, Belgium
- Bethany Hung. Undergraduate student visiting from Brown University
- Daniel Morgan Altman. Stanford undergraduate student in PSYCH-summer program
- Varun Bhadkamkar. Undergraduate student visiting from Williams College

Supervision of Student Research | Dartmouth College, NH
- Dan McCarthy. University of Reno graduate student visiting do to an fMRI project
- Katharine Porter. Dartmouth undergraduate student doing Honor's Thesis
- Caeli Cavanagh. Dartmouth undergraduate student doing Women in Science Project Internship
- Jie Sun. Dartmouth undergraduate student doing Women in Science Project Internship
- Maryam Zafer. Dartmouth undergraduate student doing Women in Science Project Internship

Teaching assistant | Dartmouth College, NH
- Psych 60: Principles of Human Brain Mapping with fMRI (Fall 2011)
- Psych 60: Principles of Human Brain Mapping with fMRI (Winter 2011)
- Psych 64: Sensory Psychology with Laboratory (Winter 2010)
- Psych 21: Perception (Spring 2010)
- Psych 11: Laboratory in Psychological Science (Spring 2009)

Student Instructor | University of Copenhagen, Denmark
- Instructor in Cognitive Psychology (January - June 2007)

Peer Reviewer

Journal of Vision
Vision Research
Perception
3D Research
Psychological Science
Journal of Neuroscience
NeuroImage
Neuropsychologia
Frontiers of Psychology