

Peter J. Kohler, PhD

pjkohler@yorku.ca | York University, Toronto | <http://pjkohler.github.io>

Employment

Assistant Professor , York University, Toronto	July 2019 – present
Research Associate , Stanford University	September 2018 – June 2019
Post-doctoral Scholar , Stanford University	September 2013 – August 2018
Doctoral Student , Dartmouth College	September 2008 – August 2013
Graduate Volunteer Researcher , Dartmouth College	October 2007 – June 2008

Education

PhD, Cognitive Neuroscience , Dartmouth College, Hanover NH Thesis title: "Motion and Position Interact at Both Early and Late Stages of the Human Visual System" Advisor: Peter U. Tse	September 2008 – August 2013
B.Sc. in Psychology , University of Copenhagen, Denmark	September 2004 – July 2007

Peer-reviewed Publications

- Norcia, AM, Lee, A, Meredith, W, **Kohler**, PJ, Pei, F, Ghassan, S, Libove, R, Phillips, J & Hardan, AY (under review). A case-control study of visual, auditory and audio-visual sensory interactions in children with Autism Spectrum Disorder. *Journal of Vision*.
- Sievers, B, Parkinson, C, **Kohler**, PJ, Hughes, J, Fogelson, S & Wheatley, T (in revision). Visual and auditory brain areas share a neural code for perceived emotion. *Nature Neuroscience*.
- Van Rinsveld, A, Guillaume, M, **Kohler**, PJ, Schiltz, C, Gevers, W & Content, A (2020). The neural signature of numerosity by Separating numerical and continuous magnitude extraction in visual cortex with frequency-tagged EEG. *Proceedings of the National Academy of Sciences*.
- Barzegaran, E, Bosse, S, **Kohler**, PJ & Norcia, AM (2019). EEGSourceSim: A framework for realistic simulation of EEG scalp data using MRI-based forward models and biologically plausible signals and noise. *Journal of Neuroscience Methods* 328:108377.
- Kohler**, PJ, Cottureau, BR & Norcia, AM (2019). Image Segmentation Based on Relative Motion and Relative Disparity Cues in Topographically Organized Areas of Human Visual Cortex. *Scientific Reports* 9:9308.
- Manning C, Kaneshiro B, **Kohler** PJ, Duta M, Scerif G & Norcia AM (2019) Neural dynamics underlying coherent motion perception in children and adults. *Developmental Cognitive Neuroscience* 38:100670.
- Kohler**, PJ, Meredith, WJ and Norcia, AM (2018). Revisiting the functional significance of binocular cues for perceiving motion in depth. *Nature Communications* 9:3511.
- Alp, N, **Kohler**, PJ, Kogo, N, Wagemans, J and Norcia, AM (2018). Measuring Integration Processes in Visual Symmetry with Frequency-Tagged EEG. *Scientific Reports* 8:6969.
- Kanayet, F, Mattarella-Micke, A, **Kohler**, PJ, Norcia, AM, McCandliss, B and McClelland, JM (2018). Distinct representations of magnitude and spatial position within parietal cortex during number-space mapping. *Journal of Cognitive Neuroscience* 30, 200-218.
- Kohler**, PJ, Cottureau, BR and Norcia, AM (2018). Dynamics of Perceptual Decisions About Symmetry in Visual Cortex. *NeuroImage* 167, 316-330.
- Norcia, AM, Pei, F & **Kohler**, PJ (2017). Evidence for long-range spatio-temporal interactions in infant and adult visual cortex. *Journal of Vision* 17(6):12.

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- Kohler**, PJ, Cavanagh, P, & Tse, PU (2017). Motion-induced position shifts activate early visual cortex. *Frontiers in Neuroscience* 11:168.
- Kohler**, PJ, Clarke, A, Yakovleva, A, Liu, Y & Norcia, AM (2016). Representation of maximally regular textures in human visual cortex. *Journal of Neuroscience* 36(3) (714 –729).
- McCarthy, JD, **Kohler**, PJ, Tse, PU & Caplovitz, GP (2015). Extrastriate Visual Areas Integrate Form Features over Space and Time to Construct Representations of Stationary and Rigidly Rotating Objects. *Journal of Cognitive Neuroscience* 27 (2158-2173).
- Kohler**, PJ, Cavanagh, P, & Tse, PU (2015). Motion-induced position shifts are influenced by global motion, but dominated by component motion. *Vision Research* 110, Part A (93-99).
- Schlegel, A, Alexander, P, Fogelson, SV, Li, X, Lu, Z, **Kohler**, PJ, Riley, E, Tse, PU, & Meng, M (2015). The artist emerges: Visual art learning alters neural structure and function. *NeuroImage* 105 (440-451).
- Kohler**, PJ, Caplovitz, GP & Tse, PU (2014). The global slowdown effect: Why does perceptual grouping reduce perceived speed? *Attention, Perception and Psychophysics* 76(3) (780-792).
- Fogelson, SV, **Kohler**, PJ, Miller, KJ, Granger, R, and Tse, PU (2014). Unconscious neural processing differs with method used to render stimuli invisible. *Frontiers in Psychology* 5:601.
- Schlegel, AS, **Kohler**, PJ, Fogelson, SV, Alexander, P, Konuthula, D & Tse, PU (2013). Network structure and dynamics of the mental workspace. *Proceedings of the National Academy of Sciences* 110(40) (16277-16282).
- Kohler**, PJ, Fogelson, SV, Reavis, EA, Meng, M, Guntupalli, JS, Hanke, M, Halchenko, YO, Connolly, AC, Haxby, JV & Tse, PU (2013). Pattern classification precedes regional-average hemodynamic response in early visual cortex. *NeuroImage* 78 (249–260).
- Reavis, EA, **Kohler**, PJ, Caplovitz, CP, Wheatley, T & Tse, PU (2013). Effects of attention on visual experience during monocular rivalry. *Vision Research* 83 (76-81).
- Parkinson, C, **Kohler**, PJ, Sievers, B & Wheatley, T (2012). Associations between auditory pitch and visual elevation do not depend on language: Evidence from a remote population. *Perception*, 47(7) (854-861).
- Porter, KB, Caplovitz, GP, **Kohler**, PJ, Ackerman, CM & Tse, PU (2011). Rotational and translational motion interact independently with form. *Vision Research*, 51 (2478-2487).
- Kohler**, PJ, Caplovitz, GP, Hsieh, P-J, Sun, J & Tse, PU (2010). Motion fading is driven by perceived, not actual angular velocity. *Vision Research*, 50 (1086-1094).
- Kohler**, PJ, Caplovitz, GP & Tse, PU (2009). The whole moves less than the spin of its parts. *Attention, Perception & Psychophysics* 71 (4) (675-679).
- Mala, H, Castro, MR, Knippel, J, **Kohler**, PJ, Lassen, P & Mogensen, J (2008). Therapeutic effects of a restraint procedure on posttraumatic place learning in fimbria-fornix transected rats. *Brain Research* 1217 (221-231).

Book Chapters

- Caplovitz, GP, Hsieh, P-J, **Kohler**, PJ & Porter, KB (2017). The Spinning Ellipse Speed Illusion. In *Oxford Compendium of Visual Illusions* (pp. 170-173): Oxford University Press.
- Tse, PU, Reavis, EA, **Kohler**, PJ, Caplovitz, GP, & Wheatley, T (2013). How Attention can Alter Appearances. In *Handbook of Experimental Phenomenology* (pp. 291-315): John Wiley & Sons, Ltd.

Presentations

Conference Talks

- 2018 May “Characterizing late-developing binocular motion mechanisms in human visual cortex”
Vision Sciences Society, St. Petersburg, FL
- 2017 May “Neural responses to motion in 2 and 3 dimensions”
Vision Sciences Society, St. Petersburg, FL
- 2015 May “Parametric responses to rotation symmetry in mid-level visual cortex”
Vision Sciences Society, St. Petersburg, FL
- 2012 May “Neural correlates of perceptually bistable motion-based grouping”
Vision Sciences Society, Naples, FL

Invited Talks

- 2019 March “The role of motion in organizing visual perception”
Department of Psychology, York University, Toronto
- 2019 February “Exploring perceptual organization with steady-state EEG”
Department of Neuroscience, Psychology and Behaviour, University of Leicester, UK
- 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**, PJ, Norcia, AM & McCandliss, B (2019). Steady-state visual evoked potentials reveal parietal contributions to abstract numerosity. Poster at *Neuroscience*, Chicago, IL.
- Kohler**, PJ, Barzegaran, E, Davis, BE & Norcia, AM (2019). Encoding- and decision-related brain activity during a motion judgment task. Poster at *Vision Sciences Society, St. Petersburg, FL*.

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- Kohler**, PJ, Norcia, AM & McCandliss, B (2019). Assessing Parietal Contributions to Abstract Numerosity with Steady State Visual Evoked Potentials (SSVEPs). Poster at *Cognitive Neuroscience Society*, San Francisco, CA.
- Kohler**, PJ, Cottureau, BR & Norcia, AM (2016). Cortical areas encoding visual segmentation cues from relative motion and relative disparity. Poster at *FENS Forum of Neuroscience*, Copenhagen, Denmark.
- Kohler**, PJ, Cottureau, BR & Norcia, AM (2016). Identifying cortical areas involved in perceptual decisions about symmetry. Poster at *Vision Sciences Society*, St. Petersburg, FL.
- Kohler**, PJ & Norcia, AM (2015). Does SNR of visually evoked BOLD responses change with rapid multiplexed fMRI? Poster at *Cognitive Neuroscience Society*, San Francisco, CA.
- Kohler**, PJ, Harder, LH, & Tse, PU (2013). The influence of local and global motion on perceived position. Poster at *Vision Sciences Society*, Naples, FL.
- Kohler**, PJ, Cavanagh, CEP, & Tse, PU (2012). The influence of motion integration on shifts in perceived position. Poster at *European Conference on Visual Perception*, Alghero, Italy.
- Kohler**, PJ, Fogelson, SF, Reavis, EA & Tse, PU (2011). The neural basis of lightness constancy in the visual system. Poster at *Vision Sciences Society*, Naples, FL.
- Kohler**, PJ, Zafer, M, Reavis, EA, & Tse, PU (2010). The Ebbinghaus illusion requires consciousness of the inducers. Poster at *Association for the Scientific Study of Consciousness 14*, Toronto, Canada.
- Kohler**, PJ, Fogelson, SV, Reavis, EA, Guntupalli, JS & Tse, PU (2010). The Relationship Between Multivariate Pattern Classification Accuracy and Hemodynamic Response Level in Visual Cortical Areas. Poster at *Vision Sciences Society*, Naples, FL.
- Kohler**, PJ, Caplovitz, GP & Tse, PU (2009). The whole moves less than the spin of its parts. Poster at *Vision Sciences Society*, Naples, FL.

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*

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Teaching and Mentoring

Supervision of Student Research | Stanford, CA

- Brandon Davis. Undergraduate student visiting from Washington University, St. Louis
- 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 Neuroscience
NeuroImage
Neuropsychologia
Frontiers of Psychology
Communications Biology
Brain Structure and Function

Perception
3D Research
Psychological Science
Journal of Vision
Vision Research
Attention, Perception and Psychophysics