

Dr. Heiko Schütt

Curriculum Vitae

NYU, Center for Neuroscience (CNS)
4 Washington Place, New York, NY 10003
USA

+1 917 667 8768
✉ heiko.schuett@nyu.edu

Work Experience

- 2018–today **Postdoctoral Associate**, *New York University*, New York.
With Prof. Weiji Ma & Prof. Nikolaus Kriegeskorte (Columbia)
- 2014–2018 **Research Fellow**, *Eberhardt Karls Universität*, Tübingen.
Early vision and dynamical eye movement models.
Prof. Felix Wichmann & Prof. Ralf Engbert (Potsdam)
- 2013–2014 **Student Assistant**, *Eberhardt Karls Universität*, Tübingen.
Lab of Prof. Felix Wichmann, Visual Psychophysics

Education

- 2014–2018 **PhD. Neural and Behavioural Sciences**, *Graduate Training Center for Neuroscience*, Tübingen, Germany, *summa cum laude*.
"Modelling Early Spatial Vision and its Influence on Eye Movements in Natural Scenes"
Supervisors: Prof. Felix Wichmann & Prof. Ralf Engbert
- 2012–2014 **MSc. Neural and Behavioural Sciences**, *Graduate Training Center for Neuroscience*, Tübingen, Germany, *Grade 1.1 (very good, scale: 1-6)*.
"Painless Bayesian Inference for Psychometric Functions"
Supervisor: Prof. Felix Wichmann
- 2010–2014 **BSc. Mathematics**, *Eberhardt Karls Universität*, Tübingen,
Grade 1.2 (very good, scale: 1-6).
- 2009–2012 **BSc. Psychology**, *Justus Liebig Universität*, Gießen,
Grade 0.9 (very good, scale: 0.7-6.0).
- 2000–2008 **Abitur**, *Edith-Stein-Schule*, Darmstadt, *Grade 1.0 (very good, scale: 1-6)*.

Honours and Awards

- 2012–2014 **Dean's List**, *Graduate Training Center*, Tübingen.
Neural and behavioural sciences
- 2010–2014 **Scholarship**, *Studienstiftung des Deutschen Volkes*, Giessen & Tübingen.
German elite scholarship of the federal ministry (supports < 1% of students)

Internships

- 2013 **Intern**, *Center of Integrated Neuroscience*, Tübingen.
Lab of Dr. Laura Busse and Dr. Steffen Katzner, Mouse Primary Visual Cortex Physiology
- 2011 **Intern**, *Universität Osnabrück*, Osnabrück.
Lab of Prof. Frank Jäckel, Scaling Methods for Ordinal Data

Summer Schools

- 2018 **Computational Neuroscience: Vision**, Cold Spring Harbor Laboratory.
Organizers: Geoffrey Boynton, Marlene Cohen, Gregory Horwitz, Jonathan Pillow
- 2016 **European Summer School on Visual Neuroscience**, Rauschholzhausen.
Organizers: Jochen Braun, Wolfgang Einhäuser-Treyer, Karl Gegenfurtner
- 2015 **Computational Vision Summer School**, *Bernstein Center for Computational Neuroscience*, Freudenstadt.
Organizers: Matthias Bethge, Michael Black, Roland Fleming, Felix Wichmann
- 2012 **CVR Summer School**, *Center for Vision Research*, York University, Toronto.

Professional Activities

- 2018 **Reviewer** *Attention, Perception & Psychophysics, Journal of Vision, Journal of Experimental Psychology: HPP, Plos One*
- 2017 **Reviewer** *Attention, Perception & Psychophysics, Behavioural Research Methods, Journal of Vision, Plos Computational Biology*
- 2016 **Reviewer** *i-Perception, Journal of Vision*
- 2015 **Reviewer** *Journal of Neurophysiology*

Languages

German **Mother Tongue**
English **Fluent**

Skills

MATLAB wrote psignifit 4 toolbox in it
Python fluent
R fluent
Psychtoolbox fluent
Tensorflow fluent

Publications

Theses

- Schütt, H. H.** (2018). *Modelling early spatial vision and its influence on eye movements in natural scenes*. PhD thesis, Graduate School for Neural and Behavioural Sciences, Eberhardt Karls Universität Tübingen.
- Schütt, H. H.** (2014b). Painless bayesian inference for psychometric functions. Master's thesis, Graduate School for Neural and Behavioural Sciences, Eberhardt Karls Universität Tübingen.
- Schütt, H. H.** (2014a). Maximumsabschätzungen für diskretisierungen elliptischer partieller differenzialgleichungen ("maximum bounds for discretizations of elliptic partial differential equations"). Bachelor's thesis (mathematics), Eberhardt Karls Universität Tübingen.
- Schütt, H. H.** (2012). Influence of roughness and gloss on perceived light distance. Bachelor's thesis (psychology), Justus Liebig Universität Gießen.

Peer Reviewed Journal Articles

- Wichmann, F. A. , Janssen, D. H. J. , Geirhos, R. , Aguilar, G. , **Schütt, H. H.** , Maertens, M. , and Bethge, M. (2017). Methods and measurements to compare men against machines. *Electronic Imaging*, 2017(14):36–45.
- Schütt, H. H.** and Wichmann, F. A. (2017). An image-computable psychophysical spatial vision model. *Journal of Vision*, 17(12):12:1–35.
- Schütt, H. H.** , Rothkegel, L. O. M. , Trukenbrod, H. A. , Reich, S. , Wichmann, F. A. , and Engbert, R. (2017). Likelihood-based parameter estimation and comparison of dynamical cognitive models. *Psychological Review*, 124(4):505–524.
- Rothkegel, L. O. M. , Trukenbrod, H. A. , **Schütt, H. H.** , Wichmann, F. A. , and Engbert, R. (2017). Temporal evolution of the central fixation bias in scene viewing. *Journal of Vision*, 17(13):3.
- Schütt, H. H.** , Harmeling, S. , Macke, J. H. , and Wichmann, F. A. (2016b). Painless and accurate Bayesian estimation of psychometric functions for (potentially) overdispersed data. *Vision Research*, 122:105–123.
- Schütt, H. H.** , Baier, F. , and Fleming, R. W. (2016a). Perception of light source distance from shading patterns. *Journal of Vision*, 16(3):9:1–20.
- Rothkegel, L. O. , Trukenbrod, H. A. , **Schütt, H. H.** , Wichmann, F. A. , and Engbert, R. (2016). Influence of initial fixation position in scene viewing. *Vision Research*, 129:33–49.

Preprint Manuscripts

- Schütt, H. H.** , Rothkegel, L. O. M. , Trukenbrod, H. A. , Engbert, R. , and Wichmann, F. A. (2018). Disentangling top-down vs. bottom-up and low-level vs. high-level influences on eye movements over time. *arXiv:1803.07352 [q-bio]*. arXiv: 1803.07352.
- Rothkegel, L. O. M. , **Schütt, H. H.** , Trukenbrod, H. A. , Wichmann, F. A. , and Engbert, R. (2018). Searchers adjust their eye movement dynamics to the target characteristics in natural scenes. *arXiv:1802.04069 [q-bio]*. arXiv: 1802.04069.
- Geirhos, R. , Janssen, D. H. J. , **Schütt, H. H.** , Rauber, J. , Bethge, M. , and Wichmann, F. A. (2017). Comparing deep neural networks against humans: object recognition when the signal gets weaker. *arXiv:1706.06969 [cs, q-bio, stat]*. arXiv: 1706.06969.

Conference Abstracts

- Wichmann, F. A. and **Schütt, H. H.** (2018). Modelling early influences on visual perception. In *European Conference on Visual Perception (ECVP), Trieste, Italy (talk,symposium)*.
- Schütt, H. H.** , Rothkegel, L. , Trukenbrod, H. A. , Engbert, R. , and Wichmann, F. A. (2018c). Predicting the fixation density over time. In *14th Biannual Conference of the German Cognitive Science Society (KogWis), Darmstadt, Germany (talk)*.
- Schütt, H. H.** , Rothkegel, L. , Trukenbrod, H. A. , Engbert, R. , and Wichmann, F. A. (2018b). Predicting fixation densities over time from early visual processing. In *Vision Science Society (VSS), Annual meeting, St. Pete Beach, FL, USA (poster)*.
- Schütt, H. H.** , Rothkegel, L. , Trukenbrod, H. A. , Engbert, R. , and Wichmann, F. A. (2018a). Predicting fixation densities over time from early visual processing. In *European Conference on Visual Perception (ECVP), Trieste, Italy (poster)*.
- Schütt, H. H.** , Rothkegel, L. , Trukenbrod, H. A. , Reich, S. , Engbert, R. , and Wichmann, F. A. (2017c). Likelihood-based parameter estimation and comparison of dynamical eye movement models. In *European Conference on Eye Movements (ECEM), Wuppertal, Germany (talk)*.
- Schütt, H. H.** , Rothkegel, L. , Trukenbrod, H. A. , Engbert, R. , and Wichmann, F. A. (2017b). Using an image-computable early vision model to predict eye movements. In *European Conference on Visual Perception (ECVP), Berlin, Germany (poster)*.
- Schütt, H. H.** , Rothkegel, L. , Trukenbrod, H. A. , Engbert, R. , and Wichmann, F. A. (2017a). Testing an early vision model on natural image stimuli. In *Vision Science Society (VSS), Annual meeting, St. Pete Beach, FL, USA (poster)*.
- Rothkegel, L. O. M. and Schütt, H. H. , Trukenbrod, H. A. , Wichmann, F. A. , and Engbert, R. (2017). We know what we can see - peripheral visibility of search targets shapes eye movement behavior in natural scenes. In *Vision Science Society (VSS), Annual meeting, St. Pete Beach, FL, USA (poster)*.
- Geirhos, R. , Janssen, D. , **Schütt, H. H.** , Bethge, M. , and Wichmann, F. A. (2017). Of human observers and deep neural networks: A detailed psychophysical comparison. In *Vision Science Society (VSS), Annual meeting, St. Pete Beach, FL, USA (poster)*.

- Wichmann, F. A. , Eichert, N. , and **Schütt, H. H.** (2016). An image-based multi-channel model for light adaptation. In *Vision Science Society (VSS), Annual meeting, St. Pete Beach, FL, USA (talk)*.
- Schütt, H. H.** and Wichmann, F. A. (2016b). An image-based model for early visual processing. In *ModVis, St. Pete Beach, FL, USA (talk)*.
- Schütt, H. H.** and Wichmann, F. A. (2016a). An image-based model for early visual processing. In *Vision Science Society (VSS), Annual meeting, St. Pete Beach, FL, USA (poster)*.
- Schütt, H. H.** , Baier, F. , and Fleming, R. W. (2016). Perception of light source distance from shading patterns. In *Tagung experimentell arbeitender Psychologen (TeaP), Heidelberg (poster)*.
- Schütt, H. H.** (2016). Likelihood based evaluations for dynamical eye movement models. In *Cambridge Vision Workshop, Cambridge, UK (talk)*.
- Rothkegel, L. O. , Trukenbrod, H. , **Schütt, H. H.** , Wichmann, F. A. , and Engbert, R. (2016). Reducing the central fixation bias. In *Vision Science Society (VSS), Annual meeting, St. Pete Beach, FL, USA (poster)*.
- Janssen, D. , **Schütt, H. H.** , and Wichmann, F. (2016). Some observations on the psychophysics of deep neural networks. In *Vision Science Society (VSS), Annual meeting, St. Pete Beach, FL, USA (poster)*.
- Schütt, H. H.** , Trukenbrod, H. A. , Rothkegel, L. , and Engbert, R. (2015c). Test of a dynamical model for natural scene exploration. In *2015 European Conference on Eye Movements, Vienna (poster)*.
- Schütt, H. H.** , Harmeling, S. , Macke, J. H. , and Wichmann, F. A. (2015b). Psignifit 4: Pain-free bayesian inference for psychometric functions. In *2015 VSS Annual Meeting, St. Pete Beach, Florida (poster)*.
- Schütt, H. H.** , Baier, F. , and Fleming, R. W. (2015a). Perception of light source distance from shading patterns. In *Tagung experimentell arbeitender Psychologen (TeaP), Heidelberg (poster)*.
- Schütt, H. H.** and Wichmann, F. A. (2014). Uncertainty effects in visual psychophysics. In *Tagung experimentell arbeitender Psychologen (TeaP), Giessen (poster)*.
- Schütt, H. H.** , Harmeling, S. , Macke, J. H. , and Wichmann, F. A. (2014c). Pain-free bayesian inference for psychometric functions. In *European Mathematical Psychology Group Meeting (EMPG), Tübingen (poster)*.
- Schütt, H. H.** , Harmeling, S. , Macke, J. H. , and Wichmann, F. A. (2014b). Pain-free bayesian inference for psychometric functions. In *Statistical Challenges in Neuroscience, University of Warwick, UK (poster)*.
- Schütt, H. H.** , Harmeling, S. , Macke, J. H. , and Wichmann, F. A. (2014a). Pain-free bayesian inference for psychometric functions. In *European Conference on Visual Perception (ECVP), Belgrad, SRB (poster)*.