

Veith Weinhhammer

CV

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Personal Statement

I am a neuroscientist, psychiatrist, and psychotherapist. I work on digital technologies to better understand, predict, and improve mental health.

Education and Degrees

2023 **Habilitation degree in Experimental Psychiatry**, Charité, Berlin, Germany.

The construction of unambiguous conscious experiences from ambiguous sensory information.

2023 **Board certificate in Psychiatry & Psychotherapy**.

2015 **Doctoral degree (MD)**, Charité, Berlin, Germany.

Frontoparietal cortex mediates perceptual transitions in bistable perception (summa cum laude).

2015 **Medical degree**, Charité, Berlin, Germany.

2007-2015 **Medical school**, Charité, Berlin, Germany, and Universidade Nova, Lisbon, Portugal.

2006-2007 **Studium Generale**, Leibniz Kolleg, Eberhard Karls Universität, Tübingen, Germany.

Professional Experience

2023–present **Visiting scholar**, Advisors: David Whitney & Doris Tsao, Helen Wills Neuroscience Institute, University of California, Berkeley, USA.

Hallucinations in biological and artificial neural networks | Digital mental health

2023–present **Freelance Psychotherapist**.

Cognitive behavioral therapy | Systemic psychotherapy | Open Dialogue

2015–2023 **Postdoctoral researcher and clinician scientist**, Advisors: Philipp Sterzer, Katharina Schmack, & Andreas Heinz, Department of Psychiatry, Charité, Berlin, Germany.

Visual perception | Neural correlates of consciousness | Neurobiology of schizophrenia

2016–2023 **Psychotherapist in training**, Center for Psychotherapy, Humboldt Universität, Berlin, Germany.

Cognitive behavioral therapy | Systemic psychotherapy

2015–2023 **Resident psychiatrist**, Department of Psychiatry, Charité, Berlin, Germany.

Inpatient unit for psychotic and affective disorders | Liaison psychiatry | Outpatients treatment center for addiction

2012–2013 **Minerva fellow**, Advisor: Rafi Malach, Weizmann Institute, Rehovot, Israel.

Neural correlates of consciousness

Fellowships and Awards

2024–present **NARSAD Young Investigator Award**, Brain & Behavior Research Foundation, New York, USA.

2023–present **Leopoldina Postdoctoral Fellowship**, German National Academy of Sciences, Halle (Saale), Germany.

2023 **Walter Benjamin Fellowship (declined)**, DFG, Bonn, Germany.

2019–2022 **Clinician Scientist Fellowship**, Berlin Institute of Health, Berlin, Germany.

2017–2018 **Junior Clinician Scientist Fellowship**, Berlin Institute of Health, Berlin, Germany.

2013 **Minerva Short Term Fellowship**, Minerva Foundation, Max-Planck Society, Munich, Germany.

2007–2015 **University Scholarship**, German Academic Scholarship Foundation, Berlin, Germany.

Skills

Experimental Computational modeling, machine learning, psychophysics, fMRI, TMS, iEEG, Neuropixels.

Code Python, R, Matlab.

Clinical Ketamine-and TMS-assisted treatments, cognitive behavioral therapy, systemic psychotherapy, Open Dialogue, deep brain stimulation

Key Publications

- 2024 **Veith Weilnhammer**, Marcus Rothkirch, Deniz Yilmaz, Merve Fritsch, Lena Esther Ptasczynski, Katrin Reichenbach, Lukas Roediger, Philip Corlett, and Philipp Sterzer. N-Methyl-D-aspartate receptor hypofunction causes recurrent and transient failures of perceptual inference. *Brain (in press)*, May 2024.
- 2024 **Veith Weilnhammer**, Yuki Murai, and David Whitney. Dynamic predictive templates in perception. *Current Biology*, volume 34, pages 4301 – 4306.e2, August 2024.
- 2023 **Veith Weilnhammer**, Heiner Stuke, Kai Standvoss, and Philipp Sterzer. Sensory processing in humans and mice fluctuates between external and internal modes. *PLOS Biology*, volume 21, page e3002410, August 2023.
- 2021 **Veith Weilnhammer**, Merve Fritsch, Meera Chikermane, Anna-Lena Eckert, Katharina Kanthak, Heiner Stuke, Jakob Kaminski, and Philipp Sterzer. An active role of inferior frontal cortex in conscious experience. *Current Biology*, volume 31, pages 2868–2880.e8, July 2021.

Peer-reviewed publications

- 2024 **Veith Weilnhammer**, Marcus Rothkirch, Deniz Yilmaz, Merve Fritsch, Lena Esther Ptasczynski, Katrin Reichenbach, Lukas Roediger, Philip Corlett, and Philipp Sterzer. N-Methyl-D-aspartate receptor hypofunction causes recurrent and transient failures of perceptual inference. *Brain (in press)*, May 2024.
- 2024 **Veith Weilnhammer**, Yuki Murai, and David Whitney. Dynamic predictive templates in perception. *Current Biology*, volume 34, pages 4301 – 4306.e2, August 2024.
- 2024 **Veith Weilnhammer**. Where is the ghost in the shell? *Neuroscience of Consciousness*, volume 2024, page niae015, January 2024.
- 2023 **Veith Weilnhammer**, Heiner Stuke, Kai Standvoss, and Philipp Sterzer. Sensory processing in humans and mice fluctuates between external and internal modes. *PLOS Biology*, volume 21, page e3002410, August 2023.
- 2023 Heiner Stuke, Kathlen Priebe, **Veith Weilnhammer**, Hannes Stuke, and Nikola Schoofs. Sparse models for predicting psychosocial impairments in patients with PTSD: An empirical Bayes approach. *Psychological Trauma: Theory, Research, Practice and Policy*, volume 15, pages 80–87, January 2023.
- 2023 Laurie-Anne Sapey-Triomphe, Lauren Pattyn, **Veith Weilnhammer**, Philipp Sterzer, and Johan Wagemans. Neural correlates of hierarchical predictive processes in autistic adults. *Nature Communications*, volume 14, page 3640, June 2023.
- 2023 Merve Fritsch, **Veith Weilnhammer**, Paul Thiele, Andreas Heinz, and Philipp Sterzer. Sensory and environmental uncertainty in perceptual decision-making. *iScience*, volume 26, page 106412, April 2023.
- 2022 Laurie-Anne Sapey-Triomphe, **Veith Weilnhammer**, and Johan Wagemans. Associative learning under uncertainty in adults with autism: Intact learning of the cue-outcome contingency, but slower updating of priors. *Autism: The International Journal of Research and Practice*, volume 26, pages 1216–1228, July 2022.
- 2022 Stephan Köhler, **Veith Weilnhammer**, Henrik Walter, Susanne Erk, Philipp Sterzer, and Anne Guhn. Autobiographical Script-Driven Imagery Has No Detectable Effect on Emotion Regulation in Healthy Individuals. *Neuropsychobiology*, volume 81, pages 141–148, August 2022.
- 2021 **Veith Weilnhammer**, Merve Fritsch, Meera Chikermane, Anna-Lena Eckert, Katharina Kanthak, Heiner Stuke, Jakob Kaminski, and Philipp Sterzer. An active role of inferior frontal cortex in conscious experience. *Current Biology*, volume 31, pages 2868–2880.e8, July 2021.
- 2021 **Veith Weilnhammer**, Meera Chikermane, and Philipp Sterzer. Bistable perception alternates between internal and external modes of sensory processing. *iScience*, volume 24, page 102234, March 2021.
- 2021 Heiner Stuke, Elisabeth Kress, **Veith Weilnhammer**, Philipp Sterzer, and Katharina Schmack. Overly strong priors for socially meaningful visual signals are linked to psychosis proneness in healthy individuals. *Frontiers in psychology*, volume 12, page 583637, May 2021.

- 2020 **Veith Weilnhammer**, Lukas Röd, Anna-Lena Eckert, Heiner Stuke, Andreas Heinz, and Philipp Sterzer. Psychotic Experiences in Schizophrenia and Sensitivity to Sensory Evidence. *Schizophrenia bulletin*, volume 46, pages 927–936, February 2020.
- 2018 **Veith Weilnhammer**, Heiner Stuke, Philipp Sterzer, and Katharina Schmack. The Neural Correlates of Hierarchical Predictions for Perceptual Decisions. *The Journal of Neuroscience*, volume 38, pages 5008–5021, May 2018.
- 2018 Heiner Stuke, **Veith Weilnhammer**, Philipp Sterzer, and Katharina Schmack. Delusion Proneness is Linked to a Reduced Usage of Prior Beliefs in Perceptual Decisions. *Schizophrenia Bulletin*, volume 45, pages 80–86, January 2018.
- 2017 **Veith Weilnhammer**, Heiner Stuke, Guido Hesselmann, Philipp Sterzer, and Katharina Schmack. A predictive coding account of bistable perception - a model-based fMRI study. *PLOS Computational Biology*, volume 13, page e1005536, May 2017.
- 2017 Heiner Stuke, Hannes Stuke, **Veith Weilnhammer**, and Katharina Schmack. Psychotic Experiences and Overhasty Inferences Are Related to Maladaptive Learning. *PLOS Computational Biology*, volume 13, page e1005328, January 2017.
- 2016 **Veith Weilnhammer**, Philipp Sterzer, and Guido Hesselmann. Perceptual Stability of the Lissajous Figure Is Modulated by the Speed of Illusory Rotation. *PloS one*, volume 11, page e0160772, May 2016.
- 2016 Katharina Schmack, **Veith Weilnhammer**, Jakob Heinzle, Klaas E Stephan, and Philipp Sterzer. Learning What to See in a Changing World. *Frontiers in human neuroscience*, volume 10, page 263, 2016.
- 2014 **Veith Weilnhammer**, Karin Ludwig, Philipp Sterzer, and G Hesselmann. Revisiting the Lissajous figure as a tool to study bistable perception. *Vision research*, volume 98, pages 107–12, May 2014.
- 2013 **Veith Weilnhammer**, Karin Ludwig, Guido Hesselmann, and Philipp Sterzer. Frontoparietal cortex mediates perceptual transitions in bistable perception. *The Journal of Neuroscience*, volume 33, pages 16009–15, October 2013.

Preprints

- 2024 Katrin Reichenbach, Marcus Rothkirch, Lucca Jaeckel, Philipp Sterzer, and **Veith Weilnhammer**. Anterior insular activity signals perceptual conflicts induced by temporal and spatial context. *bioRxiv*, January 2024.
- 2024 Merve Fritsch, Jochen Michely, Lucca Jaeckel, Ida Rangus, Christoph Riegler, Jan Scheitz, Christian H. Nolte, Philipp Sterzer, and **Veith Weilnhammer**. Ischemic lesions to inferior frontal cortex alter the dynamics of conscious visual perception. *bioRxiv*, August 2024.

Individual Research Support

Ongoing

- 2024–present **Adversarial attacks on the human visual system**, Principle Investigator, Brain & Behavior Research Foundation, €38,000.
- 2023–present **Hallucinations in biological and artificial neural networks.**, Fellow, Leopoldina - National Academy of Sciences, €100,800.

Completed

- 2019–2022 **The effect of prefrontal lesions on conscious experience**, Clinician Scientist Program, Berlin Institute of Health, €151,200.
- 2017–2018 **The influence of prior knowledge on perception in schizophrenia**, Junior Clinician Scientist Program, Berlin Institute of Health, €95,600.
- 2013 **Dynamic causal modeling of intracranial EEG**, Investigator, Minerva Foundation, Max Planck Society, €5,200.

Teaching

- 2021 - 2022 **Seminar**: Cognitive Functions of the Frontal Cortex

- 2018 - 2022 **Lecture:** Computational Models of Schizophrenia
- 2018 - 2022 **Online lecture:** Schizophrenia as a Model Disorder
- 2016 - 2020 **Seminar:** Problem-Based Learning
- 2015 - 2022 **Bedside Teaching:** Biopsychosocial History and Psychopathology, mood disorders, adjustment disorders, psychotic disorders, cognitive disorders, liaison psychiatry
- 2015 - 2017 **Seminar:** Mental Representations

Higher Education Teaching Certifications

- 2022 Online teaching
- 2015 Problem-based learning

Mentorship

- 2023–present **Supervision of undergraduate research project**, Jasmine Lopez, University of California, Berkeley.
- 2020–present **Co-supervision of MD thesis**, Katrin Reichenbach, Charité, Berlin.
- 2019 **Co-supervision of Master thesis**, Deniz Yilmaz, Berlin School of Mind and Brain, Berlin.
- 2019 **Supervision of Master thesis**, Meera Chikermane, NeuroCure, Berlin.
- 2018–2022 **Co-supervision of PhD thesis**, Anna-Lena Eckert, Berlin School of Mind and Brain.
- 2018–2019 **Co-supervision of Master thesis**, Drew Cooper, NeuroCure, Berlin.
- 2018–2019 **Co-supervision of Master thesis**, Lukas Röd, Berlin School of Mind and Brain.
- 2017–present **Co-supervision of postdoctoral research project**, Merve Fritsch, Charité, Berlin.

Memberships

- 2024–present **Association for the Scientific Study of Consciousness.**
- 2015–present **Medical Association**, Berlin, Germany.

Academic Services

- Reviews PLOS Computational Biology, Journal of Neuroscience, Neuroscience of Consciousness, Schizophrenia Bulletin, Journal of Vision.