

Kristin Witte

Ph.D. Student at Helmholtz Munich

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Education

PhD Psychology

Ludwig-Maximilian-Universität · Helmholtz Munich

Munich, Germany

2022 - present

Advisor: Dr. Eric Schulz

Computational models of Anxiety and Depression

MSc Neural and Behavioural Science

University of Tuebingen · Graduate Training Center for Neuroscience

Tuebingen, Germany

2020 - 2022

GPA: 1.4 (very good)

Thesis: Exploration, Anxiety and Depression (supervisors: Quentin Huys, Eric Schulz)

BSc Psychology

Radboud University

Nijmegen, the Netherlands

2016 - 2019

GPA: 8.2/10 (cum laude)

Thesis: Neural and Behavioural Correlates of Ambiguity in Intertemporal and Risky Choice (supervisors: Bernd Figner, Karin Roelofs)

Research Experience

PhD Thesis

Max Planck Institute for Biological Cybernetics · Helmholtz Munich

Munich, Germany

Nov. 2022 - Present

Helmholtz Institute for Human-Centered AI · Advisor: Dr. Eric Schulz

Reliability and validity of computational models of the Exploration-Exploitation trade-off [PAPER]

- Tested the reliability and convergent and external validity of the model parameters from 3 bandit tasks
- Applied Latent factor modelling to improve reliability and validity

Decision-making in anxiety and depression [PAPER]

- Used Gaussian Process Regression to approximate learning behaviour in a reinforcement learning task
- Applied Hierarchical Bayesian model fitting

Large Language Models [PAPER 1][PAPER 2]

- Evaluated biases and anxiety-like responding in LLMs
- Fine-tuned LLMs using PEFT

Master Thesis

University College London

London, UK

Feb. - Oct. 2022

Applied Computational Psychiatry Lab · Advisors: Prof. Dr. Quentin Huys, Dr. Eric Schulz

Topic: Exploration behaviour, anxiety and depression

- Designed intervention study to test causal effects of worrying on exploration behaviour

Graduate Research Assistant

Max Planck Institute for Biological Cybernetics

Tuebingen, Germany

Oct. 2020 - Oct. 2022

Computational Principles of Intelligence lab · Advisor: Dr. Eric Schulz

Topic: Using Gaussian Processes to model Exploration-Exploitation in Depression and Anxiety

- Programmed online experiment in JS HTML
- Analysed resulting data using Hierarchical Bayesian computational modelling

Rotation Student

University Hospital Tuebingen · Clinic for Psychiatry and Psychotherapy

Tuebingen, Germany

Nov. 2021 - Feb. 2022

Non-invasive Brain Stimulation Group · Advisor: Prof. Dr. Christian Plewnia

Topic: The Neural Underpinnings of tDCS-enhanced Cognitive Control Training in Major Depressive Disorder

- Analysed fNIRS data of patients undergoing tDCS and Cognitive Control Training
- Shadowed psychiatrists during clinical interviews and brain stimulation

Rotation Student

University Hospital Tuebingen · Clinic for Psychiatry and Psychotherapy
Kaufmann Lab · Advisor: Prof. Dr. Tobias Kaufmann

Tuebingen, Germany

Sep. - Nov.2021

Topic: Predicting Autistic Traits from Brain Sex

- Applied XGBoost to predict sex from neuroanatomy and identify the role of Brain Sex in Autism

Student Research Assistant

Max Planck Institute for Human Development

Environmental Neuroscience Lab · Advisor: Prof. Dr. Simone Kühn

Berlin, Germany

Oct.2019 - Sept.2020

Topic: Influence of environmental factors on cognitive and neural functioning

- Collected behavioural and fMRI data
- Conducted extensive literature research on a wide range of topics

Summer Intern

Massachusetts Institute of Technology

Affective Brain Lab · Advisor: Prof. Dr. Tali Sharot

Cambridge, MA

Jul. - Aug. 2019

Topic: Affective factors in information processing [PAPER]

- Collected and analysed behavioural data
- Designed an experiment to disentangle different types of information

Honours Bachelor Thesis

Donders Institute for Brain, Cognition and Behaviour

Experimental Psychopathology and Affective Neuroscience Lab · Advisors: Prof. Dr. Karin

Roelofs, Prof. Dr. Bernd Figner

Nijmegen, NL

Sep.2018 - Aug.2019

Topic: The Neural Underpinnings of Economic Decision Making under Risk and Uncertainty

- Collected and analysed behavioural and fMRI data
- Conducted systematic literature review

Undergraduate Research Intern

Donders Institute for Brain, Cognition and Behaviour

L2 Language Lab · Advisors: Prof. Dr. Kristin Lemhöfer, Xiaochen Zheng

Nijmegen, NL

Sep.2017 - Aug.2018

Topic: Interference errors between first and second language

- Designed experiment to test language intrusions in Dutch native speakers
- Collected and analysed speech data

Publications

*equal contribution

PUBLISHED

Witte, K.*, Thalmann, M.*, & Schulz, E. (2025). Model-based exploration is measurable across tasks but not linked to personality and psychiatric assessments. *Scientific Reports*, 15(1), 27479. <https://doi.org/10.1038/s41598-025-09152-2>

Binz, M.,..., **Witte, K.**, ... Schulz, E. (2025). A foundation model to predict and capture human cognition. *Nature*. <https://doi.org/10.1038/s41586-025-09215-4>

Globig, L. K., **Witte, K.**, Feng, G., & Sharot, T. (2021). Under stress weaker evidence is required to reach undesirable conclusions. *Journal of Neuroscience*, 41, 6502–6510. <https://doi.org/10.1523/JNEUROSCI.3194-20.2021>

Ben-Zion, Z., **Witte, K.***, Jagadish, A. K.*, Duek, O., Harpaz-Rotem, I., Khorsandian, M.-C., Burrer, A., Seifritz, E., Homan, P., Schulz, E., & Spiller, T. R. (2025). Assessing and alleviating state anxiety in large language models. *Npj Digital Medicine*, 8(1), 132. <https://doi.org/10.1038/s41746-025-01512-6>

IN REVIEW

Witte, K., Wise, T., Huys, Q.J.M.* & Schulz, E.* (under review). Exploring the Unexplored: Worry as a Catalyst for Exploratory Behavior in Anxiety and Depression. <https://osf.io/td8xh>

Coda-Forno, J.*, **Witte, K.***, Jagadish, A.K., Binz, M., Akata, Z. & Schulz, E. (under review). Inducing anxiety in large language models can induce bias. <https://arxiv.org/abs/2304.11111>

Presentations

INVITED TALKS

2025	Ludwig Maximilians University , Joint TUM LMU lab meeting (Pachur lab and Donkin lab)	Germany
2023	Oxford University , Lab meeting of Browning Lab	UK
2023	University College London & MIT (virtual) , Lab meeting of Affective Brain Lab	online
2022	Harvard University , Lab meeting of Phelps Lab	online
2022	University College London , Joint lab meeting of Huys lab and Dolan lab	UK

CONTRIBUTED PRESENTATIONS

Witte, K., Thalmann, M., Schulz, E. (2024). Exploring the Reliability and Validity of Exploration Tasks. Poster: Summer Meeting of the British Association for Psychopharmacology.

Witte, K., Wise, T., Huys, Q.J.M.* & Schulz, E.* (2023). People that worry more explore more. Poster spotlight talk: Computational Psychiatry Conference 2023.

Witte, K., Wise, T., Huys, Q.J.M.* & Schulz, E.* (2023). People who worry more explore more. Poster: Conference on Cognitive Computational Neuroscience (CCN 2023), Oxford, UK.

Witte, K., Wise, T., Huys, Q.J.M.* & Schulz, E.* (2023). Exploration in safe and risky environments and its relation to depressive and anxious traits and states. Poster: Interdisciplinary Conference on the Study of Mental Health, Heidelberg, Germany.

Witte, K., Wise, T., Huys, Q.J.M.* & Schulz, E.* (2023). Exploration in safe and risky environments and its relation to depressive and anxious traits and states. Poster: Psychologie und Gehirn 2023, Tuebingen, Germany.

Witte, K., Wise, T., Huys, Q.J.M.* & Schulz, E.* (2022). The two faces of anxiety in exploration: Taking risks or playing it safe. Poster: 5th Multidisciplinary Conference on Reinforcement Learning and Decision Making (RLDM), Providence, RI, USA.

Zheng, X., Roelofs, A., **Witte, K.**, & Lemhöfer, K. (2018). Involuntary switching and language control: In search for a new paradigm, or two. Poster: IMPRS Conference 2018, Nijmegen, Netherlands.

Skills

Research Skills	Research Design, Hypothesis Generation, Data Analysis, Scientific Writing
Programming Languages	Python, R, MATLAB, JavaScript HTML
Languages	English (C1), German (native), French (B2), Dutch (A1), Spanish (A1)

Supervision

2023-2024 Co-supervisor (Master Thesis) , Alica Guzmán, Graduate Training Center for Neuroscience, University of Tuebingen	Germany
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Outreach

2021-2024 **Mindful Science Tuebingen**, Event organiser