Kristin Witte

Ph.D. Student at Helmholtz Munich

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Education

PhD Psychology   *Munich, Germany*
Ludwig-Maximilian-Universität · Helmholtz Munich   *2022 - present*

Advisor: Dr. Eric Schulz
Computational models of Anxiety and Depression

MSc Neural and Behavioural Science   *Tuebingen, Germany*
University of Tuebingen · Graduate Training Center for Neuroscience   *2020 - 2022*

GPA: 1.4
Thesis: Exploration, Anxiety and Depression (advisors: Quentin Huys, Eric Schulz)

BSc Psychology   *Nijmegen, the Netherlands*
Radboud University   *2016 - 2019*

GPA: 8.2/10 (cum laude)
Thesis: Neural and Behavioural Correlates of Ambiguity in Intertemporal and Risky Choice (advisors: Bernd Figner, Karin Roelofs)

Research Experience

PhD Thesis   *Munich, Germany*
Max Planck Institute for Biological Cybernetics · Helmholtz Munich   *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   *London, UK*
University College London   *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   *Tuebingen, Germany*
Max Planck Institute for Biological Cybernetics   *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 expriement in JS HTML
· Analysed resulting data using Hierarchical Bayesian computational modelling

Rotation Student   *Tuebingen, Germamy*
University Hospital Tuebingen · Clinic for Psychiatry and Psychotherapy   *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   *Tuebingen, Germamy*

University Hospital Tuebingen · Clinic for Psychiatry and Psychotherapy   *Sep. - Nov.2021*

Kaufmann Lab · Advisor: Prof. Dr. Tobias Kaufmann

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   *Berlin, Germamy*

Max Planck Institute for Human Development   *Oct.2019 - Sept.2020*

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

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   *Cambridge, MA*

Massachusetts Institute of Technology   *Jul. - Aug. 2019*

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

Topic: Affective factors in information processing [PAPER]
· Collected and analysed behavioural data
· Designed an experiment to disentangle different types of information

Honours Bachelor Thesis   *Nijmegen, NL*

Donders Institute for Brain, Cognition and Behaviour   *Sep.2018 - Aug.2019*

Experimental Psychopathology and Affective Neuroscience Lab · Advisors: Prof. Dr. Karin
Roelofs, Prof. Dr. Bernd Figner

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   *Nijmegen, NL*

Donders Institute for Brain, Cognition and Behaviour   *Sep.2017 - Aug.2018*

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

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

Binz, M.,..., **Witte, K.**, ... Schulz, E. (2025). A foundation model to predict and capture human cognition. *Nature*.

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.

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.

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.

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.

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.

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	**Universty 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., Rmus, M., Akata, E., Schulz, E. (2025). Using Llama-3 to Refine Psychotherapy in Silico. Poster: 8th Annual Conference on Cognitive Computational Neuroscience, Amsterdam, NL.

Witte, K., Rmus, M., Akata, E., Schulz, E. (2025). Using Llama for in-vitro optimisation of cognitive behavioural therapy. Poster: Computational Psychiatry Conference, Tuebingen, Germany.

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, Dublin, Ireland.

Witte, K., Wise, T., Huys, Q.J.M.* & Schulz, E.* (2023). People who worry more explore more. Poster: 6th Annual Conference on Cognitive Computational Neuroscience, 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 (C2), 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*

Outreach

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