

Kristin Witte

Ph.D. Student at Helmholtz Munich

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Education

PhD Psychology

Ludwig-Maximilian-Universität · Helmholtz Munich

Advisor: Dr. Eric Schulz

Computational models of Anxiety and Depression

Munich, Germany

2022 - present

MSc Neural and Behavioural Science

University of Tuebingen · Graduate Training Center for Neuroscience

GPA: 1.4

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

Tuebingen, Germany

2020 - 2022

BSc Psychology

Radboud University

GPA: 8.2/10 (cum laude)

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

Nijmegen, the Netherlands

2016 - 2019

Research Experience

PhD Thesis

Max Planck Institute for Biological Cybernetics · Helmholtz Munich

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

Munich, Germany

Nov. 2022 - Present

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

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

London, UK

Feb. - Oct. 2022

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

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

Oct. 2020 - Oct. 2022

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

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

Nov. 2021 - Feb. 2022

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	<i>Tuebingen, Germany</i>
University Hospital Tuebingen · Clinic for Psychiatry and Psychotherapy Kaufmann Lab · Advisor: Prof. Dr. Tobias Kaufmann	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	<i>Berlin, Germany</i>
Max Planck Institute for Human Development Environmental Neuroscience Lab · Advisor: Prof. Dr. Simone Kühn	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	<i>Cambridge, MA</i>
Massachusetts Institute of Technology Affective Brain Lab · Advisor: Prof. Dr. Tali Sharot	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	<i>Nijmegen, NL</i>
Donders Institute for Brain, Cognition and Behaviour Experimental Psychopathology and Affective Neuroscience Lab · Advisors: Prof. Dr. Karin Roelofs, Prof. Dr. Bernd Figner	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	<i>Nijmegen, NL</i>
Donders Institute for Brain, Cognition and Behaviour L2 Language Lab · Advisors: Prof. Dr. Kristin Lemhöfer, Xiaochen Zheng	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

- 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

2026	Ludwig Maximilians University , Lecture on AI applications in Medicine	online
2026	LMU Psychiatric clinic , Forschungsseminar (Research Training Seminar for Psychiatrists)	Germany
2025	Technical University of Munich , Lab meeting of Pachur lab	Germany
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., 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)**, Alicia Guzmán, Graduate Training Center for Neuroscience, University of Tuebingen

Germany

Outreach

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