Anna-Lena **Eckert**

POSTDOC · THEORETICAL COGNITIVE NEUROSCIENCE

✉ anna-lena.eckert@uni-marburg.de | 🏠 https://eckertal.github.io/personal-website/ | ⬡ eckertal

Sum**mary**

I am a post-doc at the Philipps-Universität Marburg and the research cluster "TAM - The Adaptive Mind". My research explores computational approaches to sensory information processing in health and disease. I completed my Ph.D. at the Bernstein Center for Computational Neuroscience and the Charité - Berlin, funded by a scholarship from the Einstein Center for Neuroscience. I graduated Summa Cum Laude in June 2024. My thesis on sensory processing in psychosis received Charité's Robert Koch Award for outstanding dissertaions in 2024.

Qua**lifications**

Postdoc, Theoretical Cognitive Neuroscience

PHILIPPS-UNIVERSITÄT MARBURG

Marburg, Germany
Nov. 2021 - present

- Funding: The Adaptive Mind, funded by the Hessian Ministry for Arts and Sciences
- **Supervision**: Dominik Endres
- **Projects**: Information processing in autism & psychosis, models of sensory attenuation, social inference in depression.
- Other: models for chronic pain, nocebo effects in breast cancer treatment, formal concept analysis

Ph.D. fellow, Neuroscience

CHARITÉ UNIVERSITY CLINIC

Berlin, Germany
Oct. 2018 - June 2024

- Funding: Einstein Center for Neuroscience Berlin, Affiliation: Bernstein Center for Computational Neuroscience Berlin
- **Supervision**: Philipp Sterzer, Felix Blankenburg, Carsten Finke
- **Title**: Sensory processing in psychosis: Evidence for aberrant low-level information processing from multiple modalities and experiments.
- **Grade**: Summa Cum Laude (with distinction)
- **Note**: Thesis submission in 12/2022, defense March 6, 2024, graduation June 27, 2024

M.sc. & B.sc., Psychology

PHILIPPS-UNIVERSITY MARBURG

Marburg, Germany
Oct. 2013 - Sept. 2018

- M.sc. grade: 14.8/15 (with distinction)
- Focus: clinical psychology and neuroscience, Oct. 2017 - Sept. 2018
- **Master Thesis** with Dominik Endres: "A Bayesian Model for Chronic Pain", grade: 15/15
- B.sc. grade: 13.6/15 (very good), Oct. 2013 - Sept.2017
- **Bachelor's thesis** with Dominik Endres: "Movement Primitives in Unconstrained Dance", grade: 15/15
- Data collection: motion capture; dimensionality reduction, model comparison

Abitur

DAHLMANNGYMNASIUM

Bad Segeberg, Germany
Sept. 2004 - May 2012

- Linguistic profile, **General grade: 1.0** (valedictorian)

Sti**pends and awards**

Charité Berlin	Robert Koch Dissertation Award (650€), nominated for Humboldt Prize	Nov. 2024	*Be*
BCCN Berlin	Winner of Science Slam ("Is your brain a computer?")	Aug. 2022	*Be*
Charité - University Clinic Berlin	PhD Fellowship (∼ 8,100€)	Nov. 2021 - Mar. 2022	*Be*
Einstein Center for Neurosciences	PhD Fellowship (∼ 66,000€)	Oct. 2018 - Oct. 2021	*Be*
Einstein Foundation Berlin	Open Innovation in Science Award (5,000€)	Sept. 2019	*Be*
Studienstiftung des Dt. Volkes	Undergraduate & postgraduate fellow (∼ 25,000€)	Dec. 2013 - Sept. 2018	*Marb*

Job**s**

Student research assistant

PERSONALIZED PSYCHOTHERAPY WORKGROUP & ASSOCIATIVE LEARNING GROUP

Marburg, Germany
Feb. 2015 - Aug. 2018

- *2017-2018*: Supervisor: Eva-Lotta Brakemeier; tasks: manuscript editing, data management, ethics- and grant proposal editing
- *2015-2017*: Supervisor: Anna Thorwart & Metin Üngör; tasks: data collection (behavioral and eye-tracking studies), tutoring (2015, 2016)

Research skills & interests

Software	**Python** (intermediate-advanced): experimental software (*psychopy*), behavioral data pre-processing and analysis (*pandas, numpy, scipy*), graphical models (*pymc3, pymdp*), visualization (*matplotlib, seaborn*) and others **R** (good basic): generalized linear- and logistic models, teaching frequentist statistics in R at master's level e.g. data pre-processing, ANOVA, ANCOVA, regression **JavaScript** (good basic): programming of visual experiments to be implemented online (*jsPsych*) web-hosting using JATOS, recruitment using Prolific, SONA **git** (intermediate-advanced): version control in GitHub and GitLab, collaborative development, instructor in 2022 **LaTeX** (advanced): instructor for different groups since 2021; **Microsoft Office** (advanced): PowerPoint, Word, Excel
Experimental	**Behavioral psychophysics**: perceptual decision-making: visual motion and orientation, auditory rate, bistability; task design, data collection, pre-processing, analysis, visualization **fMRI, TMS**: MRI: Siemens Prisma 3-Tesla System; TMS: MagPro R30 stimulator; data collection (in 2019) **Motion Capture**: Inertial motion capture system Xsens system; data collection, analysis (in 2016) **Eye tracking**: Tobii screen-based eye-tracking; data collection (from 2015-2016)
Statistics	**Computational modelling**: Partially Observable Markov Decision Processes (POMDPs), Active Inference, belief propagation, sum-product message passing, optimization **Frequentist statistics**: statistical tests, regression models (linear, logistic)
Project management	EMF-Certificate 2023-2024 on on grant proposal writing, project management and leadership
Teaching	**2024:** Evaluation of Psychological Interventions (applied statistics seminar in R, two parallel groups), Mandatory seminar of the master's program in psychology, Marburg **2022:** Introduction to Python and git, international Master's Program Medical Neuroscience Berlin (6 sessions) **2015, 2016:** Tutorials Associative learning, University of Marburg
Supervision	**M.sc.** Sophia Lieb (*current*): "Splitting" in Borderline Personality Disorder as aberrant belief propagation Sabrina Nasri-Roudsari (*current*): Computational models of perceptual inference in autism and psychosis Andreas Beskid (*current*): Experimental evidence for Bayesian accounts of pain **B.sc.** Thorben Haagt (*current*) A hierarchical model of perceptual inference and its alterations in autism and psychosis Sabrina Nasri-Roudsari (*completed*) Longitudinal modelling of nocebo effects in anti-hormonal-therapy Joni Blume (*completed*) Perceptual mechanisms in autism and psychosis: an online experiment. **Rotations** Janik Pawlowski (2022), Andreas Beskid (2023), Yael Gounitski (2021)
Peer-reviews	Peer-reviewer for *eLife*, *European Journal of Pain*, *Computational Psychiatry*, *Communications Psychology*

Internships and summer schools

Summer Schools — *France, Switzerland*
UNIVERSITÉ BORDEAUX, ETH ZÜRICH, STUDIENSTIFTUNG DES DT. VOLKES — *2014 - 2021*

- **Bordeaux 2021**: Advanced Scientific Programming in Python (ASPP) Summer School, Université de Bordeaux
- **Zürich 2019**: Computational Psychiatry Course (CPC), ETH Zuerich
- **Leysin 2015**: The Biology of Ageing, Studienstiftung des deutschen Volkes
- **Ftan 2014**: Behavior Change in Theory and Application, Studienstiftung des deutschen Volkes

Research Internship — *Honolulu, Hawai'i, U.S.A.*
HEALTH BEHAVIOR CHANGE RESEARCH GROUP — *Apr. 2016 - Sept. 2016*

- Editing and assisting on manuscripts and grant proposals
- Data analysis and administration of a project on prevention of childhood obesity

Commitments

present

The Adaptive Mind	Young Pro Representative (organizing workshops, extra-curriculars)	since 07/2023
Studienstiftung des Deutschen Volkes	Selection commission member	since 10/2019

past

Arbeiterkind e.V.	Speaker, mentor for first-generation academics	08/2019 - 12/2021
Scholar Minds	Co-founder, local academic mental health network	03/2019 - 08/2021
Studienstiftung des Deutschen Volkes	Regional fellow representative in Marburg	07/2017 - 07/2018
Student representative	Institutional review board (06/2014 - 02/2018), treasurer (11/2015 - 11/2017), faculty council rep. (01/2015 - 03/2016), appointment commission (10/2014 - 03/2015)	