

## Lukas Gehrke curriculum vitae

PhD candidate in Human Factors at Technical University (TU) Berlin, Germany

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### Education & Employment

early PhD Candidate & Research Associate

2021 Department of Biopsychology and Neuroergonomics, TU Berlin

- two time three months visiting scholar with the Swartz Center for Computational Neuroscience (SCCN) at University of California San Diego (UCSD)
- Prospective thesis: Neural dynamics of human egocentric and allocentric spatial map learning during active navigation  
Advisors: Prof. Klaus Gramann (TU Berlin), John R. Iversen (Associate Director, SCCN, UCSD)

2020 Research Intern HCI/Neurophysiology

Chatham Labs (acquired by Facebook Reality Labs), Toronto, Canada

2020 Wissenschaftlicher Berater / Scientific Consultant

Lukas Gehrke, wissenschaftliche Beratung (Freiberuf), Berlin

2015 MSc Human Factors, TU Berlin

- Thesis work (Preprint on bioRxiv, 2018): Heading computation in the human retrosplenial complex during full-body rotation  
Klaus Gramann, Friederike U. Hohlefeld, **Lukas Gehrke**, Marius Klug  
[Awarded NSF travel grant to present master thesis at 'yourbrainonart' conference 2016, Cancún, Mexico]  
Thesis Committee: Klaus Gramann, Bernhard Riecke (Prof. at Simon Fraser University, Vancouver)
- Student Assistant (2013 - 2015) with Prof. Manfred Thüring (TU Berlin): tutored methods of usability testing and engineering and conducted usability and user experience studies

2012 BSc Cognitive Science, University of Osnabrück

- Thesis (project at Charité, Berlin): Neural mechanisms of regulating sexual arousal: Empathy vs. personal consequences committing misconduct (a fMRI study)  
Thesis Committee: Peter König (Prof. at University of Osnabrück), Henrik Walter (Prof. at Charité, Berlin)

### Publications peer-reviewed

2021 The Audiomaze: An EEG and motion capture study of human spatial navigation in sparse augmented reality

Makoto Miyakoshi, **Lukas Gehrke**, Klaus Gramann, Scott Makeig, John R. Iversen  
*Eur J Neurosci.* 2020; **00**: 1- 10.

2021 Mobile brain/body imaging of landmark-based navigation with high-density EEG

Alexandre Delaux, Jean-Baptiste de Saint Aubert, ..., **Lukas Gehrke**, ..., Ricardo Chavarriaga, Angelo Arleo  
*European Journal of Neuroscience.* (in review)

- 2021 Single-trial Regression of Spatial Exploration Behavior Indicates Posterior EEG Alpha Modulation to Reflect Egocentric Coding  
**Lukas Gehrke**, Klaus Gramann  
*European Journal of Neuroscience. (in review)*
- 2019 Detecting Visuo-Haptic Mismatches in Virtual Reality using the Prediction Error Negativity of Event-Related Brain Potentials  
**Lukas Gehrke**, Sezen Akman, Pedro Lopes, ..., Klaus Gramann  
*In Proc. CHI, Paper 427*  
 [Awarded 1st Place (3000€) Human and Technology 2019, Association of German Engineers]
- 2019 Extracting Motion-Related Subspaces from EEG in Mobile Brain/Body Imaging Studies using Source Power Comodulation  
**Lukas Gehrke\***, Luke Guerdan\*, Klaus Gramann  
*In Proc. IEEE/EMBS Conference on Neural Engineering (NER), pp. 344–347.*  
 [Luke Guerdan was awarded a RISE stipend of the German Academic Exchange Service]
- 2019 MoBI - Mobile Brain/Body Imaging  
 Evelyn Jungnickel, **Lukas Gehrke**, Marius Klug, Klaus Gramann  
*Academic Press, Neuroergonomics, pp. 59–63*
- 2019 Neurofeedback during Creative Expression as a Therapeutic Tool  
 Stephanie Scott, **Lukas Gehrke**  
*Springer Series on Bio- and Neurosystems, Vol. 10*  
 [Awarded NSF travel grant to join hackathon at 'yourbrainart' conference 2017, Valencia, Spain]
- 2018 The Invisible Maze Task (IMT): Interactive Exploration of Sparse Virtual Environments to Investigate Action-Driven Formation of Spatial Representations  
**Lukas Gehrke**, John R. Iversen, Scott Makeig, Klaus Gramann  
*Lecture Notes in Computer Science, vol 11034, pp. 293–310*
- 2017 Mobile Brain/Body Imaging (MoBI) of Spatial Knowledge Acquisition during Unconstrained Exploration in VR  
**Lukas Gehrke**, Klaus Gramann  
*In Proc. Neuroadaptive Technology Conference (p. 127)*

I review(ed) for: Frontiers, ACM CHI; IEEE VR

## Advising completed

Sezen Akman, MSc at TU Berlin; Richard Wenzel, MSc at TU Berlin

Charlotte Burmeister, BSc at TU Berlin

Luke Guerdan, University of Missouri and Albert Chen, University of Chicago, US Undergrads

## References

**Klaus Gramann** PhD, Professor, Department of Biopsychology and Neuroergonomics, TU Berlin

**Pedro Lopes** PhD, Assistant Professor, Department of Computer Science, University of Chicago

**John R. Iversen** PhD, Associate Director, Swartz Center for Computational Neuroscience, University of California San Diego

**Thorsten Zander** PhD, Group Lead Team PhyPa (Physiological Parameters for Adaptation) at TU Berlin and CEO of Zanderlaboratories BV

## Publications other

- 2018 Heading computation in the human retrosplenial complex during full-body rotation  
Klaus Gramann, Friederike U. Hohlefeld, **Lukas Gehrke**, Marius Klug  
*bioRxiv 2018*
- 2018 The BeMoBIL Pipeline - Facilitating Mobile Brain/Body Imaging (MoBI) Data Analysis in MATLAB  
Marius Klug, **Lukas Gehrke**, Friederike U. Hohlefeld, Klaus Gramann  
*In Proc. 3rd International Conference on Mobile Brain/Body Imaging (p. 131)*
- 2018 Prototypical Design of a Solution to Combine Head- Mounted Virtual Reality and  
Electroencephalography  
Richard Wenzel, **Lukas Gehrke**, Klaus Gramann  
*In Proc. 3rd International Conference on Mobile Brain/Body Imaging (p. 112)*
- 2016 Human Retrosplenial Activity during Physical and Virtual Heading Changes revealed by Mobile  
Brain/Body Imaging (MoBI)  
**Lukas Gehrke**, Klaus Gramann  
*Poster at yourbrainonart 2016, Cancun, Mexico.*