

## Address

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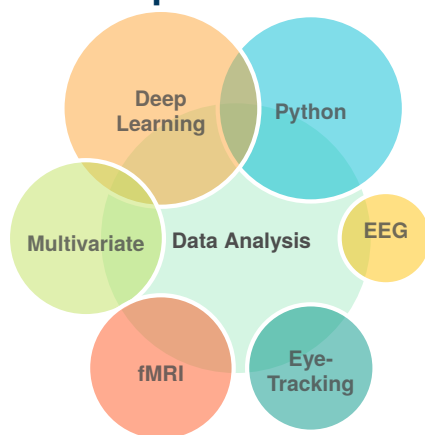
## ORCID

0000-0002-6888-8101

## OSF

osf.io/f9nzs/

## Expertise



## Programming

Python ★★★★★  
R ★★★★★  
Matlab ★★★★★  
FSL ★★★★★  
Latex ★★★★★  
Linux ★★★★★  
Java ★★★★★

## Education

- 2022-present **Postdoc** Ruhr University Bochum, Germany  
“Data Science projects involving machine learning and deep learning”
- 2016-2022 **PhD student** Ruhr University Bochum, Germany  
Thesis: “Understanding Neural Representations Through Deep Neural Networks”
- 2014 - 2016 **Master of Science in Psychology** Ruhr University Bochum, Germany  
Thesis: “Building a general visual decoder using encoding-decoding models in fMRI”
- 2011 - 2014 **Bachelor of Science in Psychology** University of Bonn, Germany  
Thesis: “Individual differences in empathy and vicarious embarrassment correlate with grey and white matter differences”

## Research Projects

- Memory** Representational memory formats using advanced multivariate methods  
Structure and formats of stressful and trauma-analogue memories  
Transformation of memories during sleep using targeted memory reactivation  
Navigating through conceptual spaces  
Event segmentation during episodic memory recall
- Modeling** Utilizing deep neural networks to analyze data patterns beyond perception  
Perceptual and conceptual processing in humans and machines  
Encoding/Decoding models in 7T-fMRI/3T-fMRI/EEG  
Using NLP models to study semantic content and structure of narratives

## Publications

- in preparation  
**Heinen\***, Rau\*, Herweg\* & Axmacher (in prep.)  
**Perceptual and conceptual representations in memory encoding, consolidation and retrieval**
- Kobelt\*, Waldhauser\*, Rupiotta, **Heinen**, Kessler & Axmacher (in prep.)  
**Tracking neural representations of trauma-analogue memory intrusions**
- Rau, Fellner, **Heinen**, Zhang, Johnson, Yin, Asano, Ofen & Axmacher (in prep.)  
**Memory reinstatement and transformation in children and adolescents**
- Heinen**, Lech, Suchan & Axmacher (in prep.)  
**Distinct neural patterns during categorization learning reflect switching between strategies**

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preprints/submitted

Hucke, **Heinen**, Wascher & van Thriel (submitted)

**Trigeminal stimulation is required for a spatial representation of odor perception in the brain: A time-resolved multivariate EEG and fNIRS study**

Jeunehomme\*, **Heinen**\*, Stawarczyk, Axmacher & D'Argembeau (submitted)

**Representational dynamics of memories for real-life events**

*preprint: doi:10.1101/2022.02.18.480992*

Lukaschweski, Waldhauser, Dings, **Heinen**, Newen & Axmacher (preprint)

**Visual perspective in autobiographical memories of self-incongruent episodes**

doi:10.31234/osf.io/nt7g3

published

Bierbrauer, Fellner, **Heinen**, Wolf & Axmacher (2021)

**The memory trace of a stressful episode**

*Current Biology. doi:10.1016/j.cub.2021.09.044*

Hucke\*, **Heinen**\*, Pacharra, Wascher & van Thriel (2021)

**Spatiotemporal Processing of Bimodal Odor Lateralization in the Brain Using Electroencephalography Microstates and Source Localization**

*Frontiers in Neuroscience. doi:10.3389/fnins.2020.620723*

Liu, Zhang, Ni, Ren, Yang, Lu, Wang, **Heinen**, Axmacher & Xue (2020)

**Stable maintenance of multiple representational formats in human visual short-term memory**

*Proceedings of the National Academy of Sciences. doi:/10.1073/pnas.2006752117*

Schenk, Bellebaum, Lech, **Heinen** & Suchan (2020)

**Play to win: Action Video Game Experience and Attention Driven Perceptual Exploration in Categorization Learning**

*Frontiers in Psychology. doi:/10.3389/fpsyg.2020.00933*

**Heinen**, Deuker, Naselaris & Axmacher (2019, September 13-16)

**Using deep neural network features to predict voxelwise activity in ultra-high field fMRI**

*Paper presented at CCN 2019. doi:10.32470/CCN.2019.1165-0*

Melchers, Markett, Montag, Trautner, Weber, Lachmann, Buss, **Heinen** & Reuter (2015)

**Reality TV and vicarious embarrassment: An fMRI study**

*NeuroImage. doi:/10.1016/j.neuroimage.2015.01.022*

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## Conferences and Talks

|             |  |                  |
|-------------|--|------------------|
| 2020        | <b>Joined Berlin Bochum PhD Symposium</b> , online<br>Organization of career/coaching workshops, talks and mind-matching.                            | Organization     |
| 2019        | <b>Cognitive Computational Modeling</b> , Berlin<br><i>Using deep neural network features to predict voxelwise activity in ultra-high field fMRI</i> | Poster and Paper |
| August 2018 | <b>Blue Square RUB</b> , Bochum<br><i>»We are the robots - A.I. in movies«</i>   | Talk             |
| 2016        | <b>International Conference on Memory</b> , Budapest<br><i>Vulnerability of fMRI-based lie detection to covert counter measures</i>                  | Poster           |

## Teaching

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|------------|--|
| since 2017 | <b>fMRI Theory and Practical</b>   |
| since 2017 | <b>Psychopharmacology</b>  |
| 2018       | <b>Classical Cases in Neuropsychology</b>                                      |
| since 2019 | <b>Supervision of Bachelor and Master theses</b><br>5 Bachelor/4 Master theses |