

# Sam Gijzen

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## Skills

<b>Techniques</b>	Multimodal Machine Learning, Pretraining, Bayesian Statistics, Hypothesis Testing, Experimental Design
<b>Languages</b>	Python, MATLAB, JavaScript, Git
<b>Data Science</b>	Pytorch, Scikit-Learn, SciPy, PyMC, SQL, NumPy, Pandas
<b>Communication</b>	English (Fluent), Dutch (Mother Tongue), German (Intermediate)

## Experience

### Postdoctoral Researcher: Machine Learning for Clinical Neuroimaging

Berlin, Germany

HERTIE INSTITUTE FOR AI IN BRAIN HEALTH, TÜBINGEN

Jan. 2023 - PRESENT

CHARITÉ BERLIN, DEPARTMENT OF PSYCHIATRY AND PSYCHOTHERAPY

- Multimodal machine learning (MRI, EEG, clinical) for disease diagnosis and therapy outcome prediction
- Methods development in self-supervised deep learning, focused on similarity-based learning for brain data

### Research Assistant

London, UK

KING'S COLLEGE LONDON, DEPARTMENT OF NEUROIMAGING

Jul. 2017 - Sep. 2018

- Large-scale brain imaging research and analysis leading to two publications
- Project coordination and communication with scientists, radiologists, pharmacological industry, and medical staff

### MSc Internship

London, UK

KING'S COLLEGE LONDON, DEPARTMENT OF NEUROIMAGING

Nov. 2016 - Jul. 2017

- Application of multiple brain imaging techniques and analyses (fMRI, MRS, EEG)
- Thesis: Component Analyses to study timeseries of neural data under pharmacological intervention

### Research Assistant

Maastricht, Netherlands

MAASTRICHT UNIVERSITY

Aug. 2016 - Nov. 2016

- Designing, programming, and piloting experimental work using high-field MRI

## Education

### PhD + Dr. rer. nat. in Computational Cognitive Neuroscience

Berlin, Germany

NEUROCOMPUTATION AND NEUROIMAGING UNIT, FREE UNIVERSITY BERLIN

Oct. 2018 - Dec. 2022

- Bayesian statistics, modeling of behavioural and brain data, reinforcement learning
- DAAD International Research Scholarship
- Competitive doctoral program: Berlin School of Mind and Brain
- Thesis: The brain as a generative model: information-theoretic surprise in learning and action [link]

### MSc Research Master in Cognitive and Clinical Neuroscience

Maastricht, Netherlands

MAASTRICHT UNIVERSITY

Oct. 2015 - Sep. 2017

- Neuroimaging Internship at King's College London

### BSc Psychology

Maastricht, Netherlands

MAASTRICHT UNIVERSITY

Oct. 2012 - Sep. 2015

### BSc Industrial Engineering

Eindhoven, Netherlands

TECHNICAL UNIVERSITY EINDHOVEN

Oct. 2014 - Sep. 2015

- Promoted to second year but ended voluntarily.

## Publications

### EEG-Language Pretraining for Pathology Detection [link]

Arxiv, 2024 GIJSEN, S, RITTER, K

### EEG mismatch responses in a multi-modal roving stimulus paradigm provide evidence for probabilistic inference across audition, somatosensation and vision [link]

Human Brain Mapping, 2023 GRUNDEI, M, GIJSEN, S, BLANKENBURG, M

### **Active inference and the two-step task [link]**

*Scientific Reports 2022*, GIJSEN, S, GRUNDEI, M, BLANKENBURG, M

### **The effect of ketamine and D-Cycloserine on the high frequency resting EEG spectrum in humans [link]**

*Scientific Reports 2022*, NOTTAGE, J F, ..., GIJSEN, S, MITUL, M

### **Neural surprise in somatosensory Bayesian learning [link]**

*PLOS Computational Biology 2021*, GIJSEN, S, ..., BLANKENBURG, F

### **Self-supervised deep learning for encoding pathological between-subject information in EEG data**

*Under Review*, GIJSEN, S, RITTER, K

### **Evaluating clinical and neuroimaging predictors for CBT outcome in OCD**

*Under Review*, TOCHADSE, M, ..., GIJSEN, S, RITTER, K, KATHMANN, N

### **The GPR139 agonist TAK-041 produces time-dependent alterations to cerebral blood flow and reward system function in patients with schizophrenia: a randomised placebo-controlled trial**

*Under Review*, HAWKINS, P C T, ..., GIJSEN, S, ..., LAURENZA, A