

Domenic Bersch

PhD Researcher in Computational Neuroscience & AI

PhD Researcher — NeuroAI

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Education

- Jan 2024 – present **PhD — Artificial Intelligence & Computational Neuroscience**, *Goethe University*, Frankfurt, Germany, CVAI.
Research on brain encoding models, model–brain alignment, and interpretability of deep neural networks.
- Apr 2021 – Jun 2023 **M.Sc. Informatik — Artificial Intelligence (Grade: 1.4)**, *Goethe University*, Frankfurt, Germany.
Master thesis: Model Calibration of Fine-Tuned Deep Neural Networks for Medical Applications
- Oct 2017 – Mar 2021 **B.Sc. Informatik (Grade: 2.0)**, *Goethe University Frankfurt*, Frankfurt, Germany.
Bachelor thesis: Towards a General Library for Deep Learning Models to Understand the Architecture of the Visual Cortex

Publications

- 2026 **Vision Models Capture Complementary Representations in Children That Converge in Adults**, *D. Bersch, T. Schaumlöffel, M. Proietti, A. Franaszek-Traczewska, H.E. Zwad, S. Xie, et al.*, Cognitive Computational Neuroscience (CCN) — Spotlight Presentation.
- 2025 **Catalyzing In Silico Neuroscience with a Toolkit of Accurate Encoding Models of the Brain**, *A.T. Gifford, D. Bersch, D. Janini, G. Roig, R.M. Cichy*, Cognitive Computational Neuroscience (CCN).
- 2024 **The Algonauts Project 2025 Challenge: How the Human Brain Makes Sense of Multimodal Movies**, *A.T. Gifford, D. Bersch, M. St-Laurent, B. Pinsard, J. Boyle, L. Bellec, A. Oliva, et al.*, arXiv:2501.00504.
- 2025 **Net2Brain: A Toolbox to Compare Artificial Vision Models with Human Brain Responses**, *D. Bersch, M.G. Vilas, S. Saba-Sadiya, T. Schaumlöffel, K. Dwivedi, et al.*, Frontiers in Neuroinformatics, 19, 1515873.

Research & Professional Experience

PhD Research

- Jan 2024 – present **PhD Researcher — AI & Computational Neuroscience**, *Goethe University*, Frankfurt, Germany, CVAI.
Research on brain encoding models and alignment between deep neural networks and neural data (fMRI, EEG, MEG). Focus on vision transformers, representation analysis, and model–brain similarity metrics.
- Topics Brain encoding models, Vision Transformers, representation similarity analysis (RSA), model interpretability, multimodal neural data.

Industry Experience (AI & Data Science)

- Jun 2022 – **Computer Vision Software Engineer (Working Student)**, *Seven Principles GmbH*, Frankfurt, Germany.
Present
 - Developed and optimized computer vision and object recognition models for road safety.
 - Supported organization and technical coordination of a cross-company hackathon event.
 - Built reproducible ML workflows and model evaluation pipelines.
- Apr 2021 – **Data Scientist (Working Student)**, *Deloitte*, Frankfurt, Germany.
Jun 2022
 - Built AI solutions in NLP for document question-answering systems.
 - Designed ML pipelines and CI/CD-based deployment workflows.
 - Automated data and business processes using ML and RPA tools.
- Oct 2019 – **IT Working Student**, *Deloitte*, Frankfurt, Germany.
Apr 2021
 - Supported data systems and workflow automation of diverse tasks.
 - Built analytics and reporting tools for tax declaration.
- Aug 2020 – **Informatics Working Student**, *Sanofi*, Frankfurt, Germany.
Oct 2020 VR/AR and internal software tooling support.
- Aug 2019 – **Informatics Working Student**, *Sanofi*, Frankfurt, Germany.
Oct 2019 Python and SharePoint-based internal tools.
- Jun 2017 – **Technical Assistant**, *Bestlage 360 Immobilien (ISIS & Co)*, Frankfurt, Germany.
Jul 2019 IT support and digital media production.
- Oct 2016 – **Lead Generation Agent**, *IDG Direct*, Dublin, Ireland.
Mar 2017 Technical B2B lead generation.

Academic Activities & Scientific Service

- 2027 **Lead Organizer — Algonauts 2027 Challenge**, *Cognitive Computational Neuroscience (CCN)*, Edinburgh, UK.
Lead organizer of the Algonauts 2027 challenge, in collaboration with CNeuroMod. Launching late 2026 and featured at CCN 2027.
- 2026 **Keynote & Tutorial — In Silico Neuroscience: An Emerging Paradigm for Brain Discovery**, *Cognitive Computational Neuroscience (CCN)*, New York University, New York, USA.
Keynote and hands-on tutorial on generating in silico neural responses at scale with BERG, presented with A.T. Gifford.
- 2025 **Co-Organizer and Presenter — Algonauts 2025 Award Ceremony**, *Cognitive Computational Neuroscience (CCN)*, Amsterdam, Netherlands.
Organized and presented the Algonauts 2025 challenge results and award session.
- 2024 **Workshop Host — Unveiling Cortical Functions with Net2Brain**, *Cognition Academy Cohort 2024*, *Max Planck Institute*, Schloss Eckberg, Dresden, Germany.
Hosted and taught a hands-on workshop on using Net2Brain to analyze cortical function from brain and model representations.
- 2023 **Oral Presentation — Net2Brain**, *Vision Sciences Society (VSS)*, St. Pete Beach, Florida, USA.
Talk on the Net2Brain toolbox for model–brain representation comparison.

Student Supervision

- 2025 – **Student Project Supervision — Vision Transformer Interpretability**, *Research Project*, present Goethe University.
Supervision of a student research project on inner interpretability of Vision Transformers; dataset creation and release in preparation.
- 2024 **Bachelor Thesis Co-Supervision**, *Artificial Intelligence*, Goethe University.
Co-supervised a bachelor thesis project on inner interpretability of computer vision models.

Computer Skills

Programming Python, PyTorch, TensorFlow/Keras, R, C++, Java
AI/ML Computer Vision, NLP, Brain Encoding Models, Explainable AI
Neuro Data fMRI, EEG, MEG, RSA, encoding models
Tools Git, Docker, CI/CD, Linux, SQL, PowerBI

Research Interests

Artificial Intelligence, Computational Neuroscience, Brain Encoding Models, Vision Transformers, Model Interpretability