

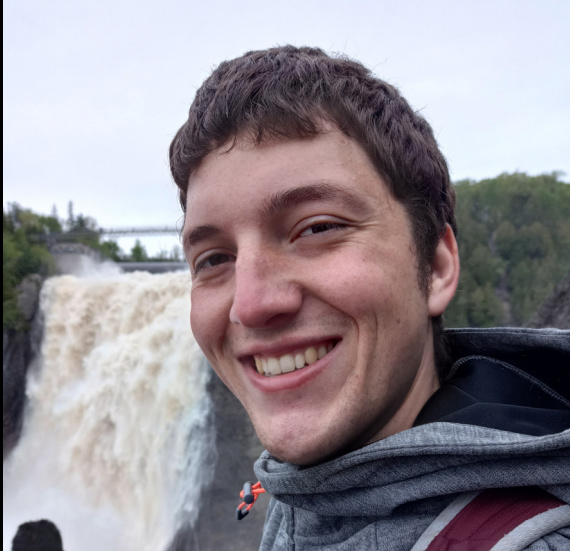
Decoding Human Brain Architecture with Artificial Intelligence

Successful R & I in Europe 2025 - 12th European Networking Event

Christian Schiffer | Institute of Neuroscience and Medicine (INM-1), Helmholtz AI | Forschungszentrum Jülich



About me



Dr. Christian Schiffer
team leader *Large-scale AI
for Brain Mapping*

B. Sc. *Scientific Programming* (FH Aachen, 2016)

Mathematisch-technischer Softwareentwickler (IHK)

M. Sc. *Technomathematik* (FH Aachen, 2018)

Dr. rer. nat. *Informatik* (HHU Düsseldorf, 2022)

Team leader *Large-scale AI for Brain Mapping* (INM-1, FZJ, 2023)

Helmholtz AI Young Investigator Group Leader



Research focus

AI for large-scale analysis of
human microarchitecture
from microscopic images of
histological brain sections



Institute of Neuroscience and Medicine (INM-1)

Director: Prof. Dr. Katrin Amunts



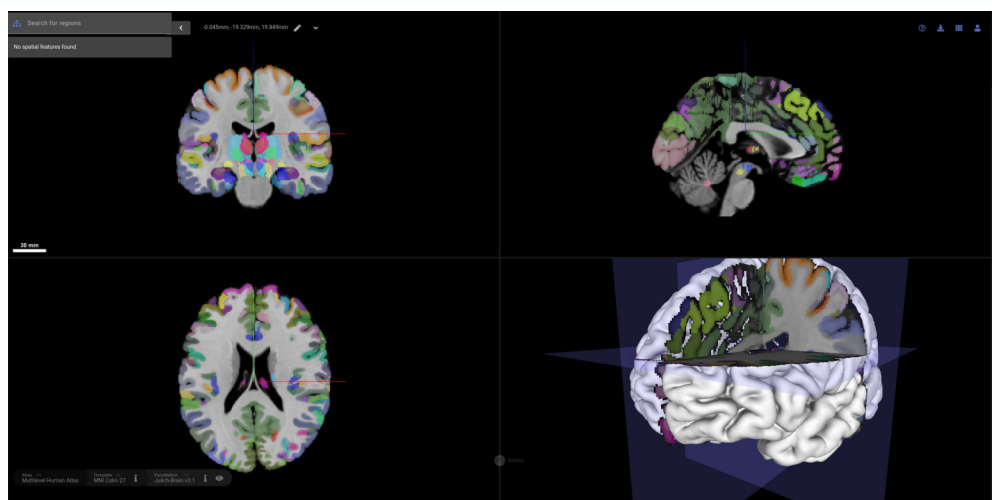
Big Data Analytics (BDA)

Head: Prof. Dr. Timo Dickscheid

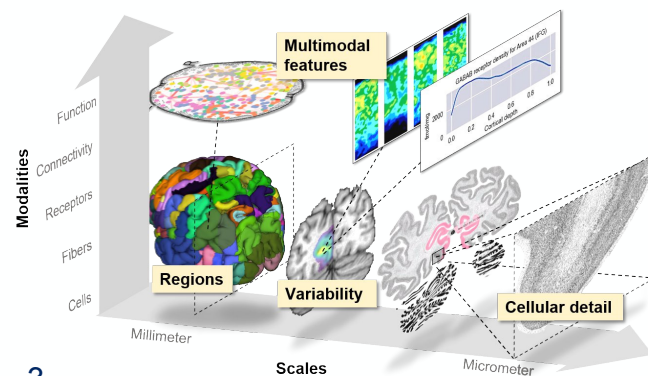
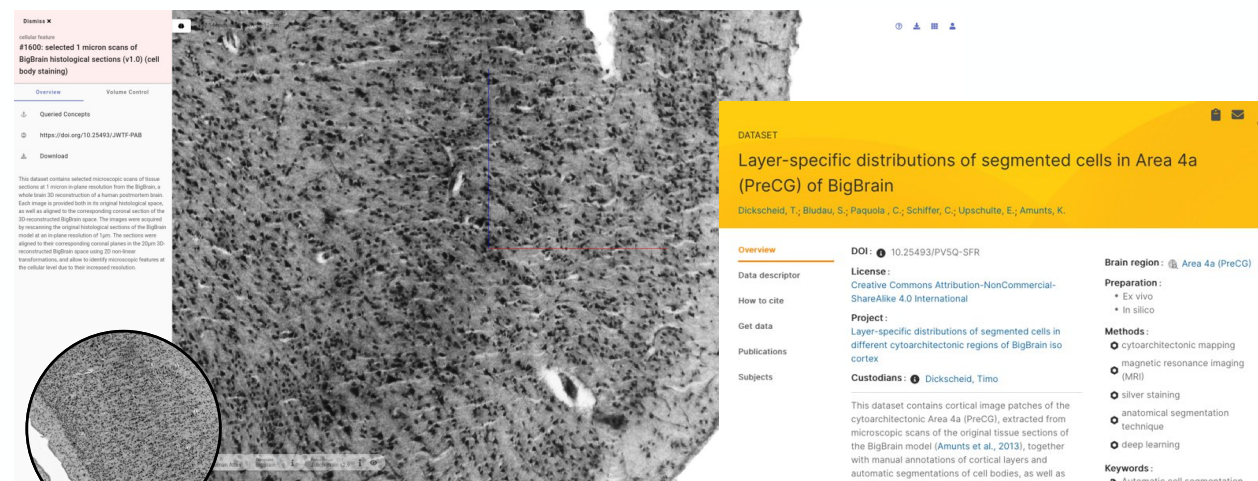
Human Brain Atlas



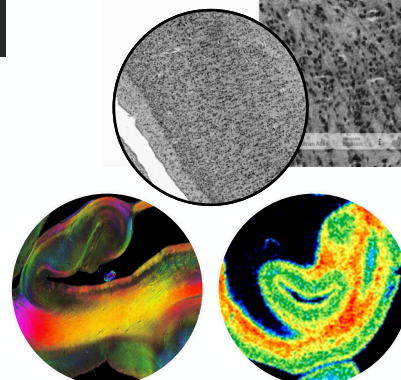
An interactive, high-resolution, multi-modal 3D map of the human brain



Microscopic resolution



Accessible

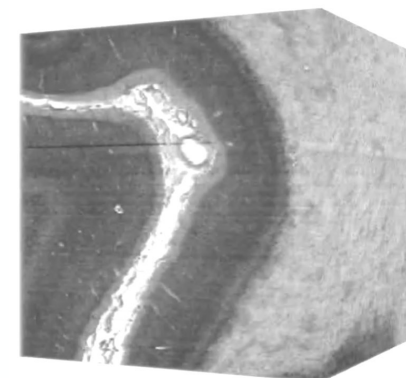


FAIR

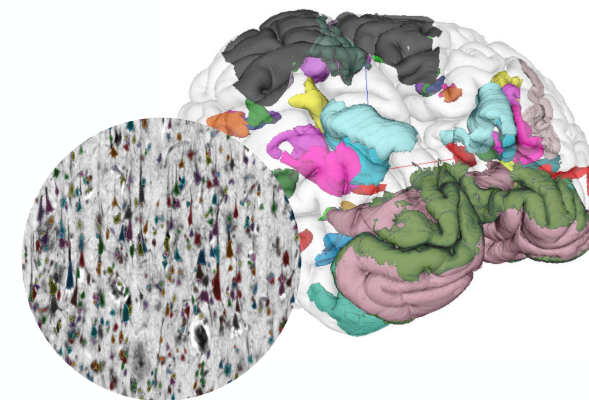
EBRAINS Knowledge Graph

AI for Decoding the Human Brain

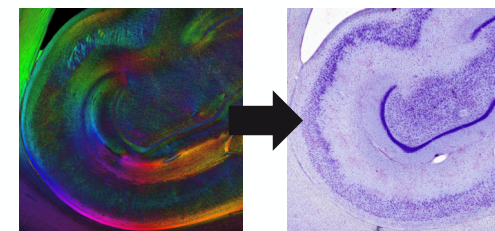
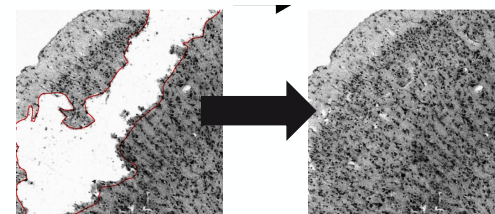
- **Microscopic analysis with AI**
- **Goal: A foundation model for brain microarchitecture**
- **Results contribute to the human brain atlas**



3D reconstruction



classification & segmentation



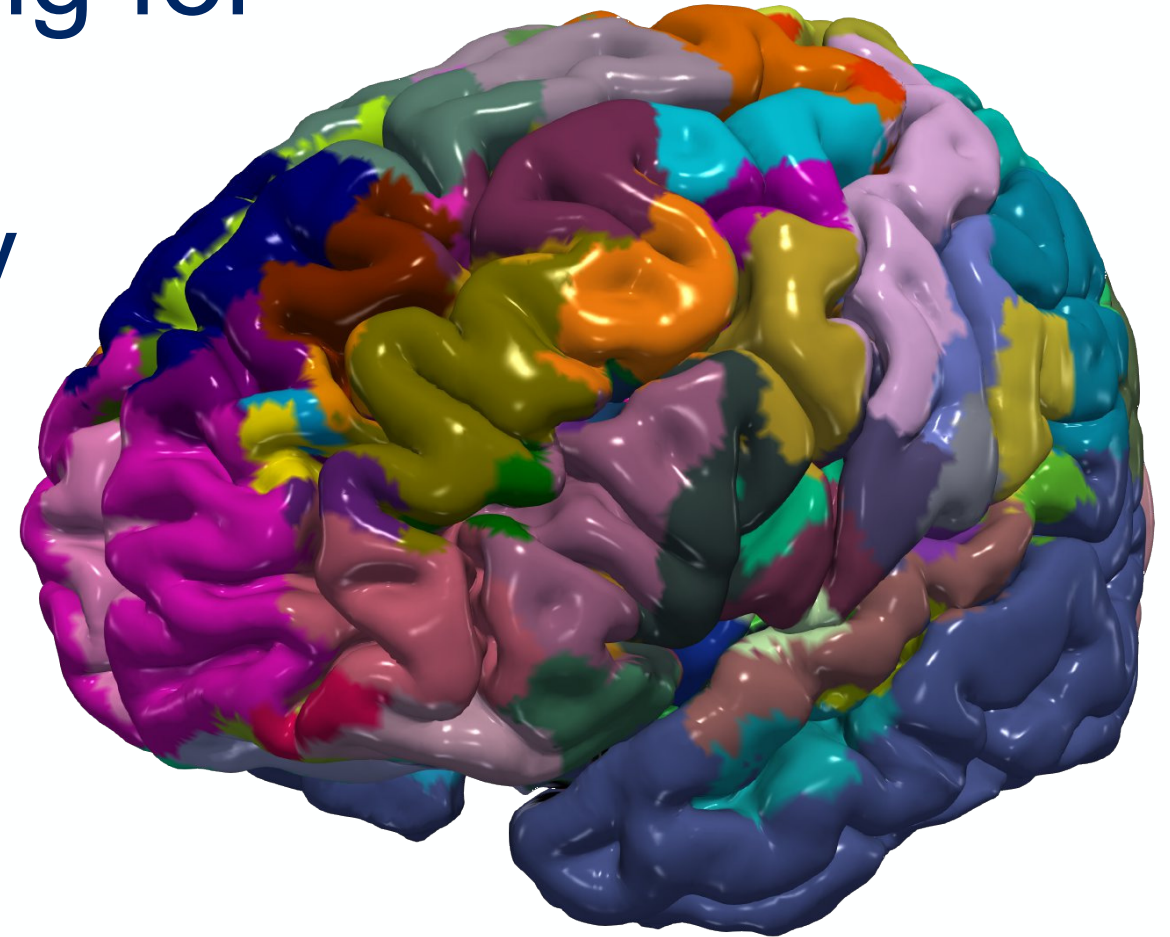
generative AI



HPC workflows for AI

Partners we are looking for

- PIs and lead scientists in **biology** and **brain-inspired AI**
- **Policy makers** in AI
- **Users or contributors** to the human brain atlas



Acknowledgements

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Thank you!



Institute of Neuroscience and Medicine (INM-1)



Big Data Analytics (BDA)

