Deutsches Primatenzentrum
Leibniz-Institut für Primatenforschung

MSc. Thesis: Morphometry and Fiber Tracking of Human and Nonhuman Primate Data

Are you passionate about computational methods, advanced imaging, and uncovering the structure and connectivity of the brain?

The Functional Imaging Laboratory at the German Primate Center is looking for a highly motivated student, ideally from physics, computer science, or a similar background, to develop an innovative, high-performance morphometry and fiber-tracking pipeline for both clinical human data and nonhuman primate datasets.

Project focus

Structural MRI: Work with high-resolution 3D brain images that offer excellent grey–white matter contrast. You will develop a morphometry pipeline to quantify brain volume, shape, and structural changes across subjects and time points.

Diffusion MRI: Use diffusion based MRI to map white-matter pathways. You will build and optimize a fiber-tracking workflow, enabling the reconstruction of major neural tracts in both human patient (UMG collaboration) and nonhuman primate data from the DPZ.

Your goal

Create an integrated pipeline that overlays DTI-derived fiber tracts onto structural MRI, providing a combined view of brain structure and connectivity.

Why this thesis?

- Gain hands-on experience with state-of-the-art structural and diffusion MRI
- Contribution to computational tools that support robust analysis of brain structure and connectivity
- Direct involvement with clinical and preclinical neuroimaging datasets
- Development of valuable skills in image processing, scientific programming, and quantitative data analysis

If you enjoy image processing, scientific computing, and quantitative neuroscience, this project offers an excellent opportunity to deepen your expertise in advanced computational neuroimaging.

Your profile

- Experience with programming (bash, python, and/or MATLAB) [required]
- Experience in creating pipelines and workflow [desired]
- Magnetic resonance imaging (MRI) knowledge [helpful]

If you are interested, please contact Tor Rasmus Memhave (tmemhave@dpz.eu)