The **fMRI lab** (http://fmri.at) at the MR Centre of Excellence of the Medical University of Vienna, Austria (http://meduniwien.ac.at) invites applications for two fully funded PhD student positions. We are a functional neuroimaging research group at the Center for Medical Physics and Biomedical Engineering and the MR Center of the Medical University of Vienna. Closely connected to the Vienna General Hospital, one of the largest hospitals in the world, and not too far away from the University of Vienna, the MR Center is an ideal place for our fMRI group for interdisciplinary clinical and basic biomedical research, as well as collaborations in biological psychology and cognitive science projects. Furthermore, the improvement and development of novel acquisition, data processing and analysis methods are central topics of our group.

Retinotopic population receptive field (pRF) mapping

Retinotopy describes a fundamental property of the human visual system. Areas on the retina are mapped on the visual cortex in an orderly fashion. Functional magnetic resonance imaging is an ideal non-invasively approach for assessing this retinotopy in-vivo. Through well-defined visual stimulation of the retina, every voxel on the visual cortex can be assigned to a specific area on the visual field, the so-called population receptive fields (pRF). There is no consensus on an objective measure of stimulus quality or the optimal, most efficient stimulus variant. In this project, we will develop a computational framework for obtaining quantitative measures of stimulus efficacy. We will also assess stimulus vulnerability against different noise effects including poor image quality and gaze instability. Computational results will be validated at by performing six group pRF fMRI studies each targeting a specific stimulus feature. We will propose novel stimulus patterns based on quantitative efficacy assessment. This allows for stimulus variants tailored to the specific needs in a given study and will ultimately boost clinical applicability of pRF mapping approaches.

The successful candidate should hold an MSc in physics, biomedical engineering, computer science, neuroscience or a related field. Programming skills (e.g. python, CUDA, C++) are essential. Prior experience in fMRI acquisition and analysis is beneficial.

Please send your CV, names of two referees, one-page letter of motivation (emphasizing any related work/projects) and representative publications, if any, to Christian Windischberger christian.windischberger@meduniwien.ac.at. Applications will continue to be considered until the position is filled.