

PhD position in visuo-motor imaging research.

At the Rudolf Magnus Institute of Neuroscience, University Medical Center Utrecht, the Netherlands, a PhD position is available, starting 1/9/2007.

The current project investigates newly discovered cortico-cortical feedback connections between human motor-control brain areas and the visual cortex, and their putative role in selectively reshaping our vision during goal directed movements such as grasping and eye movements.

Several imaging neuroscience techniques will be used in combination. Grasping and eye movement kinematics will be studied in a virtual reality setup. Functional MRI measurements (fMRI) will be combined with diffusion tensor imaging (DTI) to study the neuronal activation dynamics of and the precise anatomical connections between the relevant nodes in the visuo-motor system. The observed nodes in the brain will then be stimulated using recent fMRI guided Transcranial Magnetic Stimulation (TMS) techniques (Neggers et al 2004). Predictions from system theoretical quantitative neuronal models will be compared to the observed neuronal dynamics and induced behavior changes.

The Rudolf Magnus Institute houses several 1.5 T MRI scanners, a 3T Philips Achieva scanner and by the end of 2007 a 7T scanner, all equipped with multiple receive coils (SENSE). The RMI institute employs many (f)MRI and DTI experts. A fully equipped TMS lab using MRI guided neuronavigation is available. Currently a setup allowing concurrent fMRI and TMS is in preparation. This project is set up in cooperation with the Helmholtz Institute at Utrecht University. Utrecht is an interesting historic town in center of the Netherlands at 30 min driving from Amsterdam, with a thriving international academic scene and beautiful surroundings.

Applicants should have excellent computational and numerical skills and a first degree in (bio)physics, mathematics, computer science, neuroscience or biology, and have a profound interest in computational neuroscience. Applicants with a background in (bio)medicine, experimental psychology or a related field will also be considered, provided they have a strong inclination to the natural sciences and mathematical modeling. Programming skills in C++, Matlab or a related language are essential, prior experience in acquiring/analyzing fMRI/DTI data in SPM/AFNI/FSL is an advantage. Dutch language skills are not essential, meetings are usually in English.

Inquiries for additional information and applications can be sent to Dr. S.F.W. Neggers (s.f.w.neggers@umcutrecht.nl). Applicants are expected to send their CV, a short statement of their research interests and contact details of two referees, in English, Dutch or German.

Dr. S.F.W. Neggers
Division of Brain Research
Rudolf Magnus Institute for Neuroscience
Utrecht University Medical Center
E-mail : b.neggers@umcutrecht.nl
Web : <http://www.fmri.nl/people/bas.html>



University Medical Center
Utrecht

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