

PhD student for 'Clinical Neuroscience in Anesthesia' (0,9 - 1,0 fte)

Department of Anesthesiology, Pain and Palliative Care, Radboud University Nijmegen Medical Centre (RUNMC)

Vacancy number: **010041**

Closing date: **open until filled**

Job description

The Department of Anesthesiology at the RUNMC has funding available for a PhD student position in the context of a project focused on advanced EEG analysis for measuring depth of anesthesia and preventing intraoperative awareness.

Being awake and experiencing pain is one of the greatest fears of patients undergoing general anesthesia for an operation. Recall of these events may cause a posttraumatic stress syndrome with devastating effects on the individual. Existing monitoring methods do not fully prevent intraoperative awareness. Patients cannot seek attention by moving because they are paralyzed by neuromuscular blocking agents. Common intraoperative processing of the frontal electroencephalogram (EEG) has been questioned. This technique does not give insight in brain structures involved in consciousness and memory formation. Because we know that all patients—who reported their terrifying experiences—tried to move, the main question is: can we detect attempts to move in the EEG of patients paralyzed during general anesthesia?

You will replace passive processing of EEG with active searching for the crucial signs of a patient trying to move. You will refer to the progress made in brain computer interfacing where intended movements of motor disabled persons are translated into electrical signals controlling electrical devices.

Requirements

Candidates for the PhD position should have a Master's degree (or equivalent) in a field related to cognitive neuroscience or signal processing (e.g. experimental/cognitive psychology, biology, neuroscience, computer science, electrical engineering). Excellent candidates from other scientific backgrounds will also be considered. Good programming skills (Matlab) are highly desirable.

Proficiency in oral and written English is essential. You are expected to work as part of a team, sharing technical know-how and ideas.

Organization

The Department of Anesthesiology at the Radboud University Nijmegen Medical Centre provides clinical anesthesia service for surgical and obstetric patients throughout the UMCN 24 hours a day. The department offers post-surgical pain control services and manages patients with chronic and acute pain and patients in need for palliative care. Besides patient care and providing a residency and fellow program in anesthesia, the Department of Anesthesiology has a dedicated research program including quality of perioperative care, pain and palliative care, long damage and inflammation, and clinical neuroscience in anesthesia.

You will work in close collaboration with the Donders Institute for Brain, Cognition and Behaviour, more particularly its Centre for Neuroscience. The Donders Institute is a platform uniting all cognitive neuroscience on the Nijmegen campus. Its research is divided in four research themes: 1) Language and Communication, 2) Perception, Action, and Control, 3) Learning, Memory & Plasticity and 4) Brain networks and neuronal communication.

Much of the rapid progress in this field is driven by the development of complex neuroimaging techniques for measuring activity in the human working brain. The Donders Institute currently is home to more than 250 PhD students and post-docs from more than 20 different countries, offering a stimulating and multidisciplinary research environment. Moreover, the Donders Institute houses excellent equipment to study the brain in action including three MRI scanners (7T, 3T, 1.5T), a 275 channels MEG system, a EEG-TMS laboratory, several (MR-compatible) EEG systems, and high-performance computational facilities.

Conditions of employment

Employment: 0,9 - 1,0 fte

Salary: Scale 10A; max. Euro 2673 gross amount per month, based on a full time job

Additional conditions of employment

Duration of the PhD student contract: 4 years.

Additional Information

Prof. dr. J. Bruhn, anesthesioloog, (024) 3614406

Application

Preferable online applications

Written applications including CV to

UMC St Radboud

Dhr. K. Hol

Huispostcode 412

Concerns vacancy: 010041

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