

Development of IMU-based algorithms for the detection of preclinical movement changes in Parkinson`s disease

The Christian-Albrechts-Universität (CAU) Kiel is the northern-most full University of Germany located at the Baltic sea with 8 facilities and 25000 students. The Faculty of Medicine is one of the four founding faculties. Research at the Faculty of Medicine is characterised by diverse academic networks and forward-looking interdisciplinary profile areas. The dedicated focus of the Faculty is on digital medicine. The Department is a tertiary referral center for all types of movement disorders and has a large outpatient facility.

One PhD Student position is available in the Neurogeriatrics research group at this Neurology Department. The group focuses on the development and validation of portable device-based algorithms for the evaluation of functional mobility in older adults and patients with Parkinson`s disease. One particular interest is the detection and quantitative evaluation of very early (i.e. preclinical) movement changes in persons with Parkinson`s disease. This evaluation is performed with newly developed movement algorithms based on portable devices. The group has access to data from 1100 older adults with and without increased risk for Parkinson`s disease, with observation periods of up to 8 years (www.trend-studie.de). The available dataset includes 20 persons who converted to Parkinson`s disease during the observation period.

The PhD candidate will be (i) developing functional mobility algorithms for IMU and related sensor data out of the mentioned dataset, (ii) applying existing algorithms as well as validating those novel approaches to clinical and demographic data.

Requirements

- A completed MSc degree in the field of biomedical engineering, biomechanics, neuroscience, movement science, sport science, computer science, electrical engineering or other related fields;
- Strong skill in signal processing, data analysis (with, e.g., Matlab) and biomedical statistics, as well as in database organization and neurophysiology
- Strong skills in biomechanics and/or neurophysiology
- Good command of the English Language and good English writing skills;
- Willing to learn a variety of complementary techniques ranging from sensor-based quantitative autonomic and fine motor testing, to new statistical approaches evaluating, e.g. long-term outcomes;
- Good communication skills and ability to work in a multidisciplinary and international team.

For additional information please contact:

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General eligibility criteria

- Researchers may be of any nationality.
- Researchers must not have resided or carried out their main activity (work, studies, etc.) in the country of the host for more than 12 months in the 3 years immediately prior to their recruitment.
- Applicants should have less than 4 years of postgraduate research experience

Applications

For more information and to upload your application (CV, letter of interest and contact information for potential references) visit www.keep-control.eu.

Deadline for application: June 30, 2017