The Department of Internal Medicine 3 - Rheumatology and Immunology, Friedrich-Alexander-Universität Erlangen-Nürnberg & Universitätsklinikum Erlangen together with the Institute of Applied Dynamics (LTD) Friedrich-Alexander-Universität Erlangen-Nürnberg, are offering a

Master Thesis

Digital biomarkers in inflammatory arthritis – biomechanical and experimental analysis of hand motions

Marker-based motion capturing is the current gold standard for assessing human movement. Movements such as walking are well studied and differences in patterns influenced by diseases or muscular imbalances can be evaluated and used for diagnosis. However, evaluation of fine motor actions such as hand movement are challenging to date. Within the CRC EmpkinS, the Department of Internal Medicine 3 – Rheumatology and Immunology and the Institute of Applied Dynamics (LTD) conducted a large research study. A group of 150 patients and 75 healthy subjects were already measured for characterizing hand movements. These evaluations will help to define hand biomarkers for monitoring disease activity in rheumatic patients.

The project involves

- Biomechanical analysis of hand movements based on the existing data set
- Statistical analysis and reporting of relevant parameters
- Data collection of hand movements via motion capturing and EMG

Qualifications

- Biomedical engineering, engineering with focus on biomechanics, sport science or related studies
- C1 in German (for communication with patients) and B2 in English
- Programming experience in Matlab, Python or similar
- Courses in biomechanics and statistics (desirable), interest in working with patients

What we offer

- Interdisciplinary environment in an innovative Collaborative Research Centre EmpkinS
- Possibility to continue as a PhD student
- Additonal employment as student assistant in the working group Musculoskeletal Function and Mechanobiology, Universitätsklinikum Erlangen

Start date: November 2024
If interested, please E-mail to: Birte Coppers, birte.coppers@uk-erlangen.de