Bachelor /Master Thesis

Robot supported device **calibration, estimation** and **verification** of a sensor system for supporting the rehabilitation of patients with knee endo-prosthetics

**Detailed description**

The project is related to the current development of a device for the assistance of the rehabilitation of patients with knee endo-prostheses. The device utilizes acceleration and movement sensors which are wirelessly connected to the cloud and a tablet. The system monitors the movements of the patient and provides feedback to the patient, therapist and doctor. The evaluation and calibration of the sensor system is a central component of the future development. This project aims at the use of a robot system supported by camera-based tracking system to move the sensor in a similar way as it appears for a human and to measure the resulting positions.

**Requirements**

Theory: Coordinate systems, some elementary insight into control engineering and estimation

Programming: C++, ROS, MATLAB/Octave

**Expectations**

We are looking for open and highly motivated students. The candidate(s) should be open for research challenges in a student project which combines the methodological expertise of the university with the insight of the company.

**Start** as soon as possible

**Contact**

Prof. Dr.-Ing. Rolf Findeisen  
Systems Theory and Automatic Control  
OvGU G07-202  
rolf.findeisen@ovgu.de

**StatConsult GmbH**

Jan Reichmann  
Halberstädter Str. 40a  
39112 Magdeburg  
jobs@statconsult.de