Department of Microsystems Engineering

Research assistantships Informatik/ESE/MST/MSE/SSE

Software development of numerical optimization algorithms for wind turbine control

Department of Microsystems Engineering

Systems Control and Optimization Laboratory

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The Systems Control and Optimization Laboratory is looking for two qualified students with strong programming skills that will contribute to the development of state-of-the-art optimization software and its application to wind turbine control.

Position #1: Software compatibility with Visual Studio

Your tasks: Aim of this position is to implement all necessary changes to the software developed in the group for compilation on Visual Studio (using the native compiler). This intermediate step is necessary to enable the deployment of the developed algorithms on the embedded controller of the wind turbine.

Your skills: You are an experienced C/C++ programmer and have developed software using Visual Studio. You have followed/are following a course on (or you are eager to learn about) numerical optimal control. Previous experience on large software projects as well as familiarity with version control (git) and continuous integration (travis) is preferable. You are able to communicate comfortably in English.

Position #2: Simulink interface for embedded controllers

Your tasks: Aim of this position is to develop a Simulink interface for the optimal control algorithms developed in the group, which are written in C, using the Matlab's Legacy Code Tool. This step is also crucial for the deployment of the algorithms on the embedded hardware of the wind turbine.

Your skills: You are an experienced C/C++ programmer with strong skills on Matlab/Simulink. You have followed/are following a course on (or you are eager to learn about) numerical optimal control. Previous experience on large software projects as well as familiarity with version control (git) and continuous integration (travis) is a plus. You are able to communicate comfortably in English.

Further information on both positions

The duration of the two job contracts, 40 (or more) hours per month, is 2 to 3 months with possible extension depending on the students' progress and interest. Business trips to our industrial partners for hands-on experience are optional and the travel costs are covered by the chair. A follow-up Master Thesis topic on the field can be also discussed. Interested students can send an email to dimitris.kouzoupis@imtek.uni-freiburg.de with their transcript of records and a short CV.