

The Chair of Applied Dynamics at Friedrich-Alexander-University Erlangen-Nuremberg has an immediate offer for a

Project/Master's thesis

on

Model-based control for a ball-balancer system

Based on a structure preserving simulation of a ball-balancer's dynamics, the goal is to design and implement a multi-variable controller (for instance linear quadratic regression (LQR) or model predictive control (MPC)) that stabilizes the system, such that the ball on the plate is able to follow given trajectories. The results are to be compared to an existing experiment using a traditional PID controller.

Necessary qualification

- Technical studies (mechanical engineering, control systems,...)
- Lecture on dynamics of rigid bodies
- Experience in programming in Matlab/Simulink



Desirable qualification (not mandatory)

- Experience in programming in C++

If you are interested, please contact Toufik Bentaleb via e-mail at toufik.bentaleb@fau.de.