



## Bachelor Thesis / Master Thesis

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- Faculty 1 - Mathematics, Computer Science and Natural Sciences
- Faculty 4 - Mechanical Engineering
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### Automated Hyperparameter Identification of a Nonlinear Model Predictive Controller

Model Predictive Controllers (MPC) utilizing a Machine Learning (ML) based process model have been successfully used on a range of power conversion systems. However, MPC tuning is traditionally an iterative and time-consuming process which can be improved through the use of an optimization framework.

#### Your tasks:

- Development of a hyperparameter identification algorithm for the tuning of an existing MPC (e.g. Bayesian Optimization)
- Integration of the algorithm into the existing model and MPC
- Literature research of the above-mentioned topics

#### Your competences:

- Knowledge in Python and/or MATLAB
- Knowledge in ML is beneficial.

#### Your benefits:

- Experience with cutting edge open source ML tools
- International, interdisciplinary research project
- Potential publication opportunities

### Would you like to know more?

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