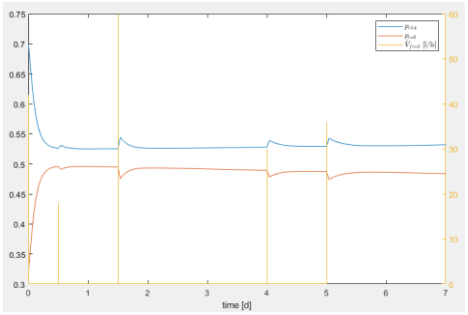
Bachelor‘s/Master’s Thesis in cooperation with DBFZ (Leipzig)

As of now, we offer a research thesis (3-6 months, depending on degree) to motivated students from the fields of control, (bio) process engineering or similar domain on the topic of:

“Optimal experimental design for improved parameter identification of agricultural biogas plants“



Background and goal:

The more than 9000 agricultural biogas plants in Germany are likely to be operated dynamically in the future in order to balance demand peaks in a fluctuating renewable energy grid. This involves an advanced process control, which depends on process models with time-variant parameters. Identifying these parameters can significantly be improved by skillfully designed experiments (optimal experimental design, OED). Hence, this research thesis focusses on different scenarios of an OED in simulations.

Work packages:

- Familiarize yourself with the topic and methods (modelling of anaerobic digestion processes, parameter identification, optimal experimental design)
- Implement methods in Matlab
- Investigate different design parameters, model classes, inflow of different substrates

Requirements:

- Foundational knowledge in math and control theory
- Elementary knowledge in programming with Matlab & thermodynamics
- *Desirable*: Course “Modeling and Identification of Dynamical Systems“ finished, elementary knowledge in modelling of biological systems

Location and contact:

The German Biomass Research Center (*Deutsches Biomasseforschungszentrum*, DBFZ) is an internationally renowned institute with a focus on applied research in the field of bioenergy. It is located in Leipzig. The advertised research thesis is supervised in cooperation between TU Chemnitz and DBFZ. It can be worked on both remote or in person (Leipzig or Chemnitz).

Simon Hellmann (PhD student DBFZ)
Tel.: +49 341 24 34 357
Email: bewerbung@dbfz.de
www.dbfz.de/en

Prof. Stefan Streif (TU Chemnitz)
Email: stefan.streif@etit.tu-chemnitz.de
https://www.tu-chemnitz.de/etit/control/