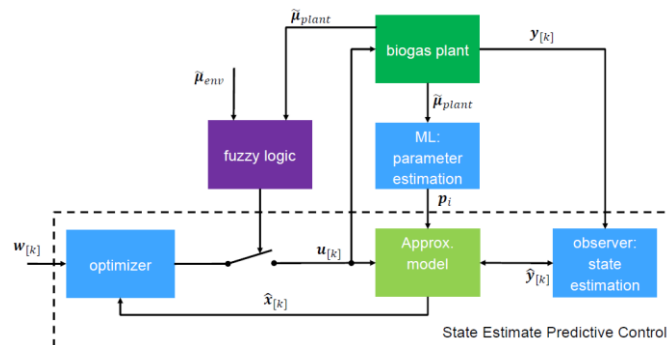


Master Thesis:

„Development of a machine learning model for flexible biogas production“

Project description:

In the coming years, the first biogas plants will fall out of the remuneration by the EEG. The model based control system should enable the plant operators of biogas plants to maximize the revenues on the power exchange in the day-ahead market while at the same time minimizing the use of substrate.



However, the model based control system needs a detailed mathematical model of a biogas plant to be able to produce an efficient control method. Use of a diverse type of feeding in addition to constantly changing chemical and biological parameters in the fermenter add the complexity to create model analytically. Therefore, machine learning approach is used.

Start date: October 1, 2021.

Tasks:

- Literary research (Parameter identification, reinforcement learning)
- Preprocessing of existing measurement data
- Training and validation of machine learning methods

Requirements:

- Prior knowledge in Python
- First experience with reinforcement learning and parameter estimation techniques in machine learning

We offer you:

- The topic addresses an important area of the energy turnaround by increasing the efficiency and flexibility of biogas plants.
- Cooperation in an innovative research project.
- Motivated and dedicated team

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