

Paid Master's Thesis

Model-based monitoring of a renewable flow battery

To dedicated students (m/w/d) of electrical, mechanical, process engineering or physics we offer the opportunity to write a paid Master's thesis. The project will be conducted in cooperation with the Institute of Automation and Control, Graz University of Technology.

Motivation:

Batteries are becoming increasingly more important for our energy system. However, conventional batteries are often based on environmentally harmful and difficult-to-access raw materials such as Lithium.

Renewable flow batteries are a new and environmentally friendly alternative that are based on biocompatible and locally producible substances.



Like all batteries, renewable flow batteries need a monitoring strategy that determines their state (e.g. charge) in real time. For this purpose, model-based methods are used.

The goal of this master's thesis is to develop a model-based monitoring strategy for a real renewable flow battery and to test it at a test-bench provided by us.

Objectives:

- Creation of a mathematical model of the renewable flow battery
- Implementation of the mathematical model in Matlab/SIMULINK
- Development of methods for model-based monitoring based on state observers
- Verification of the developed methods in Matlab/SIMULINK

Your profile:

- Studies in electrical, mechanical, process engineering or physics
- Ideally with some background in hydraulics and control engineering
- Experience with Matlab

Our offer:

- Integration into a dedicated team with good support
- Contribution to transfer towards a sustainable energy system
- Financial compensation
- Provision of a work place (remote work from home also possible)
- Possibility of continuation (e.g. PhD)

Start date: from 01.07.2023

Contact us:

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