Professorship for Bioprocess Engineering
Straubing Campus for Biotechnology and Sustainability
Technical University of Munich

Scale up and Characterization of an Industrial Fermentation Process

Master thesis - Start in October 2024

Overall topic: For industrial biotechnology, efficient fermentation processes are crucial. For this purpose, a soft sensor will be developed to optimally control of a specific bioprocess and thus achieve maximum yields in minimum fermentation time. The soft sensor will continuously measure process parameters, which cannot be measured directly with conventional hardware sensors, based on a model. The project consists of a theoretical programming aspect in addition to a practical fermentation aspect using *Escherichia coli*.

Aim of this master thesis:

- Scale up from a 2 L to 30 L bioreactor
- Testing and Validation of the current SoftSensor in 2 L and 30 L scale
- Generation of training data for the SoftSensor
- Characterization of the process outside the regular cultivation conditions

Responsibilities:

- Experimental Design
- Preparation and post-processing of the cultivation
- Sampling
- Process analytics with HPLC
- Data analysis

Requirements:

- Helpful, but not essential: Practical experience in fermentation processes
- Practical experience in microbial and analytical laboratory work
- Ability to work independently
- TUM student

We offer

- Insight into an industrial bioprocess
- Brand new lab equipment
- A friendly work enviroment
- Your own workstation with a desktop computer

Application

If you are interested, please contact Dennis Beerhalter (dennis.beerhalter@tum.de).
I will be happy to answer any further questions you may have.

Privacy policy

As part of your application for a position at the Technical University of Munich (TUM), you submit personal data. Please note our privacy policy pursuant to Art. 13 General Data Protection Regulation (GDPR) for the collection and processing of personal data in the context of your application http://go.tum.de/554159. By submitting your application, you confirm that you have taken note of TUM's privacy policy. In the case of a written application, we ask you to only

submit copies to us, as we are unfortunately unable to return your application documents after the procedure has been completed.