

Bachelor's / Master's / Semester Thesis

Optimizing Data-Driven Modeling of Dynamic Crossflow Filtration for Process Optimization

Keywords: Data Driven, Downstream Processing, Bioprocess Engineering

Project Description

This thesis focuses on optimizing a Dynamic Crossflow Filter (DCF), a novel technology with a rotating membrane that minimizes filter cake and handles high viscosities.

The DCF forms an integral part of a comprehensive downstream process focused on continuously producing vegan mycoproteins from side products of the food industry. Specifically, the DCF will be utilized to separate fungal cells from the cell broth, playing a vital role in the purification process.

This project aims to lay the foundation for unlocking the full potential of the DCF within the final process. The outcomes of this thesis will serve as the basis for developing a digital twin capable of performing online optimizations in subsequent process runs.

Research objectives

1. Collect and analyze process data
2. Develop a data-driven model for predicting filtration performance
3. Optimize process conditions using the model

Profile

- Motivated, organized, and detail-oriented
- Strong interest in data analysis, modeling and experimental design
- Passion for innovative technologies and process optimization

