

ICB PhD public presentations

DATA-DRIVEN AND HYBRID MODELING AND OPTIMIZATION OF CHEMICAL AND BIOLOGICAL PROCESSES

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ETH Hönggerberg, HCI D2 and on Zoom

Project Summary: Digitalization has become a core component of the industrial transformations that are currently taking place in the chemical and bioprocess sector, where digital tools can enhance the efficiency and productivity of many applications. During this doctorate, the development of modeling and optimization methods for industrially relevant applications was investigated, that might support such digital transformations in the chemical industry. Based on concepts from the Process Systems Engineering field, surrogate and hybrid approaches were assessed that leverage advancements in machine learning, mathematical modeling, and optimization. This presentation summarizes the findings and showcases the advantages of such approaches to improve the understanding of a system under study, analyze and optimize it, and support subsequent decision-making in a digital manner.

CV. Tim graduated from ETH Zurich with a BSc in Chemical Engineering in 2016. After an MSc in Chemical and Bioengineering at ETH Zurich, completed in 2018, in April of the same year he was employed by Lonza AG as a production chemist in antibody-drug-conjugate manufacturing. In 2020, back at ETH, he joined the group of Prof. Guillén-Gosálbez as a PhD student in the Institute of Chemical and Bioengineering.