



The Automation and Control Institute (ACIN) at TU Wien is offering the following

PhD-Position (m/f/d):

„Real-Time Optimization and Control of Microbial Fermentation“

What you'll be doing

In the Complex Dynamical Systems Group (**Prof. Andreas Kugi**) and in close cooperation with the Competence Center CHASE GmbH you will develop and implement algorithms for model-based monitoring and control, integrating mechanistic models of microbial production processes with available Process Analytical Technologies (PATs) with the ultimate goal to deploy them on industrial hardware.

Research topics

- Development and validation of a real-time process monitoring strategy by combining a calibrated mechanistic model with available PAT
- Definition of optimization targets for the selected bioprocess and control strategy, e.g. weighing between process yield and sustainability goals
- Development and validation of algorithms for the real-time control strategy on industrial hardware
- Experimental validation of the developed solutions on a lab-scale microbial fermentation process

Your profile

- Master's degree or diploma in Control engineering, Mathematics, Physics, Biotechnology, Chemical Engineering, Process Engineering, or a related field
- Experience with numerical integration methods (ODEs, PDEs, DAEs), (mixed-)integer (non-)linear programming and sound mathematical background
- Experience with control theory, microbial fermentation processes, as well as Python / Julia
- High commitment and motivation, willingness to contribute to academic teaching
- Team spirit, strong communication skills, goal orientation, structured, and responsible way of working
- Very good command of written and spoken English, basic skills in German favorable

We offer

- Future-oriented research and innovative solutions for the latest problems
- Scientific freedom and time to author a PhD dissertation
- Solid training and continuing education as well as participation in international conferences
- Promotion, support, dialog, and cooperation in a motivated and interdisciplinary team
- Cooperation with a renowned, internationally active, industrial research partner
- Secured funding and well equipped infrastructure
- Full-time employment contract (40 hours a week)
- Gross salary of € 52.865,40 p.a.

We are committed to increasing the proportion of women in our research group. Therefore, female applicants are explicitly encouraged to apply. Preference will be given to women when equally qualified.

We try to hire people with special needs and explicitly encourage them to apply.

We are looking forward to receiving your application including the usual documents (at least CV, transcript of records, graduation certificate) via e-mail sent to applications.cds@acin.tuwien.ac.at. In case of questions, please contact Andreas Steinböck (e-mail: andreas.steinboeck@tuwien.ac.at).

About us

The Automation and Control Institute (ACIN) belongs to the Faculty of Electrical Engineering and Information Technology of TU Wien. At ACIN, more than 50 researchers conduct basic research, solve challenging practical problems, cooperate with industrial research partners, develop innovations, and offer students excellent academic teaching in the fields systems theory, automation, and control engineering. More info at <https://www.acin.tuwien.ac.at/komplexe-dynamische-systeme-cds/>.