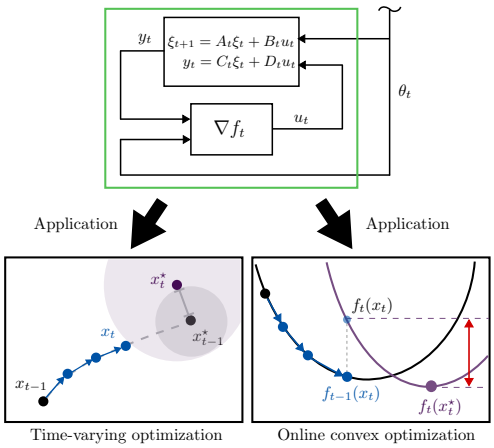
Universität Stuttgart
Institut für Systemtheorie und Regelungstechnik
Prof. Dr.–Ing. Frank Allgöwer

Open Thesis (MA)

Analysis of Algorithms for Time-Varying Optimization

Description:

The performance and robustness of optimization algorithms can be conveniently analyzed using tools from systems theory. This thesis aims to extend those results to algorithms that are designed for time-varying optimization problems.



Open problems addressed by this thesis shall be

- Improvement of LMI conditions to optimize tracking and regret bounds
- Study of advanced methods like Operator-Splitting or Multi-Step algorithms

Prerequisites:

- *Konzepte der Regelungstechnik* or similiar
- Proficiency in either *Matlab* or *Python*
- *Convex Optimization* or *Robust Control* helpful

Supervisor:

Fabian Jakob
Room 3.241

Area:

Optimization
Algorithms
Robust Control

Properties:

Type: **MA**

30% literature
30% analytical work
40% implementation

Beginning:

Summer 2025.

Further information on www.ist.uni-stuttgart.de/lehre/bama

Aushang vom May 9, 2025