Department of Numerical Analysis and Scientific Computing Simula Research Laboratory Oslo, Norway

Optimization in Oslo A Seminar Series on Continuous Optimization

Date:

Wednesday March 8, 2023 at 14:00 (GMT+1, CET)

Speaker: **Prof. Dr. Paul Manns Technical University of Dortmund**

Title:

Regularization in Integer Optimal Control -- Lessons Learned and Challenges Ahead

Abstract:

We start from a motivating example in topology optimization, which can be cast as an integer optimal control problem. We show how different regularization techniques may or may not alter the properties of the problem and give rise to different types of solution algorithms. In particular, stronger regularization techniques yield beneficial analytical properties that enable powerful iterative algorithms that lean on ideas from nonlinear programming but also come at the cost of much harder subproblems that need to be solved inside optimization algorithms for the considered problem class.

Brief Bio:

Paul received his PhD from the Institute for Mathematical Optimization at the Technical University of Braunschweig in 2019. Afterwards, he was the recipient of a prestigious James H Wilkinson Fellowship in Scientific Computing at the Mathematics and Computer Science Division of Argonne National Laboratory. In September 2021, Paul assumed the position as assistant professor at TU Dortmund.