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

Optimization in Oslo

A Seminar Series on Continuous Optimization

Date:
Wednesday November 15, 2023 at 14:00 (CET)

Speaker:
Prof. Florian Schäfer
Georgia Institute of Technology

Title:
Solvers, Models, Learners: Toward Statistical Scientific Computing

Abstract:
The convergence of scientific computing with statistics and machine learning is an exciting recent development. In this talk, I will present three lines of work that blur the line between statistical inference and numerical computation. The first part of the talk presents an exponential improvement in the rigorous sample complexity of learning elliptic solution operators from input-output maps. The second part of the talk presents multi-agent approaches for the high-accuracy training of physics-informed neural networks. The third part of the talk shows how to mitigate the formation of shock singularities in the barotropic Euler equations using an inviscid, information-geometric regularization.

Brief Bio:

Florian Schäfer is an assistant professor in the School of Computational Science and Engineering at Georgia Tech. Prior to joining Georgia Tech, he received his PhD in applied and computational mathematics at Caltech, working with Houman Owhadi. Before that, he received Bachelor's and Master's degrees in Mathematics at the University of Bonn. His research interests lie at the interface of numerical computation, statistical inference, and competitive games.