

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

Optimization in Oslo

A Seminar Series on Continuous Optimization

Date:

Wednesday October 18, 2023 at 14:00 (CEST)

Speaker:

Prof. Ronny Bergmann

Norges teknisk-naturvitenskapelige universitet (NTNU)

Title:

Nonsmooth, nonconvex Optimization on Riemannian Manifolds

Abstract:

When considering data in nonlinear spaces, like on the sphere, for symmetric positive definite matrices, we arrive naturally at optimization tasks that are defined on a Riemannian manifold. Another approach is to rephrase a constrained optimization problem in Euclidean space as an unconstrained problem in the manifold defined by the constraints. This might even lead to the problem becoming convex, since the kind of convexity considered changes to geodesic convexity on the manifold. In this talk we consider recent advances in optimization on Riemannian manifolds, especially for nonsmooth and/or nonconvex objective functions. We discuss both theoretical aspects as well as numerical algorithms and their implementation in Julia within the two packages Manifolds.jl and Manopt.jl.

Brief Bio:

Ronny Bergmann is an Associate Professor at the Institutt for matematiske fag, Norges teknisk-naturvitenskapelige universitet (NTNU) in Trondheim, Norway. Prior to this he worked as a postdoctoral researcher in Heidelberg and Technische Universität Chemnitz, which he joined in April 2018. He also worked within the Image Processing Group at Technische Universität Kaiserslautern, where he finished his habilitation at the beginning of 2018. For more information, see: <https://ronnybergmann.net/>