NUMTA 2023 Special Session on

Optimization for data-driven methods

Data-driven models have become pervasive in several domains, including data analysis, image processing, computer vision, and autonomous machinery. These tasks typically involve the solution of some large-scale nonlinear optimization problem, in order to fit the model to a given dataset. The process of designing an efficient and accurate optimization solver for a specific task is power-consuming and time-consuming, and usually requires direct human intervention for the optimal tuning of several parameters and hyperparameters, which play a key role in the performance of the model. Researchers are thus orienting their efforts in developing novel optimization approaches that provide accurate solutions in reasonable computational times, as well as being less dependent as possible on the programmer's intervention.

The aim of this special session is to bring together researchers working on different aspects of optimization for data-driven methods. The special session will include contributions on topics such as stochastic optimization, bilevel optimization, optimization for deep learning and neural networks, optimization for generative models, and more. We expect our special session to provide a forum for researchers to present their latest work, exchange ideas, and discuss future research directions in the field.

Special Session Organizers:

Giorgia Franchini, University of Modena and Reggio Emilia, giorgia.franchini (at) unimore.it
Simone Rebegoldi, University of Florence, simone.rebegoldi (at) unifi.it
Federica Porta, University of Modena and Reggio Emilia, federica.porta (at) unimore.it