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ONE WORLD OPTIMIZATION SEMINAR

February 1st 2021 @ 15:30 CET (Central European Time)

BORIS MORDUKHOVICH

(Wayne State University)

Generalized Newton Algorithms For Nonsmooth Systems With Applications To Lasso

Abstract. We propose and develop several generalized Newton-type algorithms to solve nonsmooth optimization problems and subgradient systems that are based on constructions and results of (mainly second-order) variational analysis and generalized differentiation. Solvability of these algorithms is proved in rather broad settings, and then verifiable conditions for their local and global superlinear convergence are obtained. A special attention is paid to problems of convex composite optimization for which a generalized damped Newton algorithm exhibiting global superlinear convergence is designed. The efficiency of the latter algorithm is demonstrated by solving a class of Lasso problems that are well-recognized in applications to machine learning and statistics. For this class of nonsmooth optimization problems, we conduct numerical experiments and compare the obtained results with those achieved by using other first-order and second-order methods.

This talk is based on recent joint works with P. D. Khanh (HCMUE), V. T. Phat (WSU), M. E. Sarabi (Miami Univ.), and D. B. Tran (WSU).

The link of the zoom-room of the meeting and the corresponding password will be announced the day before the talk on the mailing list of the seminar, to which one can subscribe on <https://owos.univie.ac.at>.