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ONE WORLD OPTIMIZATION SEMINAR

September 28th, 2020 @ 15:30 CEST (Central European Summer Time)

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Second-Order Methods for Nonconvex Optimization with Complexity Guarantees

Abstract. Widely used algorithms for smooth nonconvex optimization problems - unconstrained, bound-constrained, and general equality-constrained - can be modified slightly to ensure that approximate first- and second-order optimal points are found, with complexity guarantees that depend on the desired accuracy. We discuss methods constructed from Newton's method, conjugate gradients, randomized Lanczos, trust-region frameworks, log-barrier, and augmented Lagrangians. We derive upper bounds on various measures of complexity in terms of the tolerances required. Our methods use Hessian information only in the form of Hessian-vector products - an operation that does not require the Hessian itself to be evaluated or stored explicitly.

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.