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ONE WORLD OPTIMIZATION SEMINAR

March 7th 2022 @ 15:30 CET (Central European Time)

JUNYI LIU

(Tsinghua University)

Solving Nonconvex and Nondifferentiable Compound Stochastic Programs with Applications to Risk Measure Minimization

Abstract. In this talk, we study a structural compound stochastic program (SP) involving multiple expectations coupled by nonconvex and nondifferentiable functions. For solving the compound SP, we present a stochastic majorization-minimization (SMM) algorithm with incremental sampling scheme. We establish the almost sure subsequential convergence of the SMM algorithm to a fixed point of the algorithmic map. We relate such a point to several kinds of stationary solutions of the compound SP problem under different assumptions on the component functions. We further discuss probabilistic stopping rules based on the computable error-bound for the algorithm. We show several risk measure minimization problems that can be formulated as such a compound SP; these include generalized deviation optimization problems based on the optimized certainty equivalent and multi-class classification problems employing the cost-sensitive error criteria based on buffered probability of exceedance.

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.