

Time-varying nonconvex optimization with application to OPF

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Abstract:

Optimal power flow (OPF) problems are fundamental for power system operations. They are nonconvex and, in future applications, time-varying. We present a first-order proximal primal-dual algorithm and a second-order algorithm for general time-varying nonconvex optimization and bound their tracking performance. We incorporate real-time feedback in our algorithms for applications to time-varying OPF problems, and illustrate their tracking performance numerically.

(Joint work with Yujie Tang, Caltech, Emiliano Dall'Anese, U of Colorado, Andrey Berstein, NREL)