

Robust Optimal Control of Linear Discrete-Time Systems Using Primal-Dual Interior-Point Methods

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This paper describes how to efficiently solve a robust optimal control problem using recently developed primal-dual interior-point methods. Among potential applications are model predictive control. The optimization problem considered consists of a worst case quadratic performance criterion over a finite set of linear discrete-time models subject to inequality constraints on the states and control signals. The scheme has been prototyped in Matlab. To give a rough idea of the efficiency obtained, it is possible to solve problems with more than 1000 variables and 5000 constraints in a few minutes on a workstation.

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