Preconditioned Newton-Krylov Methods for Model Predictive Control

Andrew Knyazev [1]

We present preconditioned Newton-Krylov methods for efficient numerical solution of optimal control problems arising in nonlinear model predictive control, which in our numerical examples practically result in optimal $O(N)$ complexity, where N is a discrete horizon length.

References:
https://arxiv.org/abs/1704.06973
https://doi.org/10.1109/ACC.2016.7526060
https://www.google.com/patents/US9581981

[1] Mitsubishi Electric Research Laboratories (MERL), USA (knyazev@merl.com)