

# Nash-Optimisation Enhanced Distributed Model Predictive Control

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**Abstract:** This study presents an efficient distributed model predictive control scheme based on Nash optimality, in which the on-line optimisation of the whole system is decomposed into that of several small co-operative agents in distributed structures, thus it can significantly reduce computational complexity in model predictive control of large-scale systems. The relevant nominal stability and the performance on single-step horizon under the communication disturbance are investigated. A three input and three output linear model is simulated to test the effectiveness of the proposed control algorithm.

**Keywords:** *Model predictive control (MPC); distributed control system; Nash optimality; multi-agents.*

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