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Iterative Data-Driven Tuning of Controllers for Nonlinear Systems With Constraints

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Abstract

This paper presents a new iterative data-driven algorithm for tuning controllers for nonlinear systems. The proposed IDD algorithm uses iterative processes while using linear controllers accounting for nonlinearities through a quadratic penalty function approach. The search algorithm is implemented on data obtained from neural-network-based process models. The algorithm is run on real-world processes. A data-driven controller is designed for a nonlinear aerodynamic system is used as an experimental test case.

Keywords

Author Keywords: Constrained optimization; iterative data-driven

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