Control Configuration Selection for Uncertain Multivariable Systems

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Abstract:

Control of complex multivariable technological processes is usually based on two main approaches. The first methodology relies on a central controller, while the second approach uses a decentralized control structure. It seems that the current practice prefers decentralized control structures. Naturally, the selection of a suitable control configuration is a crucial task. During the last decades, various methods for appropriate input-output pairings have been developed. However, not so much attention has been paid so far to their performance under conditions of uncertainty, which can be considered in the linearized models of complicated plants. The thesis should be focused on the investigation of the impact of (various types of) uncertainty on the existing control configuration selection methods and, subsequently, on the improvement of a method(s) from the viewpoint of robustness.

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