Practical Grey-box Process Identification [Theory and Applications /

Bohlin, Torsten

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Monografía

In process modelling, knowledge of the process under consideration is typically partial with significant unknown inputs (disturbances) to the model. Disturbances militate against the desirable trait of model reproducibility. "Grey-box" identification can assist, in these circumstances, by taking advantage of the two sources of information that may be available: any invariant prior knowledge and response data from experiments. Practical Grey-box Process Identification is a three-stranded response to the following questions which are frequently raised in connection with grey-box methods: \2022 How much of my prior knowledge is useful and even correct in this environment? \2022 Are my experimental data sufficient and relevant? \2022 What do I do about the disturbances that I can\2019t get rid of? \2022 How do I know when my model is good enough? The first part of the book is a short review of the theoretical fundamentals of grey-box identification, focussing particularly on the theory necessary for the software presented in the second part. Part II puts the spotlight on MoCaVa, a MATLAB®-compatible software tool, downloadable from springeronline.com, for facilitating the procedure of effective grey-box identification. Part III demonstrates the application of MoCaVa using two case studies drawn from the paper and steel industries. More advanced theory is laid out in an appendix and the MoCaVa source code enables readers to expand on its capabilities to their own ends. Practical Grey-box Process Identification will be of great interest and help to process control engineers and researchers and the software show-cased here will be of much practical assistance to students doing project work in this field. Advances in Industrial Control aims to report and encourage the transfer of technology in control engineering. The rapid development of control technology has an impact on all areas of the control discipline. The series offers an opportunity for researchers to present an extended exposition of new work in all aspects of industrial control

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