

Practical Grey-box Process Identification: Theory and Applications (Advances in Industrial Control)

By Torsten P. Bohlin

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This book reviews the theoretical fundamentals of grey-box identification and puts the spotlight on MoCaVa, a MATLAB-compatible software tool, for facilitating the procedure of effective grey-box identification. It demonstrates the application of MoCaVa using two case studies drawn from the paper and steel industries. In addition, the book answers common questions which will help in building accurate models for systems with unknown inputs.

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Practical Grey-box Process Identification: Theory and Applications (Advances in Industrial Control) By Torsten P. Bohlin Bibliography

- Sales Rank: #5881126 in Books
- Published on: 2006-07-05
- Original language: English
- Number of items: 1
- Dimensions: 9.21" h x .88" w x 6.14" l, 1.65 pounds
- Binding: Hardcover
- 351 pages

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Editorial Review

From the Back Cover

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:

• How much of my prior knowledge is useful and even correct in this environment?

• Are my experimental data sufficient and relevant?

• What do I do about the disturbances that I can’t get rid of?

• 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.

About the Author

Professor (emeritus) Torsten Bohlin has been employed in the following capacities:

1963 - 1971 at the IBM Nordic Laboratories as Research Engeneer working with computerized industrial process ontrol.

1971 appointed (by the king) Professor of the chair of Automatic Control at Linkœping Technical Institute.
1972 - 1996 Professor in Automatic Control at the Royal Institute of Tecknology (KTH) in Stockholm.
1972 - 1988 Head of the Department of Automatic Control,
Member of the board of the school of Technical Physics, and Member of the faculty of KTH.
Member of the Swedish IFAC comittee, TFF (national), and IEEE
Reviewer 66 times

Users Review

From reader reviews:

Karole Standley:

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Henry Robinson:

Typically the book Practical Grey-box Process Identification: Theory and Applications (Advances in Industrial Control) has a lot details on it. So when you check out this book you can get a lot of help. The book was published by the very famous author. Mcdougal makes some research previous to write this book. This particular book very easy to read you can obtain the point easily after perusing this book.

Anthony Malloy:

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Norbert Walling:

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