Multivariable Feedback Control: Analysis and Design, 2nd Edition
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DESCRIPTION

Multivariable Feedback Control: Analysis and Design, Second Edition presents a rigorous, yet easily readable, introduction to the analysis and design of robust multivariable control systems. Focusing on practical feedback control and not on system theory in general, this book provides the reader with insights into the opportunities and limitations of feedback control.

Taking into account the latest developments in the field, this fully revised and updated second edition:

* features a new chapter devoted to the use of linear matrix inequalities (LMIs);

* presents current results on fundamental performance limitations introduced by RHP-poles and RHP-zeros;

* introduces updated material on the selection of controlled variables and self-optimizing control;

* provides simple IMC tuning rules for PID control;

* covers additional material including unstable plants, the feedback amplifier, the lower gain margin and a clear strategy for incorporating integral action into LQG control;

* includes numerous worked examples, exercises and case studies, which make frequent use of Matlab and the new Robust Control toolbox.

Multivariable Feedback Control: Analysis and Design, Second Edition is an excellent resource for advanced undergraduate and graduate courses studying multivariable control. It is also an invaluable tool for engineers who want to understand multivariable
control, its limitations, and how it can be applied in practice. The analysis techniques and the material on control structure design should prove very useful in the new emerging area of systems biology.

Reviews of the first edition:

"Being rich in insights and practical tips on controller design, the book should also prove to be very beneficial to industrial control engineers, both as a reference book and as an educational tool." Applied Mechanics Reviews

"In summary, this book can be strongly recommended not only as a basic text in multivariable control techniques for graduate and undergraduate students, but also as a valuable source of information for control engineers." International Journal of Adaptive Control and Signal Processing

ABOUT THE AUTHOR

Professor Sigurd Skogestad, Norwegian University of Science and Technology (NTNU)
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Professor Ian Postlethwaite, University of Leicester, UK
Head of Engineering Department, Fellow of the Institute of Electrical and Electronics Engineers, Fellow of the Institution of Electrical Engineers, and a Fellow of the Institute of Measurement and Control. In 1991 he received the IEE FC Williams Premium, in 2001 the Sir Harold Hartley Medal of the InstMC and in 2002 the Best Paper Prize for an article published in the IFAC Journal of Control Engineering Practice over the period 1999-2002.

FEATURES

This updated edition of its highly successful predecessor provides an ideal introduction to the analysis and design of robust multivariable control.

- All the chapters of the book have been fully updated and revised.
• Incorporates additions and changes based on reader’s questions and comments from the last seven years.

• Includes major changes in the three unique chapters of the book dealing with input-output controllability and control structure design (chapters 5, 6, and 10).

• The many Matlab examples in the book have been updated by making use of the new Advanced Control Toolbox (RCAST).

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