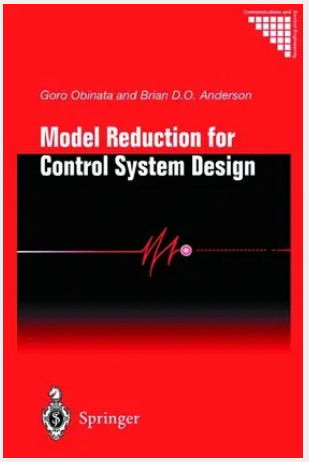
Obinata / Anderson

Model Reduction for Control System Design

Modern methods of filter design and controller design often yield systems of very high order, posing a problem for their implementation. Over the past two decades or so, sophisticated methods have been developed to achieve simplification of filters and controllers. Such methods often come with easy-to-use error bounds, and in the case of controller simplification methods, such error bounds will usually be related to closed-loop properties.
This book is the first comprehensive treatment of approximation methods for filters and controllers. It is fully up to date, and it is authored by two leading researchers who have personally contributed to the development of some of the methods. Balanced truncation, Hankel norm reduction, multiplicative reduction, weighted methods and coprime factorization methods are all discussed.
The book is amply illustrated with examples, and will equip practising control engineers and graduates for intelligent use of commercial software modules for model and controller reduction.

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