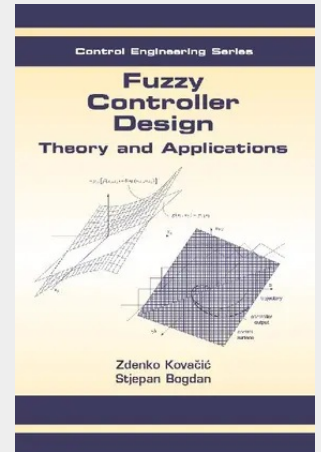


Fuzzy Controller Design

Theory and Applications

Fuzzy control methods are critical for meeting the demands of complex nonlinear systems. They bestow robust, adaptive, and self-correcting character to complex systems that demand high stability and functionality beyond the capabilities of traditional methods. A thorough treatise on the theory of fuzzy logic control is out of place on the design bench. That is why Fuzzy Controller Design: Theory and Applications offers laboratory- and industry-tested algorithms, techniques, and formulations of real-world problems for immediate implementation. With surgical precision, the authors carefully select the fundamental elements of fuzzy logic control theory necessary to formulate effective and efficient designs. The book supplies a springboard of knowledge, punctuated with examples worked out in MATLAB®/SIMULINK®, from which newcomers to the field can dive directly into applications. It systematically covers the design of hybrid, adaptive, and self-learning fuzzy control structures along with strategies for fuzzy controller design suitable for on-line and off-line operation. Examples occupy an entire chapter, with a section devoted to the simulation of an electro-hydraulic servo system. The final chapter explores industrial applications with emphasis on techniques for fuzzy controller implementation and different implementation platforms for various applications. With proven methods based on more than a decade of experience, Fuzzy Controller Design: Theory and Applications is a concise guide to the methodology, design steps, and formulations for effective control solutions.

Reflecting the authors' broad experience in fuzzy control, this book describes the basic concepts for solving a great number of practical control problems. It focuses on hybrid, adaptive, and self-learning fuzzy control schemes that have proved to be superior in solving demanding nonlinear control problems. Every control algorithm described has been tested and verified on either a laboratory or industry process setup. The worked-out examples can form reliable starting points for the solution of other similar control problems. The book covers general topics in an easily understandable style and uses a case-by-case, method-by-method manner to move toward more complex nonlinear control problems.

**308,90 €**

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*Lieferfrist: bis zu 10 Tage***Artikelnummer:** 9780849337475**Medium:** Buch**ISBN:** 978-0-8493-3747-5**Verlag:** CRC Press**Erscheinungstermin:** 12.12.2005**Sprache(n):** Englisch**Auflage:** 1. Auflage 2005**Serie:** Automation and Control Engineering**Produktform:** Gebunden**Gewicht:** 748 g**Seiten:** 416**Format (B x H):** 157 x 235 mm