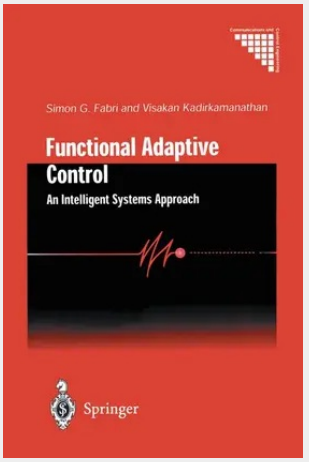
Fabri / Kadirkamanathan

Functional Adaptive Control

An Intelligent Systems Approach



The field of intelligent control has recently emerged as a response to the challenge of controlling highly complex and uncertain nonlinear systems. It attempts to endow the controller with the key properties of adaptation, learn ing and autonomy. The field is still immature and there exists a wide scope for the development of new methods that enhance the key properties of in telligent systems and improve the performance in the face of increasingly complex or uncertain conditions. The work reported in this book represents a step in this direction. A num ber of original neural network-based adaptive control designs are introduced for dealing with plants characterized by unknown functions, nonlinearity, multimodal behaviour, randomness and disturbances. The proposed schemes achieve high levels of performance by enhancing the controller's capability for adaptation, stabilization, management of uncertainty, and learning. Both deterministic and stochastic plants are considered. In the deterministic case, implementation, stability and convergence is sues are addressed from the perspective of Lyapunov theory. When compared with other schemes, the methods presented lead to more efficient use of com putational storage and improved adaptation for continuous-time systems, and more global stability results with less prior knowledge in discrete-time sys tems.

The field of intelligent control has recently emerged as a response to the challenge of controlling highly complex and uncertain nonlinear systems. It attempts to endow the controller with the key properties of adaptation, learn ing and autonomy. The field is still immature and there exists a wide scope for the development of new methods that enhance the key properties of in telligent systems and improve the performance in the face of increasingly complex or uncertain conditions. The work reported in this book represents a step in this direction. A num ber of original neural network-based adaptive control designs are introduced for dealing with plants characterized by unknown functions, nonlinearity, multimodal behaviour, randomness and disturbances. The proposed schemes achieve high levels of performance by enhancing the controller's capability for adaptation, stabilization, management of uncertainty, and learning. Both deterministic and stochastic plants are considered. In the deterministic case, implementation, stability and convergence is sues are addressed from the perspective of Lyapunov theory. When compared with other schemes, the methods presented lead to more efficient use of com putational storage and improved adaptation for continuous-time systems, and more global stability results with less prior knowledge in discrete-time sys tems.

160,49 €
149,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9781447110903
Medium: Buch
ISBN: 978-1-4471-1090-3
Verlag: Springer
Erscheinungstermin: 13.09.2012
Sprache(n): Englisch
Auflage: 1. Auflage 2012
Serie: Communications and Control Engineering
Produktform: Kartoniert
Gewicht: 446 g
Seiten: 266
Format (B x H): 155 x 235 mm

Kundenservice Verlag Dr. Otto Schmidt KG
Neumannstraße 10, 40235 Düsseldorf | kundenservice@otto-schmidt.de | 0221-93738-997 (Inland)