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**Sinopsis**

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The technology of neural networks has attracted much attention in recent years. Their ability to learn nonlinear relationships is widely appreciated and is utilized in many different types of applications; modelling of dynamic systems, signal processing, and control system design being some of the most common. The theory of neural computing has matured considerably over the last decade and many problems of neural network design, training and evaluation have been resolved. This book provides a comprehensive introduction to the most popular class of neural network, the multilayer perceptron, and shows how it can be used for system identification and control. It aims to provide the reader with a sufficient theoretical background to understand the characteristics of different methods, to be aware of the pit-falls and to make proper decisions in all situations. The subjects treated include: - System identification: multilayer perceptrons; how to conduct informative experiments; model structure selection; training methods; model validation; pruning algorithms - Control: direct inverse, internal model, feedforward, optimal and predictive control; feedback linearization and instantaneous-linearization-based controllers - Case studies: prediction of sunspot activity; modelling of a hydraulic actuator; control of a pneumatic servomechanism; water-level control in a conical tank The book is very application-oriented and gives detailed and pragmatic recommendations that guide the user through the plethora of methods suggested in the literature. Furthermore, it attempts to introduce sound working procedures that can lead to efficient neural network solutions. This will make the book invaluable to the practitioner and as a textbook in courses with a significant hands-on component.