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Nota di contenuto	Contents ; Foreword ; Acknowledgements ; Part I: Modelling and Identification ; 1. Simulation of Liquid-Liquid Extraction Data with Artificial Neural Networks ; 2. RBFN Identification of an Industrial Polymerization Reactor Model ; 3. Process Identification with Self-Organizing Networks 4. Training Radial Basis Function Networks for Process Identification with an Emphasis on the Bayesian Evidence Approach 5. Process Identification of a Fed-Batch Penicillin Production Process - Training with the Extended Kalman Filter ; Part II: Hybrid Schemes 6. Combining Neural Networks and First Principle Models for Bioprocess Modeling ; 7. Neural Networks in a Hybrid Scheme for Optimisation of Dynamic Processes: Application to Batch Distillation ; 8. Hierarchical Neural Fuzzy Models as a Tool for Process

Identification: A Bioprocess Application

Part III: Estimation and Control

9. Adaptive

Inverse Model Control of a Continuous Fermentation Process Using Neural Networks

; 10. Set Point Tracking in Batch Reactors: Use of PID and Generic Model Control with Neural Network Techniques

11. Inferential Estimation and Optimal Control of a Batch Polymerisation Reactor Using Stacked Neural Networks

Part IV: New Learning Technologies ; 12.

Reinforcement Learning in Batch Processes

; 13. Knowledge Discovery through Mining Process Operational Data

Part V: Experimental and Industrial Applications

Sommario/riassunto

This book is a follow-up to the IChemE symposium on "Neural Networks and Other Learning Technologies", held at Imperial College, UK, in May 1999. The interest shown by the participants, especially those from the industry, has been instrumental in producing the book. The papers have been written by contributors of the symposium and experts in this field from around the world. They present all the important aspects of neural network utilisation as well as show the versatility of neural networks in various aspects of process engineering problems - modelling, estimation, control, optimisation and