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Information Processing Methods; Preprocessing; Postprocessing; Summary; Exercises; Chapter 6. Neural Network Implementations; Implementation Issues; Back-propagation Implementation; The Kohonen Network Implementations; Evolutionary Back-propagation Network Implementation; Summary; Exercises; Chapter 7. Fuzzy Systems Concepts and Paradigms History Fuzzy Sets and Fuzzy Logic; The Theory of Fuzzy Sets; Approximate Reasoning; Developing a Fuzzy Controller; Summary; Exercises; Chapter 8. Fuzzy Systems Implementations; Implementation Issues; Fuzzy Rule System Implementation; Evolving Fuzzy Rule Systems; Summary; Exercises; Chapter 9. Computational Intelligence Implementations; Implementation Issues; Fuzzy Evolutionary Fuzzy Rule System Implementation; Choosing the Best Tools; Applying Computational Intelligence to Data Mining; Summary; Exercises; Chapter 10. Performance Metrics; General Issues; Percent Correct Average Sum-squared Error Absolute Error; Normalized Error; Evolutionary Algorithm Effectiveness Metrics; Mann-Whitney U Test; Receiver Operating Characteristic Curves; Recall and Precision; Other ROC-related Measures; Confusion Matrices; Chi-square Test; Summary; Exercises; Chapter 11. Analysis and Explanation; Sensitivity Analysis; Hinton Diagrams; Computational Intelligence Tools for Explanation Facilities; Summary; Exercises; Bibliography; Index; About the Authors; Chapter 12. Case Study Summaries; Case Study Preview; Case Study 1: Detection of Electroencephalogram Spikes Case Study 2: Determining Battery State of Charge

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### Sommario/riassunto

Russ Eberhart and Yuhui Shi have succeeded in integrating various natural and engineering disciplines to establish Computational Intelligence. This is the first comprehensive textbook, including lots of practical examples. -Shun-ichi Amari, RIKEN Brain Science Institute, Japan This book is an excellent choice on its own, but, as in my case, will form the foundation for our advanced graduate courses in the CI disciplines. -James M. Keller, University of Missouri-Columbia The excellent new book by Eberhart and Shi asserts that computational intelligence rests on a foundation of evo

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