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| Nota di contenuto | Contents; Preface; Chapter 1 Swarm Intelligence and Neural Networks; 1.1. Introduction; 1.2. Swarm Intelligence; 1.2.1. Particle Swarm Optimization; 1.2.2. Ant Colony Optimization; 1.2.3. Bee Colony Optimization; 1.3. Neural Networks; 1.3.1. Evolvable Neural Network; 1.3.2. Higher Order Neural Network; 1.3.3. Pi ()-Sigma () Neural Networks; 1.3.4. Functional Link Artificial Neural Network; 1.3.5. Ridge Polynomial Neural Networks (RPNNs); 1.4. Summary and Discussion; References; Chapter 2 Neural Network and Swarm Intelligence for Data Mining; 2.1. Introduction; 2.2. Testbeds for Data Mining 2.2.1. Fisher Iris Data2.2.2. Pima - Diabetes Data; 2.2.3. Shuttle Data; 2.3.1. Multi-Layer Perceptron (MLP); 2.3.2. Radial Basis Function Network; 2.4. Swarm Intelligence for Data Mining; 2.4.1. Ant Miner; 2.4.2. Artificial Bee Colony; 2.4.3. Particle Swarm Optimization; 2.5. Comparative Study; 2.6. Conclusions and Outlook; Acknowledgments; References; Chapter 3 Multi-Objective Ant Colony Optimization: A |

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| | Taxonomy and Review of Approaches; 3.1. Introduction; 3.2. Ant Colony Optimization 3.3. Basic Concepts of Multi-Objective Optimization3.4. The ACO Metaheuristic for MOOPs in the Literature; 3.5. ACO Variants for MOOP: A Refined Taxonomy; 3.6. Promising Research Areas; 3.7. Conclusions; Acknowledgments; References; Chapter 4 Recurrent Neural Networks with Discontinuous Activation Functions for Convex Optimization; 4.1. Introduction; 4.2. Related Definitions and Lemmas; 4.3. For Linear Programming; 4.3.1. Model Description and Convergence Results; 4.3.2. Simulation Results; 4.4. For Quadratic Programming; 4.4.1. Model Description; 4.4.2. Convergence Results 4.4.3. Simulation Results; 4.5. For Non-Smooth Convex Optimization Subject to Linear Equality Constraints; 4.5.1. Model Description and Convergence Results; 4.5.2. Constrained Least Absolute Deviation; 4.6. Application to k-Winners-Take-All; 4.6.1. LP-Based Model; 4.6.2. QP- Based Model; 4.6.3. Simulation Results; 4.7. Concluding Remarks; Acknowledgments; References; Chapter 5 Automated Power Quality Disturbance Classification Using Evolvable Neural Network; 5.1. Introduction; 5.2. Wavelet Transform (WT); 5.3. Brief Overview of Neural Network Classifiers 5.4. Overview of Particle Swarm Optimization5.5. Signal Generation, Feature Extraction and Classification; 5.6. Results and Discussion; 5.7. Conclusions; References; Chapter 6 Condition Monitoring and Fault Diagnosis Using Intelligent Techniques; 6.1. Introduction; 6.2. Methodology; 6.2.1. Hardware Specification, System Setup and Audio Data Generation; 6.2.2. Data Pre-Processing; 6.2.3. Data Classification Techniques; 6.2.4. Signal Segregation using Independent Component Analysis; 6.3. Experimental Details; 6.3.1. Pre-Processing 6.3.2. Method 1: Artificial Neural Network Setup for Engine Classification |
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| Sommario/riassunto | This book provides a new forum for the dissemination of knowledge in both theoretical and applied research on swarm intelligence (SI) and artificial neural network (ANN). It accelerates interaction between the two bodies of knowledge and fosters a unified development in the next generation of computational model for machine learning. To the best of our knowledge, the integration of SI and ANN is the first attempt to integrate various aspects of both the independent research area into a single volume. |