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Soggetti	Algorithms Computer science Artificial intelligence Computer networks Pattern recognition systems Computer science—Mathematics Discrete mathematics Theory of Computation Artificial Intelligence Computer Communication Networks Automated Pattern Recognition Discrete Mathematics in Computer Science
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Note generali	Includes index.
Nota di contenuto	Intro -- Title -- Preface -- Organization -- Table of Contents -- Main Track (Regular Papers) -- Multivariate Statistical Tests for Comparing Classification Algorithms -- Introduction -- Pairwise Comparison -- Univariate Case -- Multivariate Case -- Analysis of Variance -- Univariate Case -- Multivariate Case -- Experiments -- Setup -- Results -- Conclusions -- References -- Using Hyperheuristics under a GP Framework for Financial Forecasting -- Introduction -- Presentation of EDDIE 8 -- Hyperheuristics Framework -- Heuristics and Operators -- The Framework -- Experimental Setup -- Results --

Conclusion -- References -- On the Effect of Connectedness for Biobjective Multiple and Long Path Problems -- Introduction -- Background -- Multiobjective Combinatorial Optimization -- Local Search and Connectedness -- The Single-Objective Long k-Path Problem -- The Biobjective Long k-Path Problem -- Definition -- Experimental Analysis -- The Biobjective Multiple k-Path Problem -- Definition -- Experimental Analysis -- Conclusions and Future Works -- References -- Improving Parallel Local Search for SAT -- Introduction -- Background -- The Propositional Satisfiability Problem -- Local Search for SAT -- Refinements -- Previous Work -- Complete Methods for Parallel SAT -- Incomplete Methods for Parallel SAT -- Cooperative Algorithms -- Knowledge Sharing in Parallel Local Search for SAT -- Using Best Known Configurations -- Weighting Best Known Configurations -- Restart Policy -- Experiments -- Experimental Settings -- Practical Performances with 4 Cores -- Practical Performances with 8 Cores -- Hardware Impact -- Conclusions and Future Work -- References -- Variable Neighborhood Search for the Time-Dependent Vehicle Routing Problem with Soft Time Windows -- Introduction -- Problem Description -- Solution Method -- Initial Solution -- Shaking. Local Search -- Acceptance Decision -- Computational Results -- Conclusion -- References -- Solving the Two-Dimensional Bin Packing Problem with a Probabilistic Multi-start Heuristic -- Introduction -- Organization of the Paper -- Related Work -- A New ILP Model -- The Proposed Algorithm -- Probabilistic LGFi -- Multi-start Algorithm -- Experimental Evaluation -- Problem Instances -- Parameter Setting -- Computational Results -- Conclusions -- References -- Genetic Diversity and Effective Crossover in Evolutionary Many-objective Optimization -- Introduction -- Analysis of Pareto Optimal Solutions in Many-objective 0/1 Knapsack Problem -- Mating Based on Proximity in Objective Space -- Related Works -- Local Recombination -- Controlling Crossed Genes for Crossover -- Problem of Local Recombination in MaOPs -- CCG for Two-Point Crossover (CCGTX) -- CCG for Uniform Crossover (CCGUX) -- Preparation -- Algorithms and Selection Methods -- Problems, Parameters and Metrics -- Experimental Results and Discussion -- Diversity of Genes in the Population Obtained by Conventional Crossover -- Effects of Local Recombination in MaOPs -- Effects of CCGTX in MaOPs -- Effects of CCGUX in MaOPs -- Conclusions -- References -- An Optimal Stopping Strategy for Online Calibration in Local Search -- Introduction -- The Bruss Algorithm -- The Estimation of the Probability of Success in Local Exploration -- Illustration of the Approach -- Experiments -- Conclusion and Future Work -- References -- Analyzing the Effect of Objective Correlation on the Efficient Set of MNK-Landscapes -- Introduction -- Background -- Multiobjective Combinatorial Optimization -- Metaheuristics for Multiobjective Combinatorial Optimization -- NK- and MNK-Landscapes -- MNK-Landscapes: Multiobjective NK-Landscapes with Correlation -- Definition -- Correlation between Objective Functions. Analysis of the Efficient Set Properties -- Cardinality of the Efficient Set -- Number of Supported Efficient Solutions -- Connectedness of the Efficient Set -- Discussion -- References -- Instance-Based Parameter Tuning via Search Trajectory Similarity Clustering -- Introduction -- Preliminaries -- Automated Parameter Configuration Problem -- One-Size-Fits-All Configurator -- Instance-Based Configurator -- Performance Metric -- Solution Approach -- Search Trajectory Similarity -- Search Trajectory Representation -- Similarity Calculation -- Clustering Method -- Training and Testing Phases -- Experimental

Design -- Experiment Settings -- Validity and Statistical Significant Measurement -- Experimental Setup -- Empirical Evaluation -- Performance Comparison -- Comparison on Feature Selection -- Sensitivity Analysis on Different Initial Sequence Configurations -- Computational Results -- Discussion -- Conclusion and Future Works -- References -- Effective Probabilistic Stopping Rules for Randomized Metaheuristics: GRASP Implementations -- Introduction and Motivation -- GRASP and Experimental Environment -- Normal Approximation for GRASP Iterations -- Probabilistic Stopping Rule -- Concluding Remarks -- References -- A Classifier-Assisted Framework for Expensive Optimization Problems: A Knowledge-Mining Approach -- Introduction -- Background -- Expensive Optimization Problems -- Simulator Infeasible Vectors -- Proposed Framework -- The Model -- The Classifier -- The Framework -- Performance Analysis -- Test Problem and Benchmarks -- Knowledge-Mining the Classifier -- Summary -- References -- Robust Gaussian Process-Based Global Optimization Using a Fully Bayesian Expected Improvement Criterion -- Introduction -- Efficient Global Optimization -- The Expected Improvement Sampling Criterion for a Gaussian Process. Classical Parametrized Covariance Functions -- The EGO Algorithm -- The Case of Deceptive Functions -- Fully Bayesian One-Step Lookahead Optimization -- Student EI -- Numerical Experiments -- Optimization of a Deceptive Function -- Comparison on Sample Paths of a Gaussian Process -- References -- Hierarchical Hidden Conditional Random Fields for Information Extraction -- Introduction -- Hierarchical Hidden Conditional Random Fields -- Information Extraction -- Paper Organization -- HHMMs -- Representing an HHMM as a DBN -- HHCRFs -- Model -- Parameter Estimation -- Sentence Representation -- Hierarchical Models for Information Extraction -- Upper and Lower Levels -- Model Learning -- Inference -- Experiments -- Data -- Retrieved Results -- Performance Evaluation -- Results -- Conclusion -- References -- Solving Extremely Difficult MINLP Problems Using Adaptive Resolution Micro-GA with Tabu Search -- Introduction -- Related Work -- GAs for Solving MINLP Problems -- The Proposed Algorithm -- Variables Encoding and Genetic Operators -- Constraint Handling -- Micro GA -- Adaptive Resolution Approach -- Local Search -- Avoiding Redundancy -- Results -- Environment and Parameters -- Results and Discussion -- Conclusions and Future Work -- References -- Adaptive Abnormality Detection on ECG Signal by Utilizing FLAC Features -- Introduction -- Architecture of the Proposed Framework -- Preprocessing in Frequency Domain -- Local Auto-correlation on Complex Fourier Values (FLAC) for ECG -- Complex Subspace Method -- Experiments -- Conclusions -- References -- Gravitational Interactions Optimization -- Introduction -- Review GSA GIO and CSS -- Newton's Law of Universal Gravitation -- Gravitational Interactions Optimization -- Gravitational Interactions for Unimodal Optimization -- Gravitational Interactions for Multimodal Optimization -- Experiments. Test Functions -- Results -- Conclusions -- References -- On the Neutrality of Flowshop Scheduling Fitness Landscapes -- Motivations -- Background -- Definition of the Permutation Flowshop Scheduling Problem -- Neighborhood and Local Search -- Fitness Landscape -- Neutral Networks Analysis for the Permutation Flowshop Scheduling Problem -- Experimental Design -- Neutral Degree -- Typology of Neutral Networks -- Exploiting Neutrality to Solve the FSP -- Reaching Portals -- How to Guide the Search? -- Discussion -- References -- A Reinforcement Learning Approach for the Flexible Job Shop Scheduling Problem -- Introduction -- Flexible Job Shop Scheduling Problem --

Problem Formulation -- Previous Approaches -- Dispatching Rules -- Reinforcement Learning -- Q-Learning -- The Proposed Approach: Learning / Optimization -- Pseudo-code of the Algorithm -- Example -- Experimental Results -- Instances -- Parameters -- Comparative Study -- Conclusions and Future Work -- References -- Supervised Learning Linear Priority Dispatch Rules for Job-Shop Scheduling -- Introduction -- Priority Dispatch Rules for Job-Shop Scheduling -- Logistic Regression -- Experimental Study -- Data Generation -- Training Size and Accuracy -- Comparison with Single Priority Dispatching Rules -- Robustness towards Data Distributions -- Fixed Weights -- Summary and Conclusion -- References -- Fine-Tuning Algorithm Parameters Using the Design of Experiments Approach -- Introduction -- Automated Tuning Framework -- Screening Phase -- Exploration Phase -- Exploitation Phase -- Experimental Results -- Traveling Salesman Problem (TSP) -- Quadratic Assignment Problem (QAP) -- Conclusion -- References -- MetaHybrid: Combining Metamodels and Gradient-Based Techniques in a Hybrid Multi-Objective Genetic Algorithm -- GA Elements: Focus on Elitism -- SQP Elements: Focus on Constraints. Metamodels Derivatives.

Sommario/riassunto

This book constitutes the thoroughly refereed post-conference proceedings of the 5th International Conference on Learning and Intelligent Optimization, LION 5, held in Rome, Italy, in January 2011. The 32 revised regular and 3 revised short papers were carefully reviewed and selected from a total of 99 submissions. In addition to the contributions to the general track there are 11 full papers and 3 short papers presented at the following four special sessions; IMON: Intelligent Multiobjective OptimizatiON, LION-PP: Performance Prediction Self* EAs: Self-tuning, self-configuring and self-generating evolutionary algorithms LION-SWAP: Software and Applications.
