

1. Record Nr.	UNINA9910760268403321
Titolo	Computational Intelligence / / edited by Jonathan Garibaldi, Christian Wagner, Thomas Bäck, Hak-Keung Lam, Marie Cottrell, Kurosh Madani, Kevin Warwick
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2023
ISBN	3-031-46221-1
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (263 pages)
Collana	Studies in Computational Intelligence, , 1860-9503 ; ; 1119
Disciplina	006.3
Soggetti	Computational intelligence Artificial intelligence Computational Intelligence Artificial Intelligence
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Intro -- Preface -- Organization -- Contents -- Evolutionary Optimization of Roles for Access Control in Enterprise Resource Planning Systems -- 1 Introduction -- 2 Problem Description -- 3 Related Work -- 4 The AddRole-EA -- 4.1 Presentation of the AddRole-EA -- 4.2 Evaluation -- 5 New Mutation Methods for the AddRole-EA -- 5.1 (M1): Intersection of Permission Sets -- 5.2 (M2): Permission Set Setminus Union of Permissions of Roles -- 5.3 (M3): Splitting of Roles -- 5.4 (M4): Permission Set of a User -- 5.5 (M5): Merging of Roles -- 6 Evaluation -- 7 Conclusion and Future Works -- References -- Behavioural Modelling of Digital Circuits in SystemVerilog Using Grammatical Evolution -- 1 Introduction -- 2 Background -- 2.1 Related Work -- 2.2 Grammatical Evolution -- 3 Experimental Design -- 3.1 Benchmark Problems -- 4 Results and Discussions -- 4.1 Success Rate -- 4.2 Grammar Design -- 4.3 Higher Abstraction Levels -- 4.4 Impact of Initialization Schemes on Circuit Design Benchmark Problems -- 5 Conclusion and Future Work -- References -- Crossover in Cartesian Genetic Programming: Evaluation of Two Phenotypic Methods -- 1 Introduction -- 2 Preliminaries -- 2.1 Cartesian Genetic Programming -- 2.2 Advanced Crossover Operators for CGP -- 3

Review and Motivation -- 3.1 Previous Work on Crossover in CGP -- 3.2 Motivation for a New Evaluation -- 3.3 Formulation of Hypotheses -- 4 Evaluation -- 4.1 Experimental Setup -- 4.2 Benchmarks -- 4.3 Meta-optimization -- 4.4 Experiments -- 5 Discussion and Analysis -- 5.1 Analysis of Hypotheses -- 6 Conclusion and Future Work -- References -- An Information Granulation Approach Through m-Grams for Text Classification -- 1 Introduction -- 2 The Text Categorization System -- 2.1 Background and Conceptual Framework -- 2.2 Overview of the Text Categorization System -- 3 Enhancing the System Performance. 3.1 Performance Exploration Strategy -- 4 Simulation Settings and Results -- 4.1 Experimental Setup -- 4.2 Performance Evaluation -- 4.3 Experimental Results -- 5 Conclusions -- References -- Recent Research Topics in Evolutionary Multiobjective Optimization: A Personal Perspective -- 1 Introduction -- 2 Basic Concepts -- 3 Recent Research Topics -- 3.1 Algorithms -- 3.2 Scalability -- 3.3 Computationally Expensive MOPs -- 3.4 Hyper-Heuristics -- 4 Challenges -- 5 Conclusions -- References -- A Multi-objective Optimization Approach for the Capacitated Vehicle Routing Problem with Time Windows (CVRPTW) -- 1 Introduction -- 2 Formal Model -- 3 Various Approaches to the Problem -- 4 Our Approach -- 4.1 Setting the Input Parameters -- 4.2 Building the Initial Population Using a Greedy Approach -- 4.3 Tweak Operator -- 4.4 Recombination Operator -- 4.5 Fuse Operator: Naïve Merge -- 4.6 Tuning Operator -- 4.7 SPEA2 Fitness Computation and Archive Construction -- 4.8 SPEA2 Algorithm -- 4.9 Evolve Operator -- 5 Summary of Our Experimental Results -- 5.1 Hyperparameters Tuning -- 5.2 Results Analysis -- 6 Conclusions -- References -- Risk Assessment Modeling Based on a Graded Fuzzy Concept Lattice -- 1 Introduction -- 2 Background -- 2.1 Lattices and Quantales -- 2.2 Fuzzy Sets -- 2.3 Fuzzy Relations -- 3 Concept Lattices Vs. Preconcept Lattices -- 3.1 Preconcepts and Preconcept Lattices -- 3.2 Operators R "3222378 and R "3223379 on [SPSDOLLAR4DOLLARSPS]-Powersets and Fuzzy Concept Lattices -- 3.3 Concepts and Concept Lattices -- 4 Graded Concept Lattices -- 4.1 Measure of Inclusion of L-Fuzzy Sets -- 4.2 Conceptuality Degree of a Fuzzy Preconcept -- 4.3 Examples of Evaluation of Conceptuality Degree for Fuzzy Preconcepts -- 4.4 Graded Preconcept Lattices -- 5 Risk Assessment and Fuzzy Preconcept Lattices -- 5.1 Risk Assessment Model. 5.2 Assessment of Possible Covid-19 Impact on the Healthcare System in Latvia -- 6 Conclusions -- References -- Improving Simulation Realism in Developing a Fuzzy Modular Autonomous Driving System for Electric Boats -- 1 Introduction -- 2 Proposed Autonomous Driving System Architecture -- 2.1 LLC Design: Motion Control -- 2.2 Navigation Pipeline -- 2.3 Boat Avoidance Pipeline -- 2.4 Docks Avoidance Pipeline -- 2.5 High Level of Control: Pipeline Selection -- 3 Evaluation Metrics -- 3.1 Fish Schooling Behavior Inspired Reward Function -- 3.2 Stall, Collision and Success Probabilities -- 4 Simulation Results -- 4.1 Phase 1 -- 4.2 Phase 2 -- 4.3 Phase 3 -- 5 Conclusions -- References -- Facing Graph Classification Problems by a Multi-agent Information Granulation Approach -- 1 Introduction -- 2 Related Works -- 3 Complex and Multi-agent Systems -- 4 Graph E-ABC -- 5 Graph Neural Network -- 6 Experimental Results -- 7 Discussions and Conclusions -- References -- One-Shot Identification with Different Neural Network Approaches -- 1 Introduction -- 1.1 Related Work -- 2 Approach -- 2.1 Classic Convolutional Neural Network with Merged Images -- 2.2 Siamese Networks -- 2.3 Siamese Network with Capsules -- 3 Experimental Results -- 3.1 Industrial Application -- 3.2 Results on SmallNORB Dataset -- 3.3 Results on

AT& T Database of Faces -- 4 Conclusion and Future Prospects
-- References -- Evaluation of Gated Recurrent Neural Networks for
Embedded Systems Applications -- 1 Introduction -- 2 State of the Art
-- 2.1 Emergence of RNNs -- 2.2 Training with Back-Propagation --
2.3 Applications of RNNs in Embedded Systems (ESs) -- 3 Basic RNN
Cells Description -- 3.1 LSTM Cell -- 3.2 GRU Cell -- 3.3 MGU Cell --
3.4 STAR Cell -- 4 Building Deep RNN Structures -- 4.1 Discussion on
Basic Cells Complexity -- 4.2 Bi-Directional Variants.
4.3 Stacking Recurrent Cells -- 5 Experiments and Results -- 5.1 Test
Cases Overview -- 5.2 Pytorch Implementation -- 5.3 Our
Implementation -- 5.4 Performance Results -- 6 Conclusions and
Perspectives -- References -- Author Index.

Sommario/riassunto

This book includes a set of selected revised and extended versions of the best papers presented at the 13th International Joint Conference on Computational Intelligence (IJCCI 2021) – held as an online event, from October 25 to 27, 2021. We focus on three outstanding fields of Computational Intelligence through the selected panel, namely: Evolutionary Computation, Fuzzy Computation, and Neural Computation. Besides presenting the recent advances of the selected areas, the book aims to aggregate new and innovative solutions for confirmed researchers and on the other hand to provide a source of information and/or inspiration for young interested researchers or learners in the ever-expanding and current field of Computational Intelligence. It constitutes a precious provision of knowledge for individual researchers as well as represent a valuable sustenance for collective use in academic libraries (of universities and engineering schools) relating innovative techniques in various fields of applications.