

2020 IEEE Congress on **Evolutionary Computation (CEC)**



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2020 CONFERENCE **PROCEEDINGS**

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ISBN: 978-1-7281-6929-3
Part Number: CFP20ICE-ART

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IEEE Catalog Number: CFP20ICE-ART

ISBN: 978-1-7281-6929-3

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WELCOME MESSAGE FROM THE CHAIR

On behalf of the Organizing Committee, it is my greatest pleasure to welcome you to the 2020 IEEE Congress on Evolutionary Computation (IEEE CEC 2020), as part of the 2020 IEEE World Congress on Computational Intelligence (IEEE WCCI 2020). IEEE WCCI 2020 was planned to be held in Glasgow, Scotland, but unfortunately, all presentations will be given online due to the outbreak of Covid-19.

Financially sponsored by the IEEE Computational Intelligence Society, IEEE CEC 2020 is a major event in the field of evolutionary computation and covers all topics in evolutionary computation from theory to applications. The aims of this congress are to provide a forum for researchers and practitioners in the field of Evolutionary Computation to exchange the latest advances and demonstrate state-of-the-art in theory, algorithm design, and real-world applications, and to explore new directions, in particular in the emerging interdisciplinary areas of evolutionary learning, as an emerging popular research area of Artificial Intelligence.

Since the first WCCI taking place in Orlando in 1994, this Congress series and the Evolutionary Computation community have progressed tremendously. This year, IEEE CEC 2020 showcases a series of CEC Special Sessions (42), Cross-Disciplinary and Computational Intelligence (CDCI) Applications Special Sessions (30), and Workshops (1), free tutorials (17) covering comprehensive activities. We received a total of 690 high-quality papers from more than 54 countries. Based on a rigorous review process, CEC 2020 accepted 426 papers for inclusion in the conference program. The top 10 contributors by country are China (19.5%), USA (10.3%), United Kingdom (10.0%), Brazil (6.7%), Australia (5.8%), Japan (5.2%), India (4.6%), Germany (3.5%), Spain (3.4%) and Italy (3.2%). The healthy mix of topics provides a constructive spread with a notable trend. For example, applications of evolutionary computation is the most popular among all topics, while evolutionary multi- and many-objective optimization remains a hot topic. A clear new trend is the integration of evolutionary computation with machine learning, including the use of evolution for learning, such as evolutionary neural architecture search, evolutionary clustering, and learning classifier systems, as well as the use of machine learning to assist evolutionary optimization, such as data-driven surrogate-assisted evolutionary optimization, transfer learning and transfer optimization, and hyper-heuristics. In addition, the interest in genetic programming has resurged, partly due to the important role it plays in evolutionary learning. Finally, evolutionary scheduling and combinatorial optimization has also become one popular topic. It is really exciting to see that the research of evolutionary computation remains growing.

I would like to thank the guidance and support of the General Co-Chairs: Amir Hussain, Xin Yao and Marios Polycarpou. I am particular grateful to the IEEE CEC 2020 Technical Co-Chairs Hisao Ishibuchi, Jing Liu, Dipti Srinivasan, and Andy Tyrrell for their great time and efforts. I am also grateful to Juergen Branke, Jonathan Fieldsend, Jose A. Lozano, and Sanaz Mostaghim for serving as the Best Papers Award Committee members.

Last but not least, I would like to express my gratitude to the plenary speakers – Barbara Hammer, Kay Chen Tan, Carlos Coello Coello, and Jim Bezdek for accepting our invitation, to all the authors who submitted their work, to the program committee and reviewers, to all the participants of IEEE CEC 2020 and to the members of the Organizing Committee. Finally, I would also like to acknowledge the great support of the IEEE WCCI 2020 sponsors, i.e., the IEEE and the IEEE Computational Intelligence Society.

Yaochu Jin, IEEE CEC 2020 Conference Chair

MONDAY, JULY 20

Special Session C-S11: Special Session on Data-Driven Evolutionary Optimization of Computationally Expensive Problems (I)

Monday, July 20, 3:30PM-5:30PM, Room: CEC Room 1, Chair: Chaoli Sun, Tinkle Chugh

- 3:30PM Neural Networks for Surrogate-assisted Evolutionary Optimization of Chemical Processes [#24615]**
Tim Janus, Anne Luebbbers and Sebastian Engell
TU Dortmund University, Germany
- 3:50PM Surrogate-Assisted Memetic Algorithm with Adaptive Patience Criterion for Computationally Expensive Optimization [#24118]**
Yunwei Zhang, Chunlin Gong and Chunna Li
Northwestern Polytechnical University, China
- 4:10PM An Adaptive Constraint-handling Approach for Optimization Problems with Expensive Objective And Constraints [#24108]**
Jiaxiang Yi, Yuansheng Cheng and Jun Liu
School of Naval Architecture and Ocean Engineering, Huazhong University of Science and Technology, China
- 4:30PM Hybrid Single and Multiobjective Optimization for Engineering Design without Exact Specifications [#24056]**
Bo Liu, Mobayode Akinsolu and Qingfu Zhang
University of Glasgow, United Kingdom; Wrexham Glyndwr University, United Kingdom; City University of Hong Kong, Hong Kong
- 4:50PM Scalarizing Functions in Bayesian Multiobjective Optimization [#24293]**
Chugh Tinkle
Postdoctoral Research Fellow, United Kingdom
- 5:10PM Surrogate-Assisted Genetic Algorithms for the Travelling Salesman Problem and Vehicle Routing Problem [#24441]**
Muyao Fan and Jingpeng Li
Division of Computing Science and Mathematics University of Stirling, Scotland

Special Session C-S01: Special Session on Evolutionary Computation in Healthcare

Monday, July 20, 3:30PM-5:30PM, Room: CEC Room 2, Chair: Handing Wang, Rong Qu

- 3:30PM Optimising Antibiotic Treatments with Multi-objective Population-based Algorithms [#24308]**
Mila Goranova, Marco Contreras-Cruz, Andrew Hoyle and Gabriela Ochoa
University of Stirling, United Kingdom; University of Guanajuato, DICIS, Mexico
- 3:50PM In Vivo Computation for Tumor Sensitization and Targeting at Different Tumor Growth Stages [#24350]**
Shi Shaolong, Chen Yifan, Gong Zheng, Lin Xiaoyou, Sharifi Neda and Yao Xin
Southern University of Science and Technology, China; University of Electronic Science and Technology of China, China; University of Waikato, New Zealand
- 4:10PM Radar-based Noncontact Human Activity Classification Using Genetic Programming [#24140]**
Julio J. Valdes, Zachary Baird, Sreeraman Rajan and Miodrag Bolic

Digital Technologies Research Centre, National Research Council Canada, Ottawa, Canada;
Department of Systems and Computer Engineering, Carleton University, Ottawa, Canada;
School of Electrical Engineering and Computer Science, University of Ottawa, Ottawa, Canada

4:30PM Learning Regular Expressions for Interpretable Medical Text Classification Using a Pool-based Simulated Annealing Approach [#24386]

Chaofan Tu and Menglin Cui
University of Nottingham, China

4:50PM Data-Driven Regular Expressions Evolution for Medical Text Classification Using Genetic Programming [#24564]

Jiandong Liu, Ruibin Bai, Zheng Lu, Peiming Ge, Uwe Aickelin and Daoyun Liu
University of Nottingham Ningbo China, China; Ping An Health Cloud Company Limited China, China; University of Melbourne, Australia

5:10PM Identifying Parkinson's Disease Through the Classification of Audio Recording Data [#24542]

James Bielby, Stefan Kuhn, Simnon Colreavy-Donnelly, Fabio Caraffini, Stuart O'Connor and Zacharias Anastassi
De Montfort University, United Kingdom

Special Session C-S02: Special Session on Games

Monday, July 20, 3:30PM-5:30PM, Room: CEC Room 3, Chair: Jialin Liu, Joseph Brown

3:30PM A Novel CNet-assisted Evolutionary Level Repairer and Its Applications to Super Mario Bros [#24483]

Tianye Shu, Ziqi Wang, Jialin Liu and Xin Yao
Southern University of Science and Technology, China

3:50PM Generative Adversarial Network Rooms in Generative Graph Grammar Dungeons for The Legend of Zelda [#24090]

Jake Gutierrez and Jacob Schrum
Southwestern University, United States of America

4:10PM Does it matter how well I know what you're thinking? Opponent Modelling in an RTS game [#24549]

James Goodman and Simon Lucas
Queen Mary University of London, United Kingdom

4:30PM Evolutionary Graph Compression and Diffusion Methods for City Discovery in Role Playing Games [#24177]

Joseph Alexander Brown, Daniel Ashlock, Sheridan Houghten and Angelo Romualdo
Innopolis University, Russia; University of Guelph, Canada; Brock University, Canada

4:50PM Making an Example: Signalling Threat in the Evolution of Cooperation [#24265]

Theodor Cimpeanu and The Anh Han
Teesside University, United Kingdom

5:10PM A Continuous Information Gain Measure to Find the Most Discriminatory Problems for AI Benchmarking [#24026]

Matthew Stephenson, Damien Anderson, Ahmed Khalifa, John Levine, Jochen Renz, Julian Togelius and Christoph Salge
Maastricht University, Netherlands; University of Strathclyde, United Kingdom; New York University, United States of America; Australian National University, Australia

Special Session C-S17: Special Session on Associated with CEC 2020 Numerical Optimization Competitions (I)

Monday, July 20, 3:30PM-5:30PM, Room: CEC Room 4, Chair: Jing Liang

3:30PM Evaluating the Performance of Adaptive Gaining-Sharing Knowledge Based Algorithm on CEC 2020 Benchmark Problems [#24505]

Ali Mohamed, Anas Hadi, Ali Mohamed and Noor Awad

Operations Research Department, Faculty of Graduate studies for Statistical Research, Cairo University, Giza 12613, Egypt, Egypt; Operations Research Department, Faculty of Graduate studies for Statistical Research, Cairo University, Giza 12613, Egypt, Saudi Arabia; Department of Computer Science, Faculty of Computer Science, October University for Modern Science and Arts (MSA), 6th October, Giza, Egypt; Computer Science Department, University of Freiburg, Germany

3:50PM MMOGA for Solving Multimodal Multiobjective Optimization Problems with Local Pareto Sets [#24463]

Caitong Yue, Jing Liang, P. N. Suganthan, Boyang Qu, Kunjie Yu and Shuo Liu

Zhengzhou University, China; Nanyang Technological University, Singapore; Zhongyuan University of Technology, China; Henan Provincial People's Hospital, China

4:10PM COLSHADE for Real-World Single-Objective Constrained Optimization Problems [#24586]

Javier Gurrola-Ramos, Arturo Hernandez-Aguirre and Oscar Dalmau-Cedeno
Mathematics Research Center, Mexico

4:30PM Multi-population Modified L-SHADE for Single Objective Bound Constrained Optimization [#24623]

Yann-Chern Jou, Shuo-Ying Wang, Jia-Fong Yeh and Tsung-Che Chiang

National Taiwan Normal University, Taiwan; National Taiwan University, Taiwan

4:50PM DISH-XX Solving CEC2020 Single Objective Bound Constrained Numerical Optimization Benchmark [#24380]

Adam Viktorin, Roman Senkerik, Michal Pluhacek, Tomas Kadavy and Ales Zamuda

Faculty of Applied Informatics, Tomas Bata University in Zlin, Czech Republic; Faculty of Electrical Engineering and Computer Science, University of Maribor, Slovenia

5:10PM A Modified Matrix Adaptation Evolution Strategy with Restarts for Constrained Real-World Problems [#24443]

Michael Hellwig and Hans-Georg Beyer

Vorarlberg University of Applied Sciences, Austria

Plenary Poster Session C-P1: CEC Poster Session 1

Monday, July 20, 3:30PM-5:30PM, Room: CEC Poster Room, Chair: Jing Liu, John McCall

P101 Integrated Learning Method for Anomaly Detection Combining KLSH and Isolation Principles [#24016]

Hongchun Qu, Zonglan Li and Jingjing Wu

Chongqing University of Posts and Telecommunications, China

P102 Handling Constrained Multi-Objective Optimization with Objective Space Mapping to Decision Space Based on Extreme Learning Machine [#24021]

Hao Zhang, Tao Ku, Lianbo Ma and Yibo Yong

Shenyang Institute of Automation, Chinese Academy of Sciences, China; Northeastern University, China

- P103 Evolution of Convolution Neural Network Architectures using Genetic Algorithm [#24052]**
Aadi Swadipito Mondal
Indian Institute of Technology Kharagpur, India, India
- P104 A Novel Hybrid Attitude Fusion Based on LSTM Neural Network for Unmanned Aerial Vehicle [#24096]**
Yaohua Liu and Yimin Zhou
The Chinese University of Hong Kong, Hong Kong; Shenzhen Institutes of Advanced Technology, CAS, China
- P105 Genetic Programming-Based Feature Learning for Facial Expression Classification [#24102]**
Ying Bi, Bing Xue and Mengjie Zhang
Victoria University of Wellington, New Zealand
- P106 HeMI++: A Genetic Algorithm based Clustering Technique for Sensible Clusters [#24126]**
Abul Hashem Beg, Md Zahidul Islam and Vladimir Estivill-Castro
Charles Sturt University, Australia; Universitat Pompeu Fabra, Spain
- P107 A Two-phase Evolutionary Algorithm for Solving the Accuracy-diversity Dilemma in Recommendation [#24180]**
Zhipeng Hou and Jing Liu
Xidian University, China
- P108 Clustering Julia Set Examples to Enhance Evolution of Fractal Parameters [#24193]**
Andrew Dong and Daniel Ashlock
Independent Researcher, Canada; University of Guelph, Canada
- P109 WEC: Weighted Ensemble of Text Classifiers [#24497]**
Ashish Upadhyay, Tien Thanh Nguyen, Stewart Massie and John McCall
School of Computing Science and Digital Media, Robert Gordon University, United Kingdom
- P110 Decision making for two learning agents acting like human agents [#24072]**
Tobias Jordan, Philippe De Wilde and Fernando Buarque de Lima Neto
University of Kent, United Kingdom; Universidade de Pernambuco, Brazil

Special Session C-S03: Special Session on Evolutionary Deep Learning and Applications
Monday, July 20, 5:45PM-7:45PM, Room: CEC Room 1, Chair: Yanan Sun, Bing Xue

- 5:45PM Evolving Deep Recurrent Neural Networks Using A New Variable-Length Genetic Algorithm [#24575]**
Ramya Anasseriyl Viswambaran, Gang Chen, Bing Xue and Mohammad Nekooei
Victoria University of Wellington, New Zealand
- 6:05PM Simultaneously Evolving Deep Reinforcement Learning Models using Multifactorial Optimization [#24568]**
Aritz D. Martinez, Eneko Osaba, Javier Del Ser and Francisco Herrera
TECNALIA, Basque Research and Technology Alliance (BRTA), Spain; DaSCI Andalusian Institute of Data Science and Computational Intelligence, Spain
- 6:25PM Improved Training Speed, Accuracy, and Data Utilization via Loss Function Optimization [#24057]**
Santiago Gonzalez and Risto Miikkulainen
University of Texas at Austin, United States of America
- 6:45PM Optimizing LSTM Based Network For Forecasting Stock Market [#24521]**
Ehsan Rokhsatyazdi, Shahryar Rahnamayan, Hossein Amirinia and Sakib Ahmed
Ontario tech university, Canada; SMIEEE, Ontario tech university, Canada

7:05PM Layers Sequence Optimizing for Deep Neural Networks using Multiples Objectives [#24142]

Giuseppe Neto, Pericles Miranda, George Cavalcanti, Tapas Si, Filipe Cordeiro and Mayara Castro

UFRPE, Brazil; UFPE, Brazil; Bankura Unnayani Institute of Engineering, India

7:25PM Optimizing Neural Architecture Search using Limited GPU Time in a Dynamic Search Space: A Gene Expression Programming Approach [#24533]

Jeovane Honorio Alves and Lucas Ferrari de Oliveira

Federal University of Parana, Brazil

Special Session C-S04-2: Special Session on Evolutionary Scheduling and Combinatorial Optimization (II)

Monday, July 20, 5:45PM-7:45PM, Room: CEC Room 2, Chair: Su Nguyen, Gang Chen

5:45PM An Effective Iterated Greedy Algorithm for Online Route Planning Problem [#24111]

Xing Wang, Shengyao Wang, Ling Wang, Huanyu Zheng, Jinghua Hao, Renqing He and Zhizhao Sun

Tsinghua University, China; Meituan-Dianping Group, China

6:05PM A CMA-ES algorithm for solving the steelmaking scheduling problem involving time buffers [#24520]

Jiang Sheng-Long, Tang Wei and Hu Wanzhe

Chongqing University, China; Chongqing University of Posts and Communications, China

6:25PM A Hybrid Differential Evolution Algorithm for the Online Meal Delivery Problem [#24113]

Jing-fang Chen, Shengyao Wang, Ling Wang, Jie Zheng, Ying Cha, Jinghua Hao, Renqing He and Zhizhao Sun

Tsinghua University, China; Meituan-Dianping Group, China

6:45PM Cluster-based Hyper-Heuristic for the Large-Scale Vehicle Routing Problem [#24624]

Joao Guilherme Cavalcanti Costa, Yi Mei and Mengjie Zhang

Victoria University of Wellington, New Zealand

7:05PM A Multi-Objective Genetic Programming Hyper-Heuristic Approach to Uncertain Capacitated Arc Routing Problems [#24334]

Shaolin Wang, Yi Mei and Mengjie Zhang

Victoria University of Wellington, New Zealand

7:25PM Online Parameter Tuned SAHiD Algorithm for Capacitated Arc Routing Problems [#24316]

Changwu Huang, Yuanxiang Li and Xin Yao

Southern University of Science and Technology, China; Wuhan University, China

Special Session C-S12: Special Session on Evolutionary Computation for Feature Selection, Extraction and Dimensionality Reduction

Monday, July 20, 5:45PM-7:45PM, Room: CEC Room 3, Chair: Bing Xue, Mengjie Zhang

5:45PM Genetic Programming with Noise Sensitivity for Imputation Predictor Selection in Symbolic Regression with Incomplete Data [#24344]

Baligh Al-Helali, Qi Chen, Bing Xue and Mengjie Zhang

Victoria University of Wellington, New Zealand

- 6:05PM A Decomposition based Multi-objective Evolutionary Algorithm with ReliefF based Local Search and Solution Repair Mechanism for Feature Selection [#24382]**
Kaan Demir, Bach Hoai Nguyen, Bing Xue and Mengjie Zhang
Victoria University of Wellington, New Zealand
- 6:25PM Community-Grouping Based Particle Swarm Optimisation Algorithm for Feature Selection [#24290]**
Jianfeng Qiu, Jiangchuan Wan, Lei Zhang, Fan Cheng and Yongkang Luo
Key Laboratory of Intelligent Computing and Signal Processing of Ministry of Education, Anhui University, China; School of Computer Science and Technology, Anhui University, Hefei 230039, China, China
- 6:45PM Evolving Simpler Constructed Features for Clustering Problems with Genetic Programming [#24602]**
Finn Schofield and Andrew Lensen
Victoria University of Wellington, New Zealand
- 7:05PM Hybridising Particle Swarm Optimisation with Differential Evolution for Feature Selection in Classification [#24251]**
Ke Chen, Bing Xue, Mengjie Zhang and Fengyu Zhou
Shandong University, China; Victoria University of Wellington, New Zealand
- 7:25PM Improving the Detection of Burnt Areas in Remote Sensing using Hyper-features Evolved by M3GP [#24404]**
Joao Batista and Sara Silva
Faculdade de Ciencias, Universidade de Lisboa, Portugal

Special Session C-S17-2: Special Session on Associated with CEC 2020 Numerical Optimization Competitions (II)

Monday, July 20, 5:45PM-7:45PM, Room: CEC Room 4, Chair: Jing Liang

- 5:45PM A Differential Evolution Algorithm with Q-Learning for Solving Engineering Design Problems [#24537]**
Damla Kizilay, M. Fatih Tasgetiren, Hande Oztop, Levent Kandiller and P. N Suganthan
Izmir Democracy University, Turkey; Yasar University, Turkey; Nanyang Technological University, Singapore
- 6:05PM Eigenvector Crossover in jDE100 Algorithm [#24559]**
Petr Bujok, Patrik Kolenovsky and Vladimir Janisch
University of Ostrava, Czech Republic
- 6:25PM A Multi-Population Exploration-only Exploitation-only Hybrid on CEC-2020 Single Objective Bound Constrained Problems [#24165]**
Antonio Bolufe-Rohler and Stephen Chen
University of Prince Edward Island, Canada; York University, Canada
- 6:45PM Improved Multi-operator Differential Evolution Algorithm for Solving Unconstrained Problems [#24365]**
Karam Sallam, Saber Elsayed, Ripon Chakraborty and Michael Ryan
UNSW Canberra at ADFA, Australia
- 7:05PM Ranked Archive Differential Evolution with Selective Pressure for CEC 2020 Numerical Optimization [#24355]**
Vladimir Stanovov, Shakhnaz Akhmedova and Semenkin Eugene
Reshetnev Siberian State University of Science and Technology, Russian Federation

7:25PM Differential Evolution Algorithm for Single Objective Bound-Constrained Optimization: Algorithm j2020 [#24518]

Janez Brest, Mirjam Sepesy Maucec and Borko Boskovic
University of Maribor, Slovenia

Plenary Poster Session C-P2: CEC Poster Session 2

Monday, July 20, 5:45PM-7:45PM, Room: CEC Poster Room, Chair: Andy Tyrrel, Ying-ping Chen

P301 A Decomposition-based Multi-objective Self-adaptive Differential Evolution Algorithm for RFID Network Planning [#24009]

Jiahao Liu and Jing Liu
XiDian University, China; Xidian University, China

P302 A Multi-constraint Handling Technique based Niching Evolutionary Algorithm for Constrained Multi-objective Optimization Problems [#24036]

Zixu Wang, Jingxuan Wei and Yi Zhang
Xidian University, China

P303 Estimating Low Frequency Oscillation using Bacterial Swarm Algorithm with Local Probability Likelihood Approach [#24039]

Wanyu Ye, Yuefeng Guo, Tianyao Ji and Mengshi Li
China Southern Grid, China; South China University of Technology, China

P304 Improving Cuckoo Search: Incorporating Changes for CEC 2017 and CEC 2020 Benchmark Problems [#24139]

Rohit Salgotra, Urvinder Singh, Sriparna Saha and Amir H Gandomi
Thapar Institute of Engineering & Technology, India; Indian Institute of Technology, Patna, India; University of Technology, Sydney, Australia

P305 Enhanced Interactive Estimation of Distribution Algorithms with Attention Mechanism and Restricted Boltzmann Machine [#24149]

Lin Bao, Xiaoyan Sun, Dunwei Gong, Yong Zhang and Biao Xu
China University of Mining and Technology, China; Shantou University, China

P306 Harnessing Particle Swarm Optimization Through Relativistic Velocity [#24162]

Mateus Roder, Gustavo Rosa, Leandro Passos, Andre Rossi and Joao Papa
UNESP, Brazil

P307 Multi-objective Optimal Control of Dynamic Integrated Model of Climate and Economy: Evolution in Action [#24175]

Mostapha Kalami Heris and Shahryar Rahnamayan
FaraDars Online Education Organization, Iran; Ontario Tech University, Canada

P308 Mobile Touchless Fingerprint Acquisition And Enhancement System [#24185]

Seref Sagiroglu, Mehtap Ulker and Bilgehan Arslan
Prof. Dr., Turkey; Research Assistant, Turkey; Lecturer, Turkey

P309 Shrinking Counterexamples in Property-Based Testing with Genetic Algorithms [#24208]

Fang-Yi Lo, Chao-Hong Chen and Ying-ping Chen
National Chiao Tung University, Taiwan; Indiana University, United States of America

P310 An Iterated Local Search Approach to Solve the Milk Collection Problem With Blending [#24235]

Jorge Villagran, Elizabeth Montero and German Paredes-Belmar
Universidad Tecnica Federico Santa Maria, Chile; Universidad Andres Bello, Chile

Special Session C-S04: Special Session on Evolutionary Scheduling and Combinatorial Optimization (I)

Monday, July 20, 8:00PM-10:00PM, Room: CEC Room 1, Chair: Su Nguyen, Yi Mei

8:00PM A Fitness-based Selection Method for Pareto Local Search for Many-Objective Job Shop Scheduling [#24362]

Atiya Masood, Gang Chen, Yi Mei, Harith Al-Sahaf and Mengjie Zhang
Victoria University of Wellington, New Zealand

8:20PM Genetic Programming Hyper-Heuristics with Probabilistic Prototype Tree Knowledge Transfer for Uncertain Capacitated Arc Routing Problems [#24067]

Mazhar Ansari Ardeh, Yi Mei and Zhang Mengjie
Victoria University of Wellington, New Zealand

8:40PM Evolving Large Reusable Multi-pass Heuristics for Resource Constrained Job Scheduling [#24337]

Su Nguyen and Dhananjay Thiruvady
La Trobe University, Australia; Deakin University, Australia

9:00PM Genetic Programming Hyper-heuristic with Cluster Awareness for Stochastic Team Orienteering Problem with Time Windows [#24536]

Jackson Jericho and Yi Mei
Victoria University of Wellington, New Zealand

9:20PM Hierarchical Grammar-Guided Genetic Programming Techniques for Scheduling in Heterogeneous Networks [#24240]

Takfarinas Saber, David Lynch, David Fagan, Stepan Kucera, Holger Claussen and Michael O'Neill
School of Computer Science, University College Dublin, Ireland; Natural Computing Research and Applications Group, School of Business, University College Dublin, Ireland; Bell Laboratories, Nokia, Dublin, Ireland

9:40PM An Ant Colony Optimisation Based Heuristic for Mixed-model Assembly Line Balancing with Setups [#24618]

Dhananjay Thiruvady, Asef Nazari and Atabak Elmi
School of IT, Deakin University, Australia; School of IT, Deakin University, Australia

Special Session C-S07: Special Session on Optimization, Learning, and Decision-Making in Bioinformatics and Bioengineering (OLDMBB)

Monday, July 20, 8:00PM-10:00PM, Room: CEC Room 2, Chair: Richard Allmendinger, Vassilis Plagianakos

8:00PM Mitigating the Effects of External Perturbations on a Gene Regulatory Network using Feedback Controllers [#24219]

Abhinandan Khan, Goutam Saha and Rajat Kumar Pal
University of Calcutta, India; North-Eastern Hill University, India

8:20PM Modelling of Vaccination Strategies for Epidemics using Evolutionary Computation [#24584]

Michael Dube, Sheridan Houghten and Daniel Ashlock
Brock University, Canada; University of Guelph, Canada

8:40PM Opinion dissemination in a swarm of simulated robots with stubborn agents: a comparative study [#24450]

Guillaume Maitre, Elio Tuci and Eliseo Ferrante
University of Namur, Belgium; Vrije Universiteit Amsterdam, Technology Innovation Institute (Abu Dhabi), Netherlands

9:00PM A dynamic evolutionary multi-agent system to predict the 3D structure of proteins [#24312]

Leonardo de Lima Correa, Luciana Arantes, Pierre Sens, Mario Inostroza-Ponta and Marcio Dorn

Federal University of Rio Grande do Sul, Brazil; Soborne University, France; University of Santiago de Chile, Chile

9:20PM High-Performance Virus Detection System by using Deep Learning [#24407]

Ying-Feng Hsu, Makiko Ito, Takumi Maruyama, Morito Matsuoka, Nicolas Jung, Yuki Matsumoto, Daisuke Motooka and Shota Nakamura

Osaka University, Japan; Fujitsu Laboratories Ltd, Japan; Fujitsu Limited, Japan

9:40PM Examination of Annealing Schedules for RNA Design [#24538]

Ryan McBride and Herbert H. Tsang

Trinity Western University, Canada

Special Session C-S22: Special Session on Memetic Computing (I)

Monday, July 20, 8:00PM-10:00PM, Room: CEC Room 3, Chair: Zexuan Zhu, Ferrante Neri

8:00PM Covariance Local Search for Memetic Frameworks: A Fitness Landscape Analysis Approach [#24050]

Ferrante Neri and Zhou Yuyang

University of Nottingham, United Kingdom

8:20PM Large-Scale Optimization via Evolutionary Multitasking assisted Random Embedding [#24360]

Yinglan Feng, Liang Feng, Yaqing Hou and Kay Chen Tan

Department of Computer Science, City University of Hong Kong, Hong Kong; College of Computer Science, Chongqing University, China; College of Computer Science and Technology, Dalian University of Technology, China

8:40PM Analytic Continued Fractions for Regression: Results on 352 datasets from the physical sciences [#24091]

Pablo Moscato, Haoyuan Sun and Mohammad Nazmul Haque

School of Elect. Engg. and Computing, The University of Newcastle, Australia; California Institute of Technology, United States of America

9:00PM A Hybrid BSO-ACS Algorithm for Vehicle Routing Problem with Time Windows on Road Networks [#24159]

Mingde Liu, Yang Shen, Qi Zhao and Yuhui Shi

Southern University of Science and Technology, China

9:20PM An Adaptive Memetic P System to Solve the 0/1 Knapsack Problem [#24023]

Jianping Dong, Haina Rong, Ferrante Neri, Qiang Yang, Ming Zhu and Gexiang Zhang

Southwest Jaotong University, China; University of Nottingham, United Kingdom; Chengdu University of information Technology, China; Chengdu University of Technology, China

9:40PM Multifactorial Evolutionary Algorithm for Inter-Domain Path Computation under Domain Uniqueness Constraint [#24622]

Binh Huynh Thi Thanh, Thang Ta Bao, Long Nguyen Binh, Hoang Ngo Viet and Thanh Pham Dinh

School of Information and Communication Technology, Hanoi University of Science and Technology, Viet Nam; Faculty of Natural Science and Technology, Tay Bac University, Viet Nam

Special Session C-S22-2: Special Session on Memetic Computing (II)

Monday, July 20, 8:00PM-10:00PM, Room: CEC Room 4, Chair: Zexuan Zhu, Ferrante Neri

8:00PM BSO-AL: Brain Storm Optimization Algorithm with Adaptive Learning Strategy [#24121]

Yang Shen, Jian Yang, Shi Cheng and Yuhui Shi
Southern University of Science and Technology, China; Shaanxi Normal University, China

8:20PM Endmember Selection of Hyperspectral Images based on Evolutionary Multitask [#24274]

Yizhe Zhao, Hao Li, Yue Wu, Shanfeng Wang and Maoguo Gong
School of Electronic Engineering, Key Laboratory of Intelligent Perception and Image Understanding of Ministry of Education, Xidian University, Xi'an, Shaanxi Province, China; School of Computer Science and Technology, Xidian University, Xi'an, Shaanxi Province, China; School of Cyber Engineering, Xidian University, Xi'an, Shaanxi Province, China

8:40PM Multi-objective multi-factorial memetic algorithm based on bone route and large neighborhood local search for VRPTW [#24485]

Zifeng Zhou, Xiaoliang Ma, Zhengping Liang and Zexuan Zhu
Shenzhen University, China

9:00PM Memetic Multi-agent Optimization with Problem Reformulation by Coordinate Rotation [#24650]

Mingyang Sun, Yaqing Hou, Qiang Zhang, Hongwei Ge, Xin Yang, Liang Feng, Abhishek Gupta and Xianneng Li
Dalian University of Technology, China; Chongqing University, China; Agency for Science, Technology and Research (A*STAR), Singapore

9:20PM A Memetic Algorithm for the Task Allocation Problem on Multi-robot Multi-point Dynamic Aggregation Missions [#24204]

Guanqiang Gao, Yi Mei, Bin Xin, Ya-Hui Jia and Will Browne
Beijing Institute of Technology, China; Victoria University of Wellington, New Zealand

9:40PM Enhancing Artificial Bee Colony Algorithm with Dynamic Best Neighbor-guided Search Strategy [#24216]

Qiyu Cai, Xinyu Zhou, Anquan Jie, Maosheng Zhong, Mingwen Wang, Hui Wang and Hu Peng
Jiangxi Normal University, China; Nanchang Institute of Technology, China; Jiujiang University, China

Plenary Poster Session C-P3: CEC Poster Session 3

Monday, July 20, 8:00PM-10:00PM, Room: CEC Poster Room, Chair: Ting Hu, Daniel Coelho

P501 Evolving Order and Chaos: Comparing Particle Swarm Optimization and Genetic Algorithms for Global Coordination of Cellular Automata [#24001]

Anthony Rhodes
Intel Corporation, Portland State University, United States of America

P502 Sports Games Modeling and Prediction using Genetic Programming [#24100]

Shengkai Geng and Ting Hu
Memorial University of Newfoundland, Canada; Queen's University, Canada

P503 A Review and Empirical Analysis of Particle Swarm Optimization Algorithms for Dynamic Multi-Modal Optimization [#24158]

Simon Dennis and Andries Engelbrecht
Stellenbosch University, South Africa

- P504 A Simulation-Based Approach to Multi-Item Multi-Echelon Spare Parts Inventory System Optimization with Variable Warehouse Roles [#24167]**
Daniel Coelho, Wlamir Vianna and Leonardo Rodrigues
Embraer S.A., Brazil; Aeronautics Institute of Technology, Brazil
- P505 Self-tuning Co-Operation of Biology-Inspired and Evolutionary Algorithms for Real-World Single Objective Constrained Optimization [#24191]**
Shakhnaz Akhmedova and Vladimir Stanovov
Reshetnev Siberian State University of Science and Technology, Russian Federation
- P506 Enhancing Evolutionary Algorithms by Efficient Population Initialization for Constrained Problems [#24222]**
Saber Elsayed, Ruhul Sarker, Noha Hamza, Carlos Coello Coello and Efren Mezura-Montes
UNSW Canberra, Australia; Depto. de Computacion, CINVESTAV-IPN, Mexico; Artificial Intelligence Research Center, Mexico
- P507 A Novel Velocity Reinforced Mechanism on Improving Particle Swarm Optimization for Ill-conditioned Problems [#24271]**
Fengyang Sun, Chunxiuzi Liu, Linping Wu, Lin Wang, Shuangrong Liu and Bo Yang
Shandong Provincial Key Laboratory of Network Based Intelligent Computing, University of Jinan, Jinan 250022, China, China
- P508 Improving Software Maintainability Predictions using Data Oversampling and Hybridized Techniques [#24307]**
Ruchika Malhotra and Kusum Lata
Delhi Technological University, India
- P509 Investigating Optimal Regimes for Prediction in the Stock Market [#24309]**
Rodrigo Corbelli, Marley Vellasco and Alvaro Veiga
PUC-Rio, Brazil
- P510 Optimal sizing of a standalone renewable energy reverse osmosis desalination system using an ant system [#24320]**
Daming Xu and Thomas L. Acker
Xi'an University of Science and Technology, China; Northern Arizona University, United States of America

TUESDAY, JULY 21

Special Session C-S11-2: Special Session on Data-Driven Evolutionary Optimization of Computationally Expensive Problems (II)

Tuesday, July 21, 2:30PM-4:30PM, Room: CEC Room 1, Chair: Chaoli Sun, Handing Wang

2:30PM A Surrogate-Assisted Offspring Generation Method for Expensive Multi-objective Optimization Problems [#24107]

Fan Li, Liang Gao, Weiming Shen, Xiwen Cai and Shifeng Huang

State Key Laboratory of Digital Manufacturing Equipment and Technology, School of Mechanical Science and Engineering, Huazhong University of Science & Technology, China; National CNC Engineering Technology Research Center, School of Mechanical Science and Engineering, Huazhong University of Science & Technology, China

2:50PM A Kriging-Assisted Evolutionary Algorithm Using Feature Selection for Expensive Sparse Multi-Objective Optimization [#24261]

Zheng Tan and Handing Wang

Xidian University, China

3:10PM A Hybrid Surrogate Model for Evolutionary Undersampling in Imbalanced Classification [#24428]

Hoang Lam Le, Dario Landa-Silva, Mikel Galar, Salvador Garcia and Isaac Triguero

University of Nottingham, United Kingdom; Universidad Publica de Navarra, Spain; University of Granada, Spain

3:30PM Trust Regions in Surrogate-Assisted Local Search for Industrial Columns' Mass Transfer Efficiencies Estimation [#24188]

Miaomiao Qu, Jian Wang, Xuhua Shi and Xiaoxia Chen

Ningbo University, China

3:50PM Envisioning the Benefits of Back-Drive in Evolutionary Algorithms [#24519]

Unai Garciarena, Alexander Mendiburu and Roberto Santana

University of the Basque Country (UPV/EHU), Spain

Special Session C-S16: Special Session on Transfer Learning in Evolutionary Computation

Tuesday, July 21, 2:30PM-4:30PM, Room: CEC Room 2, Chair: Bing Xue, Jing Liang

2:30PM Representing Experience in Continuous Evolutionary Optimisation through Problem-tailored Search Operators [#24319]

Stephen Friess, Peter Tino, Stefan Menzel, Bernhard Sendhoff and Xin Yao

University of Birmingham, United Kingdom; Honda Research Institute Europe GmbH, Germany; Southern University of Science and Technology, China

2:50PM Tracking Moving Optima of Dynamic Multi-objective Problem via Prediction in Objective Space [#24417]

Wei Zhou, Liang Feng, Zexuan Zhu, Kai Liu, Chao Chen and Zhou Wu

Chongqing University, China; Shenzhen University, China

3:10PM Multifactorial Genetic Fuzzy Data Mining for Building Membership Functions [#24310]

Ting-Chen Wang and Rung-Tzuo Liaw

Department of Computer Science and Information Engineering, National Chung Cheng University, Taiwan; Department of Computer Science and Information Engineering, Fu Jen Catholic University, Taiwan

3:30PM A probabilistic optimization approach to deal with uncertainties in model calibration [#24315]

Nicolas Poiron-Guidoni, Paul Bisgambiglia and Paul-Antoine Bisgambiglia
University of Corsica, France

3:50PM MFEA-IG: A Multi-Task Algorithm for Mobile Agents Path Planning [#24389]

Yongjian Zhou, Tonghao Wang and Xingguang Peng
School of Marine Science and Technology, Northwestern Polytechnical University, China

Special Session C-S41: Special Session on Differential Evolution: Past, Present and Future

Tuesday, July 21, 2:30PM-4:30PM, Room: CEC Room 3, Chair: Kai Qin, Swagatam Das

2:30PM Adaptive Guidance-based Differential Evolution with Iterative Feedback Archive Strategy for Multimodal Optimization Problems [#24231]

Hong Zhao, Zhi-Hui Zhan and Jun Zhang
South China University of Technology, China; Hanyang University, Korea (South)

2:50PM Adaptive Population Differential Evolution with Dual Control Strategy for Large-Scale Global Optimization Problems [#24230]

Xin Zhang, Zhi-Hui Zhan and Jun Zhang
South China University of Technology, China; Hanyang University, Korea (South)

3:10PM A Novel Center-based Differential Evolution Algorithm [#24281]

Seyed Jalaeddin Mousavirad and Shahryar Rahnamayan
Ontario Tech University, Canada

3:30PM Clustering based Adaptive Differential Evolution for Numerical Optimization [#24478]

Bilal Bilal, Millie Pant and Garima Vig
Indian Institute of Technology Roorkee, India; College of Engineering Roorkee, India

3:50PM Large Initial Population and Neighborhood Search incorporated in LSHADE to solve CEC2020 Benchmark Problems [#24597]

Partha P. Biswas and Ponnuthurai N. Suganthan
Advanced Digital Sciences Center, Singapore; Nanyang Technological University, Singapore

4:10PM Differential Evolution variants combined in a Hybrid Dynamic Island Model [#24570]

Grasiele Duarte and Beatriz Lima
Federal University of Rio de Janeiro, Brazil

Plenary Poster Session C-P4: CEC Poster Session 4

Tuesday, July 21, 2:30PM-4:30PM, Room: CEC Poster Room, Chair: Jing Liu

P701 Feature Extraction of Fourier Infrared Signals from Pyrolysis Products based on ZCA and PSO [#24032]

Yantai Lin, Xiaowei Song, Tianyao Ji and Mengshi Li
South China University of Technology, China

P702 Evolutionary Approach to Collectible Card Game Arena Deckbuilding using Active Genes [#24089]

Jakub Kowalski and Radoslaw Miernik
University of Wroclaw, Poland

P703 Evolutionary Automation of Coordinated Autonomous Vehicles [#24134]

Geoff Nitschke and Allen Huang
UCT, South Africa

- P704 Coevolutionary clustering algorithm for large datasets [#24170]**
 Fabio Fabris, Diego Luchi and Flavio Varejao
 Federal University of Espirito Santo, Brazil
- P705 Transfer Learning Layer Selection Using Genetic Algorithm [#24189]**
 Satsuki Nagae, Shin Kawai and Hajime Nobuhara
 University of Tsukuba, Japan
- P706 Survey on Applications of Multi-Armed and Contextual Bandits [#24221]**
 Djallel Bouneffouf, Irina Rish and Charu Aggarwal
 IBM Research, United States of America
- P707 On the Use of Cultural Enhancement Strategies to Improve the NEAT Algorithm [#24223]**
 Arthur Paulino, Yuri Nogueira, Joao Gomes, Cesar Mattos and Leonardo Rodrigues
 Federal University of Ceara, Brazil; Instituto of Aeronautics and Space, Brazil
- P708 Neural-Guided Particle Swarm Optimization [#24244]**
 Amani M. Benhalem and Michael A. Lones
 Heriot-Watt University, United Kingdom
- P709 A Region Adaptive Image Classification Approach Using Genetic Programming [#24346]**
 Qinglan Fan, Bing Xue and Mengjie Zhang
 Victoria University of Wellington, New Zealand
- P710 An Innovative Polyp Detection Method from Colon Capsule Endoscopy Images Based on A Novel Combination of RCNN and DRLSE [#24361]**
 Ashkan Tashk and Esmaeil Nadimi
 Sdu, Denmark

Special Session C-S25: Special Session on Evolutionary Computation in Dynamic and Uncertain Environments (ECiDUE)

Tuesday, July 21, 4:45PM-6:45PM, Room: CEC Room 1, Chair: Changhe Li, Michalis Mavrovouniotis

- 4:45PM A Two-stage Algorithm for Fuzzy Online Order Dispatching Problem [#24112]**
 Jie Zheng, Shengyao Wang, Ling Wang, Jing-fang Chen, Li Wang, Jinghua Hao, Renqing He and Zhizhao Sun
 Tsinghua University, China; Meituan-Dianping Group, China
- 5:05PM An Experimental Study of Prediction Methods in Robust Optimization Over Time [#24322]**
 Matthew Fox, Shengxiang Yang and Fabio Caraffini
 De Montfort University, United Kingdom
- 5:25PM Memory-Assisted Dynamic Multi-Objective Evolutionary Algorithm for Feature Drift Problem [#24637]**
 Shaaban Sahmoud and Haluk Topcuoglu
 Fatih Sultan Mehmet Vakif University, Turkey; Marmara University, Turkey
- 5:45PM Towards Decision Support in Dynamic Bi-Objective Vehicle Routing [#24238]**
 Jakob Bossek, Christian Grimme, Rudolph Guenter and Trautmann Heike
 The University of Adelaide, Australia; University of Muenster, Germany; TU Dortmund University, Germany
- 6:05PM Path Planning of UAVs Under Dynamic Environment based on a Hierarchical Recursive Multiagent Genetic Algorithm [#24012]**
 Yang Qiansheng, Liu Jing and Li Liqiang
 Xidian University, China

6:25PM Racing Strategy for the Dynamic-Customer Location-Allocation Problem [#24573]
Reginald Ankrah, Benjamin Lacroix, John McCall, Andrew Hardwick, Anthony Conway and Gilbert Owusu
Robert Gordon University, United Kingdom; British Telecommunications plc, United Kingdom

Special Session C-S33: Special Session on Fitness Landscape Analysis in Practice
Tuesday, July 21, 4:45PM-6:45PM, Room: CEC Room 2, Chair: Nadarajen Veerapen

4:45PM Fitness Landscape Analysis Metrics based on Sobol Indices and Fitness- and State-Distributions [#24133]

Christoph Waibel, Georgios Mavromatidis and Yong-Wei Zhang
ETH Zurich, Switzerland; Jiangsu University of Science and Technology, China

5:05PM Instance Space Analysis of Combinatorial Multi-objective Optimization Problems [#24647]

Estefania Yap, Mario Munoz, Kate Smith-Miles and Arnaud Liefoghe
The University of Melbourne, Australia; Universite de Lille, France

5:25PM A Study of Fitness Landscapes for Neuroevolution [#24303]

Nuno Rodrigues, Sara Silva and Leonardo Vanneschi
Faculdade de Ciencias, Universidade de Lisboa, Portugal; NOVA IMS, Universidade Nova de Lisboa, Portugal

5:45PM Benchmarking for Metaheuristic Black-Box Optimization: Perspectives and Open Challenges [#24577]

Ramses Sala and Ralf Mueller
TU Kaiserslautern, Germany

6:05PM Random Walks on Local Optima Networks [#24076]

Marco Tomassini
University of Lausanne, Switzerland

6:25PM Which random is the best random? A study on sampling methods in Fourier surrogate modeling [#24440]

Marco S. Nobile, Simone Spolaor, Paolo Cazzaniga, Daniele M. Papetti, Daniela Besozzi, Daniel A. Ashlock and Luca Manzoni
Eindhoven University of Technology, Netherlands; University of Milano-Bicocca, Italy; University of Bergamo, Italy; University of Guelph, Canada; University of Trieste, Italy

Session C-R1: Evolutionary Multi- and Many-objective Optimization

Tuesday, July 21, 4:45PM-6:45PM, Room: CEC Room 3, Chair: Kalyanmoy Deb, Carlos A. Coello Coello

4:45PM Managing Radial Basis Functions for Evolutionary Many-Objective Optimization [#24224]

Jiangtao Shen, Peng Wang and Xinjing Wang
Northwestern Polytechnical University, China

5:05PM A Running Performance Metric and Termination Criterion for Evaluating Evolutionary Multi- and Many-objective Optimization Algorithms [#24297]

Julian Blank and Kalyanmoy Deb
Michigan State University, United States of America

5:25PM A Many-Objective Optimization Approach for Complexity-based Dataset Generation [#24614]

Thiago Franca, Pericles Miranda, Ricardo Prudencio, Ana Lorena and Andre Nascimento
UFRPE, Brazil; UFPE, Brazil; ITA, Brazil

5:45PM Coevolutionary Operations for Large Scale Multi-objective Optimization [#24587]

Luis Miguel Antonio, Carlos A. Coello Coello, Mario A. Ramirez Morales, Silvia Gonzalez Brambila, Josue Figueroa Gonzalez and Guadalupe Catillo Tapia
GO-SHARP, Mexico; CINEVESTAV-IPN, Mexico; CIDETEC-IPN, Mexico; UAM Azcapotzalco, Mexico

6:05PM Migration in Multi-Population Differential Evolution for Many Objective Optimization [#24306]

Pratyusha Rakshit, Archana Chowdhury, Amit Konar and Atulya K Nagar
Jadavpur University, India; Christian College of Engineering, India; Liverpool Hope University, United Kingdom

6:25PM Dynamic Normalization in MOEA/D for Multiobjective Optimization [#24181]

Linjun He, Hisao Ishibuchi, Anupam Trivedi and Dipti Srinivasan
Department of Computer Science and Engineering, Southern University of Science and Technology, China; Department of Electrical and Computer Engineering, National University of Singapore, Singapore

Plenary Poster Session C-P5: CEC Poster Session 5

Tuesday, July 21, 4:45PM-6:45PM, Room: CEC Poster Room, Chair: Bo Liu

P901 Search Space Sampling by Simulated Annealing for Identifying Robust Solutions in Course Timetabling [#24015]

Can Akkan, Ayla Gulcu and Zeki Kus
Sabanci University, Turkey; Fatih Sultan Mehmet University, Turkey

P902 A Surrogate-Assisted Clustering Particle Swarm Optimizer for Expensive Optimization Under Dynamic Environment [#24019]

Yuanchao Liu, Jianchang Liu, Tianzi Zheng and Yongkuan Yang
State Key Laboratory of Synthetical Automation for Process Industries Northeastern University Shenyang, China College of Information Science and Engineering Northeastern University Shenyang, China, China

P903 Quantum-Inspired Evolutionary Algorithm for Convolutional Neural Networks Architecture Search [#24030]

Weiliang Ye, Ruijiao Liu, Yangyang Li and Licheng Jiao
Xidian University, China

P904 Balancing the Influence of Evolutionary Operators for Global Optimization [#24037]

Diego Oliva, Erick Rodriguez-Esparza, Marcella S. R. Martins, Mohamed Abd Elaziz, Salvador Hinojosa, Ahmed A. Ewees and Songfeng Lu
Univerisdad de Guadalajara, Mexico; Universidad de Guadalajara, Mexico; Federal University of Technology, Brazil; Huazhong University of Science and Technology, China; Damietta University, Egypt; Hubei Engineering Research Center on Big Data Security, School of Cyber Science & Engineering, Huazhong university of Science and Technology, China

P905 Heuristic Embedded Genetic Algorithm for Heterogeneous Project Scheduling Problems [#24065]

Firoz Mahmud, Forhad Zaman, Ruhul Sarker and Daryl Essam
PhD Student, School of Engineering and Information Technology, University of New South Wales, Canberra, Australia; Adjunct Lecturer, School of Engineering and Information Technology, University of New South Wales, Canberra, Australia; Professor and Director of PG Research, School of Engineering and Information Technology, University of New South Wales, Canberra, Australia; Senior Lecturer and Research Student Admissions and Scholarship Coordinator, School of Engineering and Information Technology, University of New South Wales, Canberra, Australia

- P906 A PSO-optimized Oversampling Method for Imbalance Classification [#24071]**
Xibin Dong, Xianbing Meng, Zhiwen Yu, Philip Chen and Guoqiang Han
Computer Science and Engineering, South China University of Technology, China
- P907 An Improved Adaptive Genetic Algorithm for Mobile Robot Path Planning Analogous to the Ordered Clustered TSP [#24077]**
Junjie Jiang, Xifan Yao, Erfu Yang, Jorn Mehnen and Hongnian Yu
South China University of Technology, China; University of Strathclyde, United Kingdom; Edinburgh Napier University, United Kingdom
- P908 Two Fast Heuristics for Online Order Dispatching [#24094]**
Qingte Zhou, Huanyu Zheng, Shengyao Wang, Jinghua Hao, Renqing He, Zhizhao Sun, Xing Wang and Ling Wang
Meituan-Dianping Group, China; Tsinghua University, China
- P909 Multi/Many-Objective Optimization Via A New Preference Indicator [#24095]**
Mingli Shi, Lianbo Ma, Rui Wang, ShengMinjie Chen, Junfei Zhao and Xiaolong Shen
Northeastern University, China; University of Chinese Academy of Sciences, China; Huawei Technologies Co., Ltd, China
- P910 Simultaneous Scheduling Strategy: A Novel Method for Flexible Job Shop Scheduling Problem [#24119]**
Bo Liu, Siqi Qiu and Ming Li
Shanghai Jiao Tong University, China

Special Session C-S32: Special Session on Real-World and Industry Applications of Evolutionary Computation

Tuesday, July 21, 7:00PM-9:00PM, Room: CEC Room 1, Chair: Amir H. Gandomi, Mohammad Nabi Omidvar

- 7:00PM Swarm Intelligent Based Feature Selection for Intrusion and Detection System in Cloud Infrastructure [#24042]**
Vaishali Ravindranath, Sasikala Ramasamy, Ramasubbareddy Somula, Kshira Sagar Sahoo and Amir H. Gandomi
VIT University, India; VNR VJIET, India; University of Technology Sydney, Australia
- 7:20PM Robust Multi-Objective Optimization using Conditional Pareto Optimal Dominance [#24377]**
Seyedeh Zahra Mirjalili, Stephan Chalup, Seyedali Mirjalili and Nasimul Noman
University of Newcastle, Australia; Torrens University Australia, Australia
- 7:40PM A novel differential evolution algorithm with Q-learning for economical and statistical design of X-bar control charts [#24684]**
Ahmad Abdulla Al-Buenain, Damla Kizilay, Ozge Buyukdagli and M. Fatih Tasgetiren
Qatar University, Qatar; Izmir Democracy University, Turkey; International University of Sarajevo, Bosnia and Herzegovina; Yasar University, Turkey
- 8:00PM An efficient genetic algorithm for the train scheduling problem with fleet management [#24331]**
Claudio Sanhueza, Alexandre Mendes, Martin Jackson and Riley Clement
Hunter Valley Coal Chain Coordinator, Australia; School of Electrical Engineering and Computing, The University of Newcastle, Australia
- 8:20PM Evolutionary Multiobjective Optimization for Pedestrian Route Guidance with Multiple Scenarios [#24669]**
Yuki Tanigaki, Yoshihiko Ozaki, Shusuke Shigenaka and Masaki Onishi
AIST, Japan; AIST, GREE, Inc., Japan

8:40PM Evolutionary Learning for Soft Margin Problems: A Case Study on Practical Problems with Kernels [#24246]

Wenjun Wang, Wei Pang, Paul A. Bingham, Mania Mania, Tzu-Yu Chen and Justin J. Perry
Heriot-Watt University, United Kingdom; Sheffield Hallam University, United Kingdom;
Northumbria University, United Kingdom

Session C-R3: Evolutionary Neural Architecture Search

Tuesday, July 21, 7:00PM-9:00PM, Room: CEC Room 2, Chair: Nicosia Giuseppe, Bing Xue

7:00PM Towards a Quantum based GA Search for an Optimal Artificial Neural Networks Architecture and Feature Selection to Model NOx Emissions: A Case Study [#24472]

Mazen Azzam, Joseph Zeaiter and Mariette Awad
American University of Beirut, Lebanon

7:20PM Dual Inheritance Evolution Strategy for Deep Neural Network Optimization [#24433]

Kent Hino, Yusuke Kimura, Yue Dong and Takahiro Shinozaki
Tokyo Institute of Technology, Japan

7:40PM Multi-Objective Optimisation of Multi-Output Neural Trees [#24504]

Varun Ojha and Nicosia Giuseppe
University of Reading, United Kingdom; University of Cambridge, United Kingdom

8:00PM Behavior-based Speciation in Classification with NeuroEvolution [#24409]

Evgenia Papavasileiou, Jan Cornelis and Bart Jansen
Department of Electronics and Informatics (ETRO) Vrije Universiteit Brussel (VUB), imec, Belgium; Department of Electronics and Informatics (ETRO) Vrije Universiteit Brussel (VUB), Belgium

8:20PM Fine-Tuning Temperatures in Restricted Boltzmann Machines Using Meta-Heuristic Optimization [#24008]

Mateus Roder, Gustavo Rosa, Fabricio Breve and Joao Papa
Sao Paulo State University, Brazil

8:40PM Particle Swarm Optimisation for Evolving Deep Neural Networks for Image Classification by Evolving and Stacking Transferable Blocks [#24226]

Bin Wang, Bing Xue and Mengjie Zhang
School of Engineering and Computer Science Victoria University of Wellington, PO Box 600, Wellington 6140, New Zealand

Session C-R4: Genetic Programming (I)

Tuesday, July 21, 7:00PM-9:00PM, Room: CEC Room 3, Chair: Matthew Witten, William Langdon

7:00PM Feasibility of Genetic Programming for the Optimization of Tissue-Type-Segmented Maps in the Generation of Synthetic CT in Radiation Therapy Treatment Planning [#24048]

Matthew Witten and Owen Clancey
NYU Winthrop Hospital, United States of America

7:20PM Tree-Shaped Ensemble of Multi-Label Classifiers using Grammar-Guided Genetic Programming [#24049]

Jose M. Moyano, Eva L. Gibaja, Krzysztof J. Cios and Sebastian Ventura
University of Cordoba, Spain; Virginia Commonwealth University, United States of America

7:40PM Genetic Improvement of Genetic Programming [#24061]

William Langdon
University College London, Albania

8:00PM Genetic Programming with Transfer Learning for Urban Traffic Modelling and Prediction [#24137]

Aniko Ekart, Alina Patelli, Victoria Lush and Elisabeth Ilie-Zudor
Aston University, United Kingdom; Hungarian Academy of Sciences, Hungary

8:20PM A GP Approach for Precision Farming [#24248]

Francesca Abbona, Leonardo Vanneschi, Marco Bona and Mario Giacobini
Department of Veterinary Sciences, University of Torino - ANABORAPI, Associazione Nazionale Allevatori Bovini Razza Piemontese, Italy; NOVA Information Management School (NOVA IMS), Universidade Nova de Lisboa - LASIGE, Departamento de Informatica, Faculdade de Ciencias, Universidade de Lisboa, Portugal; ANABORAPI, Associazione Nazionale Allevatori Bovini Razza Piemontese, Italy; Department of Veterinary Sciences, University of Torino, Italy

8:40PM Comparison of Different Computing Platforms for Implementing Parallel Genetic Programming [#24270]

Ruihua Zeng, Zhixing Huang, Yongliang Chen, Jinghui Zhong and Liang Feng
South China University of Technology, China; Chongqing University, China

Plenary Poster Session C-P6: CEC Poster Session 6

Tuesday, July 21, 7:00PM-9:00PM, Room: CEC Poster Room, Chair: Daniel Molina, Joao Soares

P1101 Self-organizing Migrating Algorithm for the Single Row Facility Layout Problem [#24243]

Pavel Kromer, Jan Platos and Vaclav Snasel
VSB - Technical University of Ostrava, Czech Republic

P1102 An adaptive Gaussian probability distribution based QPSO algorithm for engineering design problems [#24262]

Qidong Chen, Jun Sun, Xiaoqian Shi, Wei Fang, Liwei Li and Si Wang
Jiangnan University, China; Wuxi Taihu School, China

P1103 LSHADE with S-shape Constraint-handling Technique in Push and Pull Search for Constrained Optimization Problems [#24266]

Jinglei Guo, Tianpei Cheng, Zhun Fan and Xinyu Zhou
Central China Normal University, China; Shantou University, China; Jiangxi Normal University, China

P1104 Enhancing the Robustness of Airport Networks By Removing Links [#24276]

Qing Cai, Hao Jie Ang, Sameer Alam, Chunyao Ma and Dong Vu
Nanyang Technological University, Singapore

P1105 On The Role Of Execution Order In Hybrid Evolutionary Algorithms [#24286]

Antonio LaTorre and Daniel Molina
Universidad Politecnica de Madrid, Spain; University of Granada, Spain

P1106 Safety Isolating Transformer Design using HyDE-DF algorithm [#24294]

Joao Soares, Fernando Lezama, Stephane Brisset, Bruno Francois and Zita Vale
GECAD, Polytechnic of Porto, Portugal; L2EP, Centrale Lille, France

P1107 Modeling of synchronous weapon target assignment problem for howitzer based defense line [#24300]

Tolga Altinoz
Ankara University, Turkey

P1108 Multimodal fake news detection using a Cultural Algorithm with situational and normative knowledge [#24318]

Priyanshi Shah and Ziad Kobti
University of Windsor, Canada

P1109 Routing-Led Placement of VNFs in Arbitrary Networks [#24328]

Joseph Billingsley, Ke Li, Wang Miao, Geyong Min and Nektarios Georgalas
University of Exeter, United Kingdom; British Telecom, United Kingdom

P1110 A Novel Formulation for Multi-objective Optimization of General Finite Single-Server Queueing Networks [#24336]

Gabriel Souza, Anderson Duarte, Gladston Moreira and Frederico Cruz
Universidade Federal de Ouro Preto, Brazil; Universidade Federal de Minas Gerais, Brazil

WEDNESDAY, JULY 22

Session C-R2: Evolutionary Large-Scale Optimization

Wednesday, July 22, 3:30PM-5:30PM, Room: CEC Room 1, Chair: Hisao Ishibuchi, Xingyi Zhang

3:30PM Iterated Problem Reformulation for Evolutionary Large-Scale Multiobjective Optimization [#24017]

Cheng He, Ran Cheng, Ye Tian and Xingyi Zhang
Southern University of Science and Technology, China; Anhui University, China

3:50PM A Decomposition-based Large-scale Multi-modal Multi-objective Optimization Algorithm [#24190]

Yiming Peng and Hisao Ishibuchi
Guangdong Provincial Key Laboratory of Brain-inspired Intelligent Computation, Department of Computer Science and Engineering, Southern University of Science and Technology, Shenzhen 518055, China., China

4:10PM A Symmetric Points Search and Variable Grouping Method for Large-scale Multi-objective Optimization [#24198]

Dandan Tang, Yuping Wang, Xiangjuan Wu and Yiu-ming Cheung
Xidian University, China; Hong Kong Baptist University, China

4:30PM A Large-scale Bi-objective Optimization of Solid Rocket Motors Using Innovization [#24474]

Abhiroop Ghosh, Erik Goodman, Kalyanmoy Deb, Ronald Averill and Alejandro Diaz
Michigan State University, United States of America

4:50PM Cooperative-Coevolution-CMA-ES with Two-Stage Grouping [#24599]

Dani Irawan, Boris Naujoks and Michael Emmerich
TH Koeln, Germany; Universiteit Leiden, Netherlands

Session C-R6: Evolution and Learning

Wednesday, July 22, 3:30PM-5:30PM, Room: CEC Room 2, Chair: Jianyong Sun, Fang Wei

3:30PM Adaptive Structural Hyper-Parameter Configuration by Q-Learning [#24176]

Haotian Zhang, Jianyong Sun and Zongben Xu
School of Mathematics and Statistics, Xi'an Jiaotong University, China

3:50PM Q-Learning Induced Artificial Bee Colony for Noisy Optimization [#24304]

Pratyusha Rakshit, Amit Konar and Atulya K Nagar
Jadavpur University, India; Liverpool Hope University, United Kingdom

4:10PM A Reinforcement Learning Hyper-heuristic for the Optimisation of Flight Connections [#24576]

Yaroslav Pylyavskyy, Ahmed Kheiri and Leena Ahmed
Lancaster University, United Kingdom; Cardiff University, United Kingdom

4:30PM Learning Bayesian Networks Structures with an Effective Knowledge-driven GA [#24351]

Zhang Weijian, Fang Wei, Sun Jun and Chen Qidong
Jiangnan University, China

4:50PM A Preliminary Study on Evolutionary Clustering for Multiple Instance Learning [#24325]

Aurora Esteban, Amelia Zafra and Sebastian Ventura
University of Cordoba, Spain

Session C-R10: Nature Inspired Optimization

Wednesday, July 22, 3:30PM-5:30PM, Room: CEC Room 3, Chair: Hideyuki Takagi, Yuhui Shi

3:30PM Dependable Parallel Multi-population Global-best Brain Storm Optimization with Differential Evolution strategies for Distribution System State Estimation using Just-in-time Modeling and Correntropy in Power Systems [#24135]

Daichi Azuma, Yoshikazu Fukuyama, Akihiro Oi, Jintsugawa Toru and Fujimoto Hisashi
Meiji University, Japan; Fuji Electric Co., Ltd., Japan

3:50PM An Adaptive Water Wave Optimization Algorithm with Enhanced Wave Interaction [#24151]

Yangyan Xu, Chenxin Wu, Jiang Bingbing and Sheng Weiguo
Hangzhou Normal University, China

4:10PM Brain Storm Robotics: An Automatic Design Framework for Multi-Robot Systems [#24171]

Jian Yang, Yang Shen and Yuhui Shi
Southern University of Science and Technology (SUSTech), China

4:30PM Multi-species Generation Strategy-Based Vegetation Evolution [#24196]

Jun Yu and Hideyuki Takagi
Niigata University, Japan; Kyushu University, Japan

4:50PM Simplified Bacterial Foraging Optimization Based on Reverse Chemotaxis Strategy [#24263]

Jun Yu and Ben Niu
Niigata University, Japan; Shenzhen University, China

Plenary Poster Session C-P7: CEC Poster Session 7

Wednesday, July 22, 3:30PM-5:30PM, Room: CEC Poster Room, Chair: Dipti Srinivasan, Sheridan Houghten

P1301 A Hybrid Methodology for the Reverse Engineering of Gene Regulatory Networks [#24500]

Abhinandan Khan, Ankita Dutta, Goutam Saha and Rajat Kumar Pal
University of Calcutta, India; Indian Statistical Institute, Kolkata, India; North-Eastern Hill University, India

P1302 Group Composition for Collaborative Learning With Distributed Leadership in MOOCs Using Particle Swarm Optimization [#24515]

Matheus R. D. Ullmann, Deller J. Ferreira, Celso Camilo-Junior and Tiago Nogueira
Federal Institute of Bahia, Brazil; Federal University of Goias, Brazil; Federal Institute Baiano, Brazil

P1303 Pedagogical Evolved Art: An Examination and Results of the Innopolis AI Art Contest [#24517]

Joseph Alexander Brown, Hamna Aslam, Daria Miklashevskaya and Nikita Lozhnikov
Innopolis University, Russia

P1304 Gait Model Analysis of Parkinson's Disease Patients under Cognitive Load [#24523]

James Hughes, Sheridan Houghten and Joseph Brown
St. Francis Xavier University, Canada; Brock University, Canada; Innopolis University, Russia

P1305 A heuristic algorithm for districting problems with similarity constraints [#24526]

Alex Gliesch, Marcus Ritt, Arthur H. S. Cruz and Mayron C. O. Moreira
UFRGS, Brazil; UFLA, Brazil

- P1306 Behavior of Bioinspired Algorithms in Parallel Island Models [#24529]**
 Lucas Angelo Silveira, Thaynara Arielly Lima, Mauricio Ayala-Rincon and Jose Luis Soncco-Alvarez
 Universidade de Brasilia, Brazil; Universidade Federal de Goias, Brazil; Universidad Nacional de San Antonio Abad del Cusco, Peru
- P1307 Exploring Problem State Transformations to Enhance Hyper-heuristics for the Job-Shop Scheduling Problem [#24543]**
 Fernando Garza-Santisteban, Ivan Amaya, Jorge Cruz-Duarte, Jose Carlos Ortiz-Bayliss, Ender Ozcan and Hugo Terashima-Marin
 Tecnologico de Monterrey, School of Engineering and Sciences, Mexico; University of Nottingham, School of Computer Science, COL Lab, United Kingdom
- P1308 Pyramid: A Hierarchical Approach to Scaling Down Population Size in Genetic Algorithms [#24546]**
 Atif Rafiq, Conor Ryan and Enrique Naredo
 University of Limerick, Ireland
- P1309 A Parallel Evolutionary System for Multi-objective Optimisation [#24554]**
 Mohammad Hamdan, Rudolph Guenter and Hochstrate Nicola
 Heriot Watt University, United Arab Emirates; Technische Universitat Dortmund, Germany
- P1310 Dynamic Multi Objective Particle Swarm Optimization with Cooperative Agents [#24557]**
 Najwa Kouka, Raja Fdhila, Amir Hussain and Adel M.Alimi
 REGIM-Lab.: REsearch Groups in Intelligent Machines, University of Sfax, National Engineering School of Sfax (ENIS), Tunisia; Data Science and Cyber Analytics (DSCA) Research Group Edinburgh Napier University, United Kingdom

Session C-R5: Genetic Programming (II)

Wednesday, July 22, 5:45PM-7:45PM, Room: CEC Room 1, Chair: Tomohiro Harada

- 5:45PM Proposal of Multimodal Program Optimization Benchmark and Its Application to Multimodal Genetic Programming [#24279]**
 Tomohiro Harada, Kei Murano and Ruck Thawonmas
 Tokyo Metropolitan University, Japan; Ritsumeikan University, Japan
- 6:05PM A Genetic Programming-Based Multi-Objective Optimization Approach to Data Replication Strategies for Distributed Systems [#24298]**
 Syed Mohtashim Abbas Bokhari and Oliver Theel
 University of Oldenburg, Germany
- 6:25PM Evolving Better Rerouting Surrogate Travel Costs with Grammar-Guided Genetic Programming [#24418]**
 Takfarinas Saber and Shen Wang
 School of Computer Science, University College Dublin, Ireland
- 6:45PM Applying Genetic Programming to Improve Interpretability in Machine Learning Models [#24516]**
 Leonardo Augusto Ferreira, Frederico Gadelha Guimaraes and Rodrigo Silva
 Universidade Federal de Minas Gerais, Brazil; Universidade Federal de Ouro Preto, Brazil
- 7:05PM Cartesian Genetic Programming Hyper-Heuristic with Parameter Configuration for Production Lot-Sizing [#24522]**
 Luis Filipe de Araujo Pessoa, Bernd Hellingrath and Fernando Buarque de Lima Neto
 University of Muesnter, Germany; University of Muenster, Germany; University of Pernambuco, Brazil

7:25PM On the Parameterization of Cartesian Genetic Programming [#24558]

Paul Kaufmann and Roman Kalkreuth
Mainz University, Germany; TU Dortmund, Germany

Session C-R8: Metaheuristics and Hyperheuristics

Wednesday, July 22, 5:45PM-7:45PM, Room: CEC Room 2, Chair: Andries P. Engelbrecht, Tetsuya Sakurai

5:45PM Search Economics for Single-Objective Real-Parameter Optimization [#24364]

Chun-Wei Tsai and Shin-Jui Liu
National Sun Yat-sen University, Taiwan; National Chung Hsing University, Taiwan

6:05PM Stepping ahead based hybridization of meta-heuristic model for solving Global Optimization Problems [#24186]

Ravneil Nand, Kaylash Chaudhary and Bibhya Sharma
School of Computing, Information and Mathematical Sciences The University of the South Pacific, Suva, Fiji., Fiji

6:25PM A sensitivity analysis indicator to adapt the shift length in a metaheuristic [#24528]

Peio Loubiere, Astrid Jourdan, Patrick Siarry and Rachid Chelouah
CY Cergy Paris University, France; LISSI-UPEC, France

6:45PM A Training Difficulty Schedule for Effective Search of Meta-Heuristic Design [#24621]

Jair Pereira Junior, Claus Aranha and Tetsuya Sakurai
University of Tsukuba, Department of Computer Science, Japan

7:05PM A Fuzzy Hyper-Heuristic Approach for the 0-1 Knapsack Problem [#24499]

Frumen Olivas, Ivan Amaya, Jose Carlos Ortiz-Bayliss, Santiago E. Conant-Pablos and Hugo Terashima-Marin
Tecnologico de Monterrey, Mexico

7:25PM Heuristic Space Diversity Measures for Population-based Hyper-heuristics [#24184]

Stefan A.G. Van der Stockt, Andries P. Engelbrecht and Christopher W. Cleghorn
University of Pretoria, South Africa; Stellenbosch University, South Africa

Session C-R11: Swarm Optimization

Wednesday, July 22, 5:45PM-7:45PM, Room: CEC Room 3, Chair: Shengxiang Yang

5:45PM Particle Swarm Optimization with pbest Perturbations [#24220]

Stephen Chen, Imran Abduselam, Naeemeh Yadollahpour and Yasser Gonzalez-Fernandez
York University, Canada

6:05PM Particle Swarm Optimisation for Scheduling Electric Vehicles with Microgrids [#24295]

Zedong Zheng and Shengxiang Yang
De Montfort University, United Kingdom

6:25PM Sequential Estimation of States and Parameters of Nonlinear State Space Models Using Particle Filter and Natural Evolution Strategy [#24638]

Kobayashi Yoshiki and Ono Isao
Tokyo Institute of Technology, Japan

6:45PM One-stage and Dual-heuristic Particle Swarm Optimization for Virtual Network Embedding [#24104]

An Song, Wei-Neng Chen and Xiao-Min Hu
South China University of Technology, China; Guangdong University of Technology, China

7:05PM A fitness dependent salp swarm algorithm [#24466]

Danilo Pelusi, Raffaele Mascella and Luca Tallini
University of Teramo, Italy

7:25PM Distributed On-line Learning in Swarm Robotics with Limited Communication Bandwidth [#24606]

Nicolas Fontbonne, Olivier Dauchot and Nicolas Bredeche
Sorbonne University, France; ESPCI, France

Plenary Poster Session C-P8: CEC Poster Session 8

Wednesday, July 22, 5:45PM-7:45PM, Room: CEC Poster Room, Chair: Ana Cristina Bicharra-Garcia, Saul Zapotecas-Martinez

P1501 Intelligent Controllers based on Genetic Algorithms for Reducing Energy and Water Waste [#24578]

Ali Moltajaei Farid, Malek Mouhoub and Javid Sharifi
Monash University, Australia; University of Regina, Canada; Azad University, Iran

P1502 Voting-mechanism based ensemble constraint handling technique for real-world single-objective constrained optimization [#24594]

Xupeng Wen, Guohua Wu, Mingfeng Fan, Rui Wang and Ponnuthurai Nagaratnam Suganthan
Central South University, China; National University of Defense Technology, China; Nanyang Technological University, Singapore

P1503 Multi-Scale Collaborative Fireworks Algorithm [#24610]

Yifeng Li and Ying Tan
Peking University, China

P1504 Extending Collective Intelligence Evolutionary Algorithms: A Facility Location Problem Application [#24612]

Daniel Cinalli, Luis Marti, Nayat Sanchez-Pi and Ana Cristina Bicharra-Garcia
TechnipFMC, Brazil; Inria Chile Research Center, Chile; UNIRIO, Brazil

P1505 An Iterated Local Search Algorithm for the Clonal Deconvolution Problem [#24613]

Maitena Tellaetxe-Abete, Borja Calvo and Charles Lawrie
Biodonostia, Spain; University of the Basque Country UPV/EHU, Spain

P1506 A parallel whale optimization algorithm and its implementation on FPGA [#24631]

Jiang Qiangqiang, Guo Yuanjun, Yang Zhile and Zhou Xianyu
Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, China; Northeastern University, China

P1507 Edge Assembly Crossover with Tabu for Traveling Salesman Problem [#24635]

Maaki Sakai, Hanada Yoshiko and Orito Yukiko
Graduate School, Kansai University, Japan; Kansai University, Japan; Hiroshima University, Japan

P1508 Co-operative Prediction Strategy for Solving Dynamic Multi-Objective Optimization Problems [#24643]

Zhihao Zhao, Fangqing Gu and Yiu-ming Cheung
Hong Kong Baptist University, Hong Kong; Guangdong University of Technology, China

P1509 A Novel Multi-objective Cultural Algorithm Embedding Five-Element Cycle Optimization [#24648]

Zhengyan Mao, Yue Xiang, Yijie Zhang and Mandan Liu
School of Information Science and Engineering, East China University of Science and Technology, Shanghai, China

P1510 On the Performance of Generational and Steady-State MOEA/D in the Multi-Objective 0/1 Knapsack Problem [#24685]

Saul Zapotecas-Martinez and Adriana Menchaca-Mendez
Universidad Autonoma Metropolitana Unidad Cuajimalpa, Mexico; ENES, Campus Morelia, UNAM, Mexico

Session C-R7: Real-World Applications (I)

Wednesday, July 22, 8:00PM-10:00PM, Room: CEC Room 1, Chair: Sushil J Louis, Gian Fritsche

8:00PM Optimising Control and Prediction Horizons of a Model Predictive Control-Based Motion Cueing Algorithm Using Butterfly Optimization Algorithm [#24013]

Mohammad Reza Chalak Qazani, Seyed Mohammad Jafar Jalali, Houshyar Asadi and Saeid Nahavandi

Institute for Intelligent Systems Research and Innovation (IISRI), Deakin University, Australia

8:20PM Evolving Dynamically Reconfiguring UAV-hosted Mesh Networks [#24131]

Rahul Dubey, Sushil J Louis and Shamik Sengupta

University of Nevada, Reno, United States of America

8:40PM An Overlapping Community Detection Based Multi-Objective Evolutionary Algorithm for Diversified Social Influence Maximization [#24202]

Lei Zhang, Fengjiao Sun, Fan Cheng, Haiping Ma and Xiaoyan Sun

Anhui University, China; China University of Mining and Technology, China

9:00PM A Genetic Algorithm for Transmission Network Expansion Planning Considering Line Maintenance [#24272]

Meisam Mahdavi, Ali Reza Kheirkhah, Leonardo H. Macedo and Ruben Romero

Sao Paulo State University, Brazil

9:20PM The Analysis of a Cooperative Hyper-Heuristic on a Constrained Real-world Many-objective Continuous Problem [#24401]

Gian Fritsche and Aurora Pozo

Federal University of Parana, Brazil

Session C-R9: Transfer Learning and Transfer Optimization

Wednesday, July 22, 8:00PM-10:00PM, Room: CEC Room 2, Chair: Gary Yen, Mengjie Zhang

8:00PM Multifactorial Cellular Genetic Algorithm (MFCGA): Algorithmic Design, Performance Comparison and Genetic Transferability Analysis [#24205]

Eneko Osaba, Aritz D. Martinez, Jesus L. Lobo, Javier Del Ser and Francisco Herrera
TECNALIA, Basque Research and Technology Alliance (BRTA), Spain; DaSCI Andalusian Institute of Data Science and Computational Intelligence. University of Granada, Spain

8:20PM Knee Points based Transfer Dynamic Multi-objective Optimization Evolutionary Algorithm [#24215]

Wang Zhenzhong, Mei Zhongrui, Jiang Min and Yen Gary G.

Xiamen University, China; Oklahoma State University, United States of America

8:40PM Multi-Tree Genetic Programming-based Transformation for Transfer Learning in Symbolic Regression with Highly Incomplete Data [#24250]

Baligh Al-Helali, Qi Chen, Bing Xue and Mengjie Zhang

Victoria University of Wellington, New Zealand

9:00PM Oil Palm Detection via Deep Transfer Learning [#24388]

Isis Bonet, Fabio Caraffini, Alejandro Pena, Alejandro Puerta and Mario Gongora

EIA University, Colombia; De Montfort University, United Kingdom

9:20PM Computational Study on Effectiveness of Knowledge Transfer in Dynamic Multi-objective Optimization [#24482]

Gan Ruan, Leandro L. Minku, Stefan Menzel, Bernhard Sendhoff and Xin Yao
CERCIA, School of Computer Science, University of Birmingham, United Kingdom; Honda Research Institute Europe GmbH, Offenbach 63073, Germany

9:40PM An Adaptive and Near Parameter-free Evolutionary Computation Approach Towards True Automation in AutoML [#24317]

Benjamin Patrick Evans, Bing Xue and Mengjie Zhang
Victoria University of Wellington, New Zealand

Session C-R12: Multi-Objective Optimization and Applications (I)

Wednesday, July 22, 8:00PM-10:00PM, Room: CEC Room 3, Chair: Carlos A. Coello Coello, Felipe Campelo

8:00PM Riesz ϵ -energy-based Reference Sets for Multi-Objective Optimization [#24132]

Jesus Guillermo Falcon-Cardona, Hisao Ishibuchi and Carlos A. Coello Coello
CINVESTAV-IPN, Mexico; SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY, China

8:20PM Techniques for Accelerating Multi-Objective Evolutionary Algorithms in PlatEMO [#24201]

Ye Tian, Ran Cheng, Xingyi Zhang and Yaochu Jin
Anhui University, China; Southern University of Science and Technology, China; University of Surrey, United Kingdom

8:40PM MOEA/D with Random Partial Update Strategy [#24109]

Yuri Lavinias, Claus Aranha, Marcelo Ladeira and Felipe Campelo
University of Tsukuba, Faculty of Engineering, Information and Systems, Japan; University of Brasilia, Department of Computer Sciences, Brazil; Aston University, School of Engineering and Applied Sciences, United Kingdom

9:00PM A preference-based multi-objective demand response mechanism [#24209]

Igor Silva, Jose Alencar and Ricardo Rabelo
Federal University of Piaui (UFPI), Brazil

9:20PM On the Normalization in Evolutionary Multi-Modal Multi-Objective Optimization [#24254]

Yiping Liu, Hisao Ishibuchi, Gary G. Yen, Yusuke Nojima, Naoki Masuyama and Yuyan Han
Osaka Prefecture University, Japan; SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY, China; Oklahoma State University, United States of America; Liaocheng University, China

9:40PM Attributed Graph Embedding Based on Multi-objective Evolutionary Algorithm for Overlapping Community Detection [#24259]

Xiangyi Teng and Jing Liu
Xidian University, China

Plenary Poster Session C-P9: CEC Poster Session 9

Wednesday, July 22, 8:00PM-10:00PM, Room: CEC Poster Room, Chair: Marley Vellasco, Miqing Li

P1701 A biased random-key genetic algorithm using dotted board model for solving two-dimensional irregular strip packing problems [#24566]

Bonfim Amaro Junior, Rodrigo Lima da Costa, Placido Rogerio Pinheiro, Luiz Jonata Pires de Araujo and Alexandr Grichshenko
Federal University of Ceara, Brazil; University of Fortaleza, Brazil; Innopolis University, Russia

- P1702 Development of offshore maintenance service scheduling system with workers allocation [#24340]**
 Guilherme Leite and Marley Vellasco
 PUC RIO, Brazil
- P1703 Multilevel Quantum Inspired Fractional Order Ant Colony Optimization for Automatic Clustering of Hyperspectral Images [#24370]**
 Siddhartha Bhattacharyya, Tulika Dutta and Dey Sandip
 CHRIST (Deemed to be University), India; University Institute of Technology, India; Sukanta Mahavidyala, India
- P1704 Evolutionary Approach to Multiparty Multiobjective Optimization Problems with Common Pareto Optimal Solutions [#24410]**
 Wenjie Liu, Wenjian Luo, Xin Lin, Miqing Li and Shengxiang Yang
 School of Computer Science and Technology, University of Science and Technology of China, China; School of Computer Science and Technology, Harbin Institute of Technology (Shenzhen), China; Centre of Excellence for Research in Computational Intelligence and Applications (CERCIA), United Kingdom; the School of Computer Science and Informatics, the De Montfort University, United Kingdom
- P1705 Refrigerated Showcase Fault Detection by a Pasting based Artificial Neural Networks using Parallel Multi-population Modified Brain Storm Optimization and Correntropy [#24413]**
 Naoya Otaka, Yoshikazu Fukuyama, Yu Kawamura, Kenya Murakami, Adamo Santana, Tatsuya Iizaka and Tetsurou Matsui
 Meiji University, Japan; Fuji Electric, Japan
- P1706 Metaheuristics for Energy-Efficient No-Wait Flowshops: A Trade-off Between Makespan and Total Energy Consumption [#24415]**
 Damla Yuksel, Mehmet Fatih Tasgetiren, Levent Kandiller and Quan-Ke Pan
 PhD Student, Turkey; Professor, Turkey; Professor, China
- P1707 Surrogate Assisted Evolutionary Algorithm Based on Transfer Learning for Dynamic Expensive Multi-Objective Optimisation Problems [#24439]**
 Xuezhou Fan, Ke Li and Kay Chen Tan
 City University of Hong Kong, China; University of Exeter, China; City University of Hong Kong, Singapore
- P1708 An optimised ensemble for antibody-mediated rejection status prediction in kidney transplant patients [#24476]**
 Mariel Barbachan e Silva and Pilib O Broin
 National University of Ireland, Galway, Ireland
- P1709 An Improved Discrete Particle Swarm Optimization for Airline Crew Rostering Problem [#24479]**
 Ruozhen Zheng
 Shenzhen University, China
- P1710 A hybrid algorithm based on MOEA/D and local search for multiobjective optimization [#24489]**
 Man-Fai Leung and Sin-Chun Ng
 The Open University of Hong Kong, Hong Kong

THURSDAY, JULY 23

Session C-R13: Multi-Objective Optimization and Applications (II)

Thursday, July 23, 3:30PM-5:30PM, Room: CEC Room 1, Chair: Sanaz Mostaghim, Alessandro Niccolai

3:30PM On the Scalable Multi-Objective Multi-Agent Pathfinding Problem [#24282]

Jens Weise, Sebastian Mai, Heiner Zille and Sanaz Mostaghim
Otto von Guericke University Magdeburg, Germany

3:50PM Multi-Objective Evolutionary Optimization for Worst-Case Analysis of False Data Injection Attacks in the Smart Grid [#24291]

Moshfeka Rahman, Yuanliang Li and Jun Yan
Concordia University, Canada

4:10PM Towards a Microservices-Based Product Line with Multi-Objective Evolutionary Algorithms [#24296]

William D.F. Mendonca, Wesley K.G. Assuncao, Lucas V. Estanislau, Silvia R. Vergilio and Alessandro Garcia
DInf, Federal University of Parana (UFPR), Brazil; COTSI, Federal University of Technology - Parana (UTFPR), Brazil; DI, Pontifical Catholic University of Rio de Janeiro (PUC-Rio), Brazil

4:30PM A Novel Grid-based Crowding Distance for Multimodal Multi-objective Optimization [#24301]

Mahrokh Javadi, Cristian Ramirez-Atencia and Sanaz Mostaghim
Otto-von-Guericke University, Germany

4:50PM Multi-Objective Differential Evolution Algorithms for the Protein Structure Prediction Problem [#24425]

Pedro Henrique Narloch, Mathias J Krause and Marcio Dorn
Federal University of Rio Grande do Sul, Brazil; Karlsruhe Institute of Technology, Germany

5:10PM Different approaches to Multi-Objective Sparse Array problem with Social Network Optimization [#24430]

Alessandro Niccolai, Marco Mussetta, Francesco Grimaccia and Riccardo Zich
Politecnico di Milano, Dipartimento di Energia, Italy

Session C-R16: Real-World Applications (III)

Thursday, July 23, 3:30PM-5:30PM, Room: CEC Room 2, Chair: Hiroyuki Sato, Felipe Vital Cacique

3:30PM Multi-Operator Differential Evolution Algorithm for Solving Real-World Constrained Optimization Problems [#24363]

Karam Sallam, Saber Elsayed, Ripon Chakraborty and Michael Ryan
UNSW Canberra at ADFA, Australia

3:50PM A Hybrid Genetic Algorithm for Sustainable Wireless Coverage of Drone Networks [#24366]

Shanshan Lu, Xiao Zhang, Yu Zhou and Shilong Sun
South-Central University for Nationalities, China; Shenzhen University, China; Harbin Institute of Technology, Shenzhen, China

4:10PM A Gaussian-Prioritized Approach for Deploying Additional Route on Existing Mass Transportation with Neural-Network-Based Passenger Flow Inference [#24383]

Fandel Lin, Jie-Yu Fang and Hsun-Ping Hsieh
National Cheng Kung University, Taiwan

4:30PM Multimodal Optimization for the Trajectory Planning of Railway Vehicles [#24395]

Lukas Proehl and Harald Aschemann
University of Rostock, Germany

4:50PM Evolutionary Air-Conditioning Optimization Using an LSTM-Based Surrogate Evaluator [#24423]

Yoshihiro Ohta, Takafumi Sasakawa and Hiroyuki Sato
Mitsubishi Electric Corporation, Japan; Tokyo Denki University, Japan; The University of Electro-Communications, Japan

5:10PM Pattern searcher for decision making of trading agents using Genetic Algorithm [#24583]

Felipe Vital Cacique and Adriano Cesar Machado Pereira
Universidade Federal de Minas Gerais, Brazil

Session C-R19: Discrete and Combinatorial Optimization (I)

Thursday, July 23, 3:30PM-5:30PM, Room: CEC Room 3, Chair: Yue-Jiao Gong, Mikel Malagon

3:30PM Adaptive Large Neighborhood Search for Vehicle Routing Problem with Cross-Docking [#24044]

Aldy Gunawan, Audrey Tedja Widjaja, Pieter Vansteenwegen and Vincent F. Yu
Singapore Management University, Singapore; KU Leuven, Belgium; NTUST, Taiwan

3:50PM A Self-Adaptive Hybrid Algorithm for Planning City Air Terminals [#24045]

Hang Zhou, Jun Zhou, Sheng-Hao Gu, Tian-Qi Wang and Xiao-Bing Hu
Sino-European Institute of Aviation Engineering, Civil Aviation University of China, China; CAUC-ENAC joint Research Center of Applied Mathematics for Air Traffic Management, Civil Aviation University of China, China

4:10PM Niching Evolutionary Computation With a Priori Estimate for Solving Multi-Solution Traveling Salesman Problem [#24125]

Ting Huang, Yue-Jiao Gong, Xiaoyan Li, Xiao-Min Hu and Jun Zhang
South China University of Technology, China; Henan Normal University, China; Guangdong University of Technology, China; Hanyang University, Korea (South)

4:30PM Solving the Multiple choice Multidimensional Knapsack problem with ABC algorithm [#24258]

Arij Mkaouer, Skander Htiouech and Habib Chabchoub
National Engineering School of Sfax, Tunisia; University of Jeddah, Saudi Arabia; Al Ain University of Science and Technology, United Arab Emirates

4:50PM Anytime Behavior of Inexact TSP Solvers and Perspectives for Automated Algorithm Selection [#24283]

Jakob Bossek, Pascal Kerschke and Heike Trautmann
The University of Adelaide, Australia; University of Muenster, Germany

5:10PM Alternative Representations for Codifying Permutation Based Problems [#24507]

Mikel Malagon, Ekhine Irurozki and Josu Ceberio
University of the Basque Country, Spain; Basque Center for Applied Mathematics, Spain

Plenary Poster Session C-P10: CEC Poster Session 10

Thursday, July 23, 3:30PM-5:30PM, Room: CEC Poster Room, Chair: Zhigang Ren

P1901 Analysis of Structural Complexity Features for Music Genre Recognition [#24493]

Philipp Ginsel, Igor Vatolkin and Guenter Rudolph
TU Dortmund, Germany

- P1902 A Cone Decomposition Evolutionary Algorithm with Dominance-based Archive for Many-objective Optimization Problems with Irregular Fronts [#24661]**
Weiqin Ying, Junjie Huang, Yu Wu, Yali Deng and Yanqi Lan
South China University of Technology, China; Guangzhou University, China
- P1903 Adaptive Multi-scale Quantum Harmonic Oscillator Algorithm Based on Evolutionary Strategy [#24172]**
Xinggui Ye and Peng Wang
University of Chinese Academy of Sciences; Chengdu Institute of Computer Application, Chinese Academy of Sciences, China; Southwest Minzu University, China
- P1904 A Chaotic Inertia Weight TLBO Applied to Troubleshooting Optimization Problems [#24182]**
Daniel Coelho and Leonardo Rodrigues
Embraer S.A., Brazil; Aeronautics Institute of Technology, Brazil
- P1905 Improving an Optical Flow Estimator Inspired by Insect Biology using Adaptive Genetic Algorithms [#24195]**
Phillip Skelton, Anthony Finn and Russell Brinkworth
University of South Australia, Australia; Flinders University, Australia
- P1906 Motivating Participants in Human-based Evolutionary Computation Systems [#24227]**
Tomotaka Watanabe, Yunhao Zhu, Yoshikawa Tomohiro and Kei Ohinishi
Kyushu Institute of Technology, Japan; Nagoya University, Japan
- P1907 Scaling Up Radial Basis Function for High-Dimensional Expensive Optimization Using Random Projection [#24228]**
Daofu Guo, Zhigang Ren, Yongsheng Liang and An Chen
Xi'an Jiaotong University, China
- P1908 Traffic Signal Optimization with Estimation of Distribution Algorithms and VISSIM-MATLAB Integrated Simulation Platform [#24229]**
Yongsheng Liang, Zhigang Ren, An Chen and Daofu Guo
Xi'an Jiaotong University, China
- P1909 A Collective Intelligence Strategy for Enhancing Population-based Optimization Algorithms [#24233]**
Azam Asilian Bidgoli and Shahryar Rahnamayan
Department of Electrical, Computer, and Software Engineering Ontario Tech University, Oshawa, Canada
- P1910 A Comparative Analysis of Unbalanced Data Handling Techniques for Machine Learning Algorithms to Electricity Theft Detection [#24547]**
Jeanne Pereira and Filipe Saraiva
Federal University of Para (UFPA), Brazil

Session C-R14: Multi-Objective Optimization and Applications (III)

Thursday, July 23, 5:45PM-7:45PM, Room: CEC Room 1, Chair: Giacomo Acciarini, Mahmoud Golabi

- 5:45PM A Novel Archive Maintenance for Adapting Weight Vectors in Decomposition-based Multi-objective Evolutionary Algorithms [#24458]**
Guang Peng and Katinka Wolter
Free University of Berlin, Germany
- 6:05PM Mining Graph-based Features in Multi-objective Framework for Microblog Summarization [#24496]**
Naveen Saini, Sushil Kumar, Sriparna Saha and Pushpak Bhattacharyya
Indian Institute of Technology Patna, India

- 6:25PM Bypassing or flying above the obstacles? A novel multi-objective UAV path planning problem [#24591]**
 Mahmoud Golabi, Soheila Ghambari, Julien Lepagnot, Laetitia Jourdan, Mathieu Brevilliers and Lhassane Idoumghar
 University of Haute-Alsace, IRIMAS UR 7499, F-68100 Mulhouse, France; University of Lille, CRISTAL, UMR 9189, CNRS, Centrale Lille, France
- 6:45PM Modified Distance-based Subset Selection for Evolutionary Multi-objective Optimization Algorithms [#24642]**
 Weiyu Chen, Hisao Ishibuchi and Ke Shang
 Southern University of Science and Technology (SUSTech), China
- 7:05PM Effects of local mating in inter-task crossover on the performance of decomposition-based evolutionary multiobjective multitask optimization algorithms [#24633]**
 Ryuichi Hashimoto, Toshiki Urita, Naoki Masuyama, Yusuke Nojima and Hisao Ishibuchi
 OSAKA PREFECTURE UNIVERSITY, Japan; Osaka Prefecture University, Japan; SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY, China

Special Session C-R17: Special Session on Computational Intelligence in Power Systems
Thursday, July 23, 5:45PM-7:45PM, Room: CEC Room 2, Chair: Narayanan Kumarappan, David Grochol

- 5:45PM A Comparison of Crossover Operators in Genetic Algorithms for Switch Allocation Problem in Power Distribution Systems [#24160]**
 Ronald Pinho and Filipe Saraiva
 Federal University of Para, Brazil
- 6:05PM Weather-based Fault Prediction in Electricity Networks with Artificial Neural Networks [#24565]**
 Christina Brester, Harri Niska, Robert Cizek and Mikko Kolehmainen
 University of Eastern Finland, Finland
- 6:25PM Optimal Allocation and Sizing of Distributed Generation for Loss Minimization using a Multi-Population Genetic Algorithm [#24662]**
 Alessandro Wilk Silva Almeida, Claudio Fabiano Motta Toledo and Marcio da Silva Arantes
 Universidade de Sao Paulo, Brazil; Universidade de Sao Paulo, Brazil; Instituto Senai de Inovacao em Sistemas Embarcados, Brazil
- 6:45PM Power Flow Management in Electric Vehicle Charging Station Using Reinforcement Learning [#24672]**
 Erick Arwa and Komla A Folly
 University of Cape Town, South Africa
- 7:05PM A New Distance Diffusion Algorithm for a Path-Planning Model based on Cellular Automata [#24465]**
 Samuel Nametala, Luiz G. Martins and Gina M. B. Oliveira
 Federal University of Uberlandia, Brazil
- 7:25PM Evolutionary Design of Hash Functions for IPv6 Network Flow Hashing [#24501]**
 David Grochol and Lukas Sekanina
 Brno University of Technology, Czech Republic

Session C-R20: Discrete and Combinatorial Optimization (II)
Thursday, July 23, 5:45PM-7:45PM, Room: CEC Room 3, Chair: Marios Polycarpou, Michalis Mavrovouniotis

- 5:45PM A Multi-Start Algorithm and a Large Neighborhood Search for a Maritime Inventory Routing Problem [#24438]**
 Marcelo W Friske and Luciana S Buriol
 Informatics Department - Federal University of Rio Grande do Sul, Brazil
- 6:05PM Evolutionary Algorithms for the Traveling Salesman with Multiple Passengers and High Occupancy Problem [#24514]**
 Ranmses Bastos, Marco Goldberg, Elizabeth Goldberg and Matheus Menezes
 Universidade Federal do Rio Grande do Norte, Brazil; Universidade Federal Rural do Semi-Arido, Brazil
- 6:25PM A Benchmark Test Suite for the Electric Capacitated Vehicle Routing Problem [#24525]**
 Michalis Mavrovouniotis, Charalampos Menelaou, Stelios Timotheou, Georgios Ellinas, Christos Panayiotou and Marios Polycarpou
 University of Cyprus, Cyprus; University of Cyprys, Cyprus
- 6:45PM A Genetic Algorithm for the Thief Orienteering Problem [#24585]**
 Leonardo Moreira Faeda and Andre Gustavo Santos
 UFV, Brazil
- 7:05PM A hybrid heuristic for districting problems with routing criteria [#24593]**
 Alex Gliesch, Marcus Ritt, Arthur H. S. Cruz and Mayron C. O. Moreira
 UFRGS, Brazil; UFLA, Brazil
- 7:25PM NP-hardness and evolutionary algorithm over new formulation for a Target Set Selection problem [#24608]**
 Santiago Ravelo, Claudio Meneses and Eduardo Anacleto
 Institute of Informatics - Federal University of Rio Grande do Sul, Brazil; Center of Mathematics, Computation and Cognition - Federal University of ABC, Brazil

Plenary Poster Session C-P11: CEC Poster Session 11

Thursday, July 23, 5:45PM-7:45PM, Room: CEC Poster Room, Chair: Teresa Ludermir

- P2101 An Evaluation on Competitive and Cooperative Evolutionary Algorithms for Data Clustering [#24452]**
 Luciano Pacifico and Teresa Ludermir
 Universidade Federal Rural de Pernambuco, Brazil; Universidade Federal de Pernambuco, Brazil
- P2102 Improving Classification of Metamorphic Malware by Augmenting Training Data with a Diverse Set of Evolved Mutant Samples [#24555]**
 Kehinde O. Babaagba, Zhiyuan Tan and Emma Hart
 Edinburgh Napier University, Edinburgh, United Kingdom
- P2103 Statistically-driven Coral Reef metaheuristic for automatic hyperparameter setting and architecture design of Convolutional Neural Networks [#24385]**
 Alejandro Martin, Raul Lara-Cabrera, Victor Manuel Vargas, Pedro Antonio Gutierrez, Cesar Hervas-Martinez and David Camacho
 Universidad Politecnica de Madrid, Spain; Universidad de Cordoba, Spain
- P2104 Improving Deep Learning based Optical Character Recognition via Neural Architecture Search [#24473]**
 Zhenyao Zhao, Min Jiang, Shihui Guo, Zhenzhong Wang, Fei Chao and Kay Chen Tan
 Xiamen University, China; City University of Hong Kong, Hong Kong

P2105 Evolving complex yet interpretable representations: application to Alzheimer's diagnosis and prognosis [#24589]

Jean-Philippe Kroell, Simon B. Eickhoff, Felix Hoffstaedter and Kaustubh R. Patil
Inst. of Neurosci. and Medicine, INM-7, Forschungszentrum Juelich, and Inst. of Systems Neurosci., HHU Duesseldorf, Germany

P2106 MDEA: Malware Detection with Evolutionary Adversarial Learning [#24513]

Xiruo Wang and Risto Miikkulainen
the University of Texas at Austin, United States of America

P2107 Multi-objective Automatic Algorithm Configuration for the Classification Problem of Imbalanced Data [#24550]

Sara Tari, Nicolas Szczepanski, Lucien Mousin, Julie Jacques, Marie-Eleonore Kessaci and Laetitia Jourdan

University of Lille, France; Lille Catholic University, France

P2108 Hyperparameters Optimization for Neural Network Training using Fractal Decomposition-based Algorithm [#24660]

Data ScienceTech Institute DSTI - Souquet, Nadiya Shvai, Arcadi Llanza and Amir Nakib
Data ScienceTech Institute, France; Cyclope.ai, France

P2109 AutoChef : Automated Generation of Cooking Recipes [#24487]

Hajira Jabeen, Jonas Weinz and Jens Lehmann
University of Bonn, Germany

P2110 Multi-View Gene Clustering using Gene Ontology and Expression-based Similarities [#24488]

Swagarika Jaharlal Giri and Sriparna Saha
Indian Institute of Technology Patna, India

Session C-R15: Real-World Applications (II)

Thursday, July 23, 8:00PM-10:00PM, Room: CEC Room 1, Chair: Andy Tyrrell, Oscar Cordon

8:00PM Training Data Set Assessment for Decision-Making in a Multiagent Landmine Detection Platform [#24138]

Johana Florez-Lozano, Fabio Caraffini, Carlos Parra and Mario Gongora
Pontificia Universidad Javeriana, Colombia; De Montfort University, United Kingdom

8:20PM An Assignment Problem Formulation for Dominance Move Indicator [#24245]

Claudio Lopes, Flavio Martins and Elizabeth Wanner
PPGMMC/CEFET-MG, Brazil

8:40PM Energy and Complexity in Evolving Collective Robot Bodies and Brains [#24249]

Geoff Nitschke and Scott Hallauer
University of Cape Town, South Africa

9:00PM Novelty Search for Shape Descriptors [#24275]

Simon Hickinbotham, Roisin McConnell, Imelda Friel, Mark Price, Wei Zhang and Andy Tyrrell
Department of Electronic Engineering, University of York, United Kingdom; School of Mechanical and Aerospace Eng. Queen's University Belfast, United Kingdom

9:20PM A real-coded evolutionary algorithm-based registration approach for forensic identification using the radiographic comparison of frontal sinuses [#24280]

Oscar Gomez, Pablo Mesejo, Oscar Ibanez, Andrea Valsecchi and Oscar Cordon
University of Granada, Spain; Panacea Cooperative Research S. Coop, Spain

9:40PM Competitive-Adaptive Algorithm-Tuning of Metaheuristics inspired by the Equilibrium Theory: A Case Study [#24156]

Kei Nishihara and Masaya Nakata
Yokohama National University, Japan

Session C-R18: Real-World Applications (IV)

Thursday, July 23, 8:00PM-10:00PM, Room: CEC Room 2, Chair: Rong Qu, Igor Vatolkin

8:00PM Evolutionary Approximation of Instrumental Texture in Polyphonic Audio Recordings [#24509]

Igor Vatolkin
TU Dortmund, Germany

8:20PM Asynchronous bio-inspired tuning for the DC motor speed controller with simultaneous identification and predictive strategies [#24544]

Alejandro Rodriguez-Molina, Miguel Gabriel Villarreal-Cervantes and Omar Serrano-Perez
Tecnologico Nacional de Mexico / IT de Tlalnepantla, Mexico; Instituto Politecnico Nacional, CIDETEC, Mexico

8:40PM Solving a physician rostering problem [#24603]

Tatiana Meister, Toni Wickert and Luciana Buriol
Federal University of Rio Grande do Sul, Brazil

9:00PM A Data-Driven Genetic Programming Heuristic for Real-World Dynamic Seaport Container Terminal Truck Dispatching [#24651]

Xinan Chen, Ruibin Bai, Rong Qu, Haibo Dong and Jianjun Chen
University of Nottingham Ningbo China, China; University of Nottingham, United Kingdom; Xi'an Jiaotong-Liverpool University, China

9:20PM Genetic Algorithm Applied in UAV's Path Planning [#24652]

Gustavo Moura de Souza and Claudio Fabiano Motta Toledo
Universidade de Sao Paulo, Brazil; Universidade de Sao Paulo, Brazil

9:40PM A Systems Approach to Real-World Deployment of Industrial Internet of Things [#24686]

Tushar Semwal, Simona Aracri, Alistair C. McConnell, Mohammed E. Sayed and Adam A. Stokes
The University of Edinburgh, United Kingdom

Session C-R21: Evolutionary Computation in Software Testing

Thursday, July 23, 8:00PM-10:00PM, Room: CEC Room 3, Chair: Risto Miikkulainen, Alexander Brownlee

8:00PM Combining Evolutionary Mutation Testing with Random Selection [#24207]

Lorena Gutierrez-Madronal, Antonio Garcia-Dominguez and Inmaculada Medina-Bulo
UCASE Research Group, University of Cadiz, Spain; SEA Research Group, Aston University, United Kingdom

8:20PM Generating Tree Inputs for Testing using Evolutionary Computation Techniques [#24267]

David Grinan and Alfredo Ibias
Universidad Complutense de Madrid, Spain

- 8:40PM A Comparison of the Taguchi Method and Evolutionary Optimization in Multivariate Testing [#24025]**
 Jingbo Jiang, Legrand Diego, Severn Robert and Miikkulainen Risto
 University of Pennsylvania, United States of America; Criteo, France; Evolv Technologies, United States of America; The University of Texas at Austin and Cognizant Technology Solutions, United States of America
- 9:00PM Empirical Analysis of 1-edit Degree Patches in Syntax-Based Automatic Program Repair [#24527]**
 Piotr Dziurzanski, Simos Gerasimou, Dimitris Kolovos and Nicholas Matragkas
 University of York, Great Britain
- 9:20PM An evolutionary algorithm for selection of test cases [#24535]**
 Miguel Benito-Parejo and Mercedes G. Merayo
 Universdiad Complutense de Madrid, Spain; Universidad Complutense de Madrid, Spain
- 9:40PM Injecting Shortcuts for Faster Running Java Code [#24667]**
 Alexander Brownlee, Justyna Petke and Anna Rasburn
 University of Stirling, United Kingdom; University College London, United Kingdom

Plenary Poster Session C-P12: CEC Poster Session 12

Thursday, July 23, 8:00PM-10:00PM, Room: CEC Poster Room, Chair: Luis Llana

- P2301 Towards Realistic mimicking of grey wolves hunting process for bounded single objective optimization [#24657]**
 Ashish Mani and Anjali Jain
 Amity University, India
- P2302 MOEA/D-S3: MOEA/D using SVM-based Surrogates adjusted to Subproblems for Many objective optimization [#24155]**
 Takumi Sonoda and Masaya Nakata
 Yokohama National University, Japan
- P2303 Evolutionary Algorithm with Non-parametric Surrogate Model for Tensor Program Optimization [#24163]**
 Ioannis Gatopoulos, Romain Lepert, Auke Wiggers, Giovanni Mariani and Jakub Tomczak
 University of Amsterdam, Netherlands; Qualcomm AI Research, Netherlands; Vrije Universiteit Amsterdam, Netherlands
- P2304 A Hybrid TLBO-Particle Filter Algorithm Applied to Remaining Useful Life Prediction in the Presence of Multiple Degradation Factors [#24166]**
 Leonardo Rodrigues, Daniel Coelho and Joao Paulo Gomes
 Aeronautics Institute of Technology, Brazil; Embraer S.A., Brazil; Federal University of Ceara, Brazil
- P2305 High Dimensional Feature Selection Method of Dual Gbest Based on PSO [#24051]**
 Hongbin Dong, Yuyao Pan and Jing Sun
 Harbin Engineering University, China
- P2306 Evolution of Cellular Automata with Conditionally Matching Rules for Image Filtering [#24074]**
 Michal Bidlo
 Brno University of Technology, Czech Republic
- P2307 Rank Based Moth Flame Optimisation for Feature Selection in The Medical Application [#24323]**
 Ruba Abu Khurma, Ibrahim Aljarah and Ahmad Sharieh
 The University of Jordan, Jordan

P2308 Dynamic Self-Organising Swarm for Unsupervised Prototype Generation [#24367]

Su Nguyen, Binh Tran and Damminda Alahakoon

La Trobe University, Australia

P2309 Inferring Gene Regulatory Network Models from Time-Series Data Using Metaheuristics [#24451]

Jose Eduardo da Silva, Heder Bernardino, Helio Barbosa, Alex Vieira, Luciana Campos and Itamar Oliveira

Universidade Federal de Juiz de Fora, Brazil; Laboratorio Nacional de Computacao Cientifica /
Universidade Federal de Juiz de Fora, Brazil

P2310 Feature Selection using Evolutionary Computation Techniques for Software Product Line Testing [#24502]

Alfredo Ibias and Luis Llana

Universidad Complutense de Madrid, Spain

FRIDAY, JULY 24

Session C-R22: Real-World Applications (VI)

Friday, July 24, 2:45PM-4:45PM, Room: CEC Room 1, Chair: Engelbrecht Andries, Massimo Panella

- 2:45PM Decision Space Coverage of Random Walks [#24053]**
Ryan Lang and Engelbrecht Andries
Stellenbosch University, South Africa
- 3:05PM Overall Optimization of Smart City by Multi-population Global-best Brain Storm Optimization using Cooperative Coevolution [#24122]**
Miao Zheng, Yoshikazu Fukuyama, Mohammed El-Abd, Tatsuya Iizaka and Tetsuro Matsui
Meiji Univeristy, China; Meiji Univeristy, Japan; American University of Kuwait, Kuwait; Fuji Electric, Japan
- 3:25PM On Improvements of the Human Mental Search Algorithm for Global Optimisation [#24394]**
Seyed Jalaleddin Mousavirad, Gerald Schaefer, Leila Esmaeili and Iakov Korovin
Ontario Tech University, Canada; Loughborough University, United Kingdom; Islamic Azad University, Iran; Southern Federal University, Russia
- 3:45PM Prediction of Photovoltaic Time Series by Recurrent Neural Networks and Genetic Embedding [#24579]**
Antonello Rosato, Rodolfo Araneo and Massimo Panella
University of Rome "La Sapienza", Italy
- 4:05PM Optimizing Charging Locations and Charging Time for Energy Depletion Avoidance in WRSNs [#24688]**
Huong Tran, Thi Thanh Binh Huynh, Phi Le Nguyen, Cao Thanh Long Doan, Dinh An Vuong and Trong Vinh Le
Hanoi University of Science and Technology, Hanoi, Viet Nam

Session C-R25: Multi-Objective Optimization and Applications (IV)

Friday, July 24, 2:45PM-4:45PM, Room: CEC Room 2, Chair: Yuji Sato, Dhish Kumar Saxena

- 2:45PM A New Method for Generating and Indexing Reference Points in Many Objective Optimisation [#24339]**
Kai Eivind Wu and George Panoutsos
University of Sheffield, United Kingdom
- 3:05PM Dynamic programming operators for bi-objective TTP problem [#24540]**
Roberto Santana and Siddhartha Shakya
University of the Basque Country (UPV/EHU), Visitor Scholar EBTIC, Khalifa University, Spain; EBTIC (Emirates ICT Innovation Center), Khalifa University,, United Arab Emirates
- 3:25PM Trend Mining 2.0: Automating the Discovery of Variable Trends in the Objective Space [#24561]**
Henrik Smedberg, Sunith Bandaru, Amos Ng and Kalyanmoy Deb
University of Skovde, Sweden; Michigan State University, United States of America
- 3:45PM Lazy Greedy Hypervolume Subset Selection from Large Candidate Solution Sets [#24611]**
Weiyu Chen, Hisao Ishibuchi and Ke Shang
Southern University of Science and Technology (SUSTech), China

4:05PM Parallel and Distributed MOEA/D with Exclusively Evaluated Mating and Migration [#24288]

Yuji Sato, Mikiko Sato, Mads Middlyng and Minami Miyakawa
Hosei University, Japan; Tokai University, Japan; Sinshu University, Japan

4:25PM A Unified Automated Innovization Framework Using Threshold-based Clustering [#24574]

Sukrit Mittal, Dhish Kumar Saxena and Kalyanmoy Deb
Graduate Student, India; Associate Professor, India; Professor, United States of America

Session C-S08: Special Session on Computational Intelligence in Aerospace Science and Engineering (CIASE)

Friday, July 24, 2:45PM-4:45PM, Room: CEC Room 3, Chair: Massimiliano Vasile

2:45PM EOS: a Parallel, Self-Adaptive, Multi-Population Evolutionary Algorithm for Constrained Global Optimization [#24097]

Lorenzo Federici, Boris Benedikter and Alessandro Zavoli
Sapienza University of Rome, Italy

3:05PM High-Lift Devices Topology Optimisation using Structured-Chromosome Genetic Algorithm [#24302]

Lorenzo Gentile, Elisa Morales, Domenico Quagliarella, Edmondo Minisci, Thomas Bartz-Beielstein and Renato Tognaccini
TH-Koeln, Germany; Italian Aerospace Research Centre (CIRA), Italy; University of Strathclyde, United Kingdom; University of Naples "Federico II", Italy

3:25PM MHACO: a Multi-Objective Hypervolume-Based Ant Colony Optimizer for Space Trajectory Optimization [#24445]

Giacomo Acciarini, Dario Izzo and Erwin Mooij
University of Strathclyde, United Kingdom; European Space Research and Technology Center, Netherlands; Delft University of Technology, Netherlands

3:45PM A Fast Solution to Two-Impulse Lunar Transfer Trajectory based on Machine Learning Method [#24453]

Luyi Yang, Yazhong Luo, Haiyang Li, Jin Zhang, Zhen Yang and Yuehe Zhu
College of Aerospace Science and Engineering, National University of Defense Technology, China

4:05PM Preliminary spacecraft design by means of Structured-chromosome Genetic Algorithms [#24457]

Lorenzo Gentile, Gianluca Filippi, Edmondo Minisci, Thomas Bartz-Beielstein and Massimiliano Vasile
TH-Koeln, Germany; University of Strathclyde, United Kingdom

4:25PM Discovering Unmodeled Components in Astrodynamics with Symbolic Regression [#24551]

Matteo Manzi and Massimiliano Vasile
University of Strathclyde, United Kingdom

Competition C-COMP: CEC Competitions

Friday, July 24, 2:45PM-4:45PM, Room: CEC Room 4

Plenary Poster Session C-P13: CEC Poster Session 13

Friday, July 24, 2:45PM-4:45PM, Room: CEC Poster Room, Chair: Yun Li, Nitin Naik

- P2501 A Dimension-Wise Particle Swarm Optimization Algorithm Optimized via Self-Tuning [#24368]**
Justin Schlauwitz and Petr Musilek
University of Alberta, Canada
- P2502 An Effective Search Economics Based Algorithm for Feature Selection [#24372]**
Cheng-Chia Huang and Ming-Chao Chiang
National Sun Yat-sen University, Taiwan
- P2503 A Comparative Study of Genetic Algorithm and Particle Swarm Optimisation for Dendritic Cell Algorithm [#24381]**
Noe Elisa, Longzhi Yang, Fei Chao and Nitin Naik
Northumbria University, United Kingdom; Xiamen University, China; Defence School of Communications of Information Systems, United Kingdom
- P2504 Learning Bidding Strategies in Local Electricity Markets using Ant Colony Optimization [#24421]**
Fernando Lezama, Ricardo Faia, Joao Soares, Pedro Faria and Zita Vale
GECAD, Polytechnic of Porto, Portugal; Polytechnic of Porto, Portugal
- P2505 A Novel General Variable Neighborhood Search through Q-Learning for No-Idle Flowshop Scheduling [#24422]**
Hande Oztop, Mehmet Fatih Tasgetiren, Levent Kandiller and Quan-Ke Pan
PhD Student, Turkey; Professor, Turkey; Professor, China
- P2506 Variance of particle location in the stochastic model of PSO with inertia weight [#24432]**
Krzysztof Wojcik, Tomasz Kulpa and Krzysztof Trojanowski
Cardinal Stefan Wyszyński University in Warsaw, Poland
- P2507 Ship Design with a Morphing Evolutionary Algorithm [#24446]**
Ciel Thaddeus Choo, Joo Hock Ang, Simon Kuik, Louis Ming Hui Choo, Yun Li and Cindy Goh
Sembcorp Marine Ltd, Singapore; University of Glasgow Singapore, Singapore; Dongguan University of Technology, China
- P2508 BSOGCN: Brain Storm Optimization Graph Convolutional Networks Based Heterogeneous Information Networks Embedding [#24461]**
Liang Qu, Huaisheng Zhu and Yuhui Shi
Southern University of Science and Technology, China
- P2509 Novel Multi-objective Evolutionary Algorithm for Color Filter Arrays Design [#24477]**
Lingchen Sun, Lin Li, Bin Feng and Quan Pan
School of Automation, Northwestern Polytechnical University, China
- P2510 Chaotic Quantum-inspired Evolutionary Algorithm: enhancing feature selection in BCI [#24524]**
Alimed Celecia and Marley Vellasco
Electrical Engineering Department, PUC-Rio, Brazil

Session C-R23: Differential Evolution

Friday, July 24, 5:00PM-7:00PM, Room: CEC Room 1, Chair: Kathryn Kasmarik, Efren Mezura-Montes

- 5:00PM Determining the Conformational Flexibility of Disaccharides with an Adaptive Differential Evolution Approach [#24335]**
Alfeu Uzai Tavares and Marcio Dorn
Federal University of Rio Grande do Sul, Brazil

- 5:20PM Differential Evolution Algorithm for Multiple Inter-dependent Components Traveling Thief Problem [#24359]**
Ismail Ali, Daryl Essam and Kathryn Kasmarik
School of Engineering and IT, University of New South Wales at Canberra, Australia
- 5:40PM Proposal of Adaptive Randomness in Differential Evolution [#24378]**
Junya Tsubamoto, Akira Notsu, Seiki Ubukata and Katsuhiro Honda
Osaka Prefecture University, Japan
- 6:00PM Boundary Constraint-Handling Methods in Differential Evolution for Mechanical Design Optimization [#24625]**
Sebastian-Jose De-la-Cruz-Martinez and Efren Mezura-Montes
LANIA A.C., Mexico; University of Veracruz, Mexico
- 6:20PM Revisiting Success-Histories for Adaptive Differential Evolution [#24640]**
Kitamura Tomofumi and Alex Fukunaga
The University of Tokyo, Japan
- 6:40PM Parallel Differential Evolution Algorithms for Stackelberg-Nash Bilevel Optimization Problems [#24641]**
Thiago T. Magalhaes and Helio J. C. Barbosa
National Laboratory for Scientific Computing, Brazil

Session C-R26: Evolutionary Game and Multi-Agent Systems

Friday, July 24, 5:00PM-7:00PM, Room: CEC Room 2, Chair: Robert Reynolds, Sushil Louis

- 5:00PM Multiobjective Neuromodulated Controllers for Efficient Autonomous Vehicles with Mass and Drag in the Pursuit-Evasion Game [#24311]**
Ian Showalter and Howard Schwartz
Department of Systems and Computer Engineering, Carleton University, Canada
- 5:20PM Incorporating Strategy Adoption into Genetic Algorithm Enabled Multi-Agent Systems [#24590]**
Yasinthara Madushani and Dharshana Kasthurirathna
University of Colombo, Sri Lanka; Sri Lanka Institute of Information Technology, Sri Lanka
- 5:40PM Deep Social Learning in Dynamic Environments Using Subcultures and Auctions with Cultural Algorithms [#24689]**
Leonard Kinniard-Heether and Robert Reynolds
Wayne State University, United States of America
- 6:00PM Evolving Neural Networks through a Reverse Encoding Tree [#24082]**
Haoling Zhang, Chao-Han Huck Yang, Hector Zenil, Narsis A. Kiani, Yue Shen and Jesper N. Tegner
BGI-Shenzhen, China; Georgia Institute of Technology, United States of America; Algorithmic Dynamics Lab; Oxford Immune Algorithmics, United Kingdom; Algorithmic Dynamics Lab, Karolinska Institute, Sweden; King Abdullah University of Science and Technology, Saudi Arabia
- 6:20PM A Multi-Agent System for Modelling the Spread of Lethal Wilt in Oil-Palm Plantations [#24403]**
Conor Fahy, Fabio Caraffini and Mario Gongora
De Montfort University, United Kingdom
- 6:40PM Evolving Interactive Autonomous Agents to Understand Contextual Meaning of User's Messages [#24481]**
Mario Antonio Regin Gutierrez and Louis Sushil
University of Nevada, Reno, United States of America

Session C-R28: Applications

Friday, July 24, 5:00PM-7:00PM, Room: CEC Room 3, Chair: Sheridan Houghten, Juan J. Merelo-Guervos

- 5:00PM Visualization Approach for Malware Classification with ResNeXt [#24183]**
Jin Ho Go, Tony Jan, Manoranjan Mohanty, Om Prakash Patel, Deepak Puthal and Mukesh Prasad
University of Technology Sydney, Australia; Melbourne Institute of Technology, Australia; Mahindra Ecole Centrale, India; Newcastle University, United Kingdom
- 5:20PM Cryptanalysis of RSA: Integer Prime Factorization Using Genetic Algorithms [#24289]**
Emilia Rutkowski and Sheridan Houghten
Brock University, Canada
- 5:40PM Evolving Cryptographic Boolean Functions with Minimal Multiplicative Complexity [#24664]**
Jakub Husa and Lukas Sekanina
Brno University of Technology, Faculty of Information Technology, IT4Innovations Centre of Excellence, Czech Republic
- 6:00PM Improving evolution of service configurations for moving target defense [#24490]**
Ernesto Serrano-Collado, Mario Garcia-Valdez and Juan J. Merelo-Guervos
University of Granada, Spain; Instituto Tecnológico de Tijuana, Mexico
- 6:20PM Evolution of Complex Coordinated Behavior [#24645]**
Padmini Rajagopalan, Kay E. Holekamp and Risto Miikkulainen
The University of Texas at Austin, United States of America; Michigan State University, United States of America; the University of Texas at Austin, United States of America
- 6:40PM Necrotic Control of the Aesthetics of Evolved Art [#24055]**
Daniel Ashlock and Julie Greensmith
University of Guelph, Canada; University of Nottingham, United Kingdom

Plenary Poster Session C-P14: CEC Poster Session 14

Friday, July 24, 5:00PM-7:00PM, Room: CEC Poster Room, Chair: Hiroyuki Sato

- P2701 Energy Efficient Virtual Machine Consolidation Using Water Wave Optimization [#24038]**
Rambabu Medara, Ravi Shankar Singh, Selva Kumar Umapathy and Suraj Barfa
Indian Institute of Technology (BHU), India
- P2702 PSO-based Optimal Formation of Multiple Biomimetic Underwater Vehicles [#24084]**
Rui Wang, Ge Bai, Shuo Wang, Yu Wang and Min Tan
Institute of Automation, Chinese Academy of Sciences, China
- P2703 Evolutionary algorithms for the Traveling Car Renter with Passengers [#24174]**
Gustavo Sabry, Marco Goldberg, Elizabeth Goldberg, Matheus Menezes and Jose Filho
Universidade Federal do Rio Grande do Norte, Brazil; Universidade Federal Rural do Semi-Arido, Brazil
- P2704 A Practical Tuner Based on Opposite Information [#24256]**
Nicolas Rojas-Morales and Maria-Cristina Riff
Universidad Tecnica Federico Santa Maria, Chile
- P2705 Online intensification of search around solutions of interest for multi/many-objective optimization [#24257]**
Tapabrata Ray, Hemant Singh, Ahsanul Habib, Tobias Rodemann and Markus Olhofer
The University of New South Wales, Australia; Honda Research Institute Europe, Germany

- P2706 A Primary Study on Hyper-Heuristics to Customise Metaheuristics for Continuous Optimisation [#24348]**
 Jorge M. Cruz-Duarte, Ivan Amaya, Jose Carlos Ortiz-Bayliss, Santiago Enrique Conant-Pablos and Terashima-Marin Hugo
 Tecnologico de Monterrey, Mexico
- P2707 Non-dominated Solution Sampling Using Environmental Selection in EMO algorithms [#24379]**
 Tomoaki Takagi, Keiki Takadama and Hiroyuki Sato
 The University of Electro-Communications, Japan
- P2708 An Improved MOEA/D Algorithm for the Carbon Black Production Line Static and Dynamic Multiobjective Scheduling Problem [#24399]**
 Yao Wang, Zhiming Dong, Tenghui Hu and Xianpeng Wang
 Northeastern University, China
- P2709 Multi-objective Optimization Model for Flexible Job Shop Scheduling Problem Considering Transportation Constraints: A Comparative Study [#24435]**
 Dongsheng Yang, Zhou Xianyu, Yang Zhile, Jiang Qiangqiang and Feng Wei
 Northeastern University, China; Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, China
- P2710 Complex Large-Scale Energy Resource Management Optimization Considering Demand Flexibility [#24456]**
 Bruno Canizes, Joao Soares, Fernando Lezama and Zita Vale
 GECAD Research Group, Polytechnic of Porto (ISEP/IPP), Portugal; Polytechnic of Porto (ISEP/IPP), Portugal

Session C-R24: Genetic Programming (IV)

Friday, July 24, 7:15PM-9:15PM, Room: CEC Room 1, Chair: Gisele L. Pappa

- 7:15PM A Parametric Study of Interaction-Transformation Evolutionary Algorithm for Symbolic Regression [#24027]**
 Guilherme Aldeia and Fabricio Olivetti de Franca
 Federal University of ABC, Brazil
- 7:35PM Explaining Symbolic Regression Predictions [#24598]**
 Renato Miranda Filho, Anisio Lacerda and Gisele L. Pappa
 UFMG/IFMG, Brazil; UFMG, Brazil
- 7:55PM Grammatical Evolution to Mine OWL Disjointness Axioms Involving Complex Concept Expressions [#24405]**
 Thu Huong Nguyen and G.B. Andrea Tettamanzi
 Universite' Co^te d'Azur, Inria, CNRS, I3S, France
- 8:15PM Improving Module Identification and Use in Grammatical Evolution [#24431]**
 Aidan Murphy and Conor Ryan
 University of Limerick & Lero, Ireland
- 8:35PM A Symmetric grammar approach for designing segmentation models [#24460]**
 Ricardo Henrique Remes Lima, Aurora Pozo, Alexander Mendiburu and Roberto Santana
 Federal University of Parana, Brazil; University of the Basque Country UPV/EHU, Spain

Session C-R27: Hybrid Algorithms

Friday, July 24, 7:15PM-9:15PM, Room: CEC Room 2, Chair: Christina Brester, Mohammad Loni

7:15PM Hybrid PSO Algorithm with Adaptive Step Search in Noisy and Noise-free Environments [#24199]

Zhang JunQi, Chen Jianqing and Che Lei
Tongji University, China

7:35PM Discovering Numerous Strassen's Equivalent Equations Using a Simple Micro Multimodal GA: Evolution in Action [#24241]

Azam Asilian Bidgoli, Steven Trumble and Shahryar Rahnamayan
Department of Electrical, Computer, and Software Engineering Ontario Tech University, Oshawa,, Canada; Department of Electrical, Computer, and Software Engineering Ontario Tech University, Oshawa, Canada

7:55PM A Preliminary Study on Feature-independent Hyper-heuristics for the 0/1 Knapsack Problem [#24656]

Xavier F. C. Sanchez-Diaz, Jose Carlos Ortiz-Bayliss, Ivan Amaya, Jorge M. Cruz-Duarte, Santiago Enrique Conant-Pablos and Hugo Terashima-Marin
Tecnologico de Monterrey, Mexico

8:15PM Enhancing Prediction in Cyclone Separators through Computational Intelligence [#24330]

Oluwaseyi Ogun, Mbetobong Enoch, Georgina Cosma, Aboozar Taherkhani and Vincenzo Madonna
Obafemi Awolowo University, Nigeria; Akwa Ibom State University, Nigeria; Loughborough University, United Kingdom; De Montfort University, United Kingdom; University of Nottingham, United Kingdom

8:35PM DenseDisp: Resource-Aware Disparity Map Estimation by Compressing Siamese Neural Architecture [#24562]

Mohammad Loni, Ali Zoljodi, Daniel Maier, Amin Majd, Masoud Daneshtalab, Mikael Sjodin, Ben Juurlink and Reza Akbari
MDH, Sweden; Shiraz University of Technology, Iran; Technical University of Berlin, Germany; Abo Akademi University, Finland

Session C-R30: Genetic Algorithms and Genetic Programming

Friday, July 24, 7:15PM-9:15PM, Room: CEC Room 3, Chair: Sanaz Mostaghim, Mengjie Zhang

7:15PM T-EA: A Traceable Evolutionary Algorithm [#24454]

Cristian Ramirez-Atencia, Tobias Benecke and Sanaz Mostaghim
Otto-von-Guericke University, Germany

7:35PM Genetic Programming for Domain Adaptation in Product Reviews [#24673]

Iti Chaturvedi, Roy Welsch, Erik Cambria and Sandro Cavallari
James Cook University, Australia; MIT, United States of America; Nanyang Technological University, Singapore

7:55PM Can Single Solution Optimisation Methods Be Structurally Biased? [#24154]

Anna V. Kononova, Fabio Caraffini, Hao Wang and Thomas Baeck
Leiden University, Netherlands; De Montfort University, United Kingdom; Sorbonne Universite, France

8:15PM GPU Accelerated Genetic Algorithm with Sequence-based Clustering for Ordered Problems [#24402]

Ryoma Ohira and Md. Saiful Islam
Griffith University School of Information and Communication Technology, Australia

- 8:35PM A Threshold-free Classification Mechanism in Genetic Programming for High-dimensional Unbalanced Classification [#24341]**
Wenbin Pei, Bing Xue, Lin Shang and Mengjie Zhang
Victoria University of Wellington, New Zealand; Nanjing University, China
- 8:55PM Local Covering: Adaptive Rule Generation Method Using Existing Rules for XCS [#24619]**
Masakazu Tadokoro, Satoshi Hasegawa, Takato Tatsumi, Hiroyuki Sato and Keiki Takadama
The University of Electro-Communications, Japan

Plenary Poster Session C-P15: CEC Poster Session 15

Friday, July 24, 7:15PM-9:15PM, Room: CEC Poster Room, Chair: Gisele Pappa

- P2901 Many-level Image Thresholding using a Center-Based Differential Evolution Algorithm [#24506]**
Seyed Jaleleddin Mousavirad, Shahryar Rahnamayan and Gerald Schaefer
Ontario Tech University, Canada; Loughborough University, United Kingdom
- P2902 Class Dependent Feature Construction as a Bi-level Optimization Problem [#24539]**
Marwa Hammami, Slim Bechikh, Chih-Cheng Hung and Lamjed Ben Said
SMART lab, ISG Computer Science Department, University of Tunis, Tunisia; Kennesaw State University, USA Anyang Normal University, China; SMART lab, University of Tunis, ISG-Campus, Tunisia
- P2903 Instance Selection for Geometric Semantic Genetic Programming [#24548]**
Luis Fernando Miranda, Luiz Otavio Oliveira, Joao Francisco Martins and Gisele Pappa
Federal University of Minas Gerais, Brazil
- P2904 Automated Machine Learning for Information Retrieval in Scientific Articles [#24567]**
Hojjat Rakhshani, Bastien Latard, Mathieu Brevilliers, Jonathan Weber, Julien Lepagnet, Germain Forestier, Michel Hassenforder and Lhassane Idoumghar
Universite de Haute-Alsace, IRIMAS UR 7499, F-68100 Mulhouse, France, France
- P2905 Exact Signed Modularity Density Maximization Solutions and Their Real Meaning [#24588]**
Rafael Santiago and Luis Lamb
Federal University of Santa Catarina, Brazil; Federal University of Rio Grande do Sul, Brazil
- P2906 An Automatic Algorithm Configuration based on a Bayesian Network [#24605]**
Marcelo Nascimento and Antonio Chaves
Univ Fed of Sao Paulo, Brazil
- P2907 A Graph-based Ant-like Approach to Optimal Path Planning [#24628]**
Tingjun Lei, Chaomin Luo, John Ball and Shahram Rahimi
Mississippi State University, United States of America
- P2908 Using Cultural Algorithms to Learn the Impact of Climate Change on Artisanal Fishing Behavior [#24659]**
Khalid Kattan and Robert Reynolds
Wayne State University, United States of America

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