

15th International Conference on Parallel Problem Solving from Nature

PPSN 2018

8-12 September | Coimbra, Portugal | <http://ppsn2018.dei.uc.pt>

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Welcome to the 15th International Conference on Parallel Problem Solving from Nature (PPSN XV). Far more than a European event, this biennial meeting has established itself among the most important and highly respected international conferences in nature-inspired computation worldwide since its first edition in Dortmund in 1990. PPSN XV is held during September 8–12, 2018, at the University of Coimbra, in Coimbra, Portugal.

PPSN XV received 205 submissions from 44 countries. An extensive review process involved over 200 reviewers, who evaluated and reported on the manuscripts. All papers were assigned to at least three Program Committee members for review. A total of 745 review reports were received, or over 3.6 reviews on average per manuscript. All review reports were analyzed in detail by the Program Chairs. Where there was disagreement among reviewers, the Program Chairs also evaluated the papers themselves. In some cases, discussion among reviewers with conflicting reviews was promoted with the aim of making as accurate and fair a decision as possible. Overall, 79 manuscripts were selected for presentation and inclusion in the proceedings, which represents an acceptance rate just below 38.6%. This makes PPSN 2018 the most selective PPSN conference of the past 12 years, and reinforces its position as a major, high-quality evolutionary computation scientific event.

The meeting begins with an extensive program of 23 tutorials and six workshops covering a wide range of topics in evolutionary computation and related areas, including machine learning, statistics, and mathematical programming.

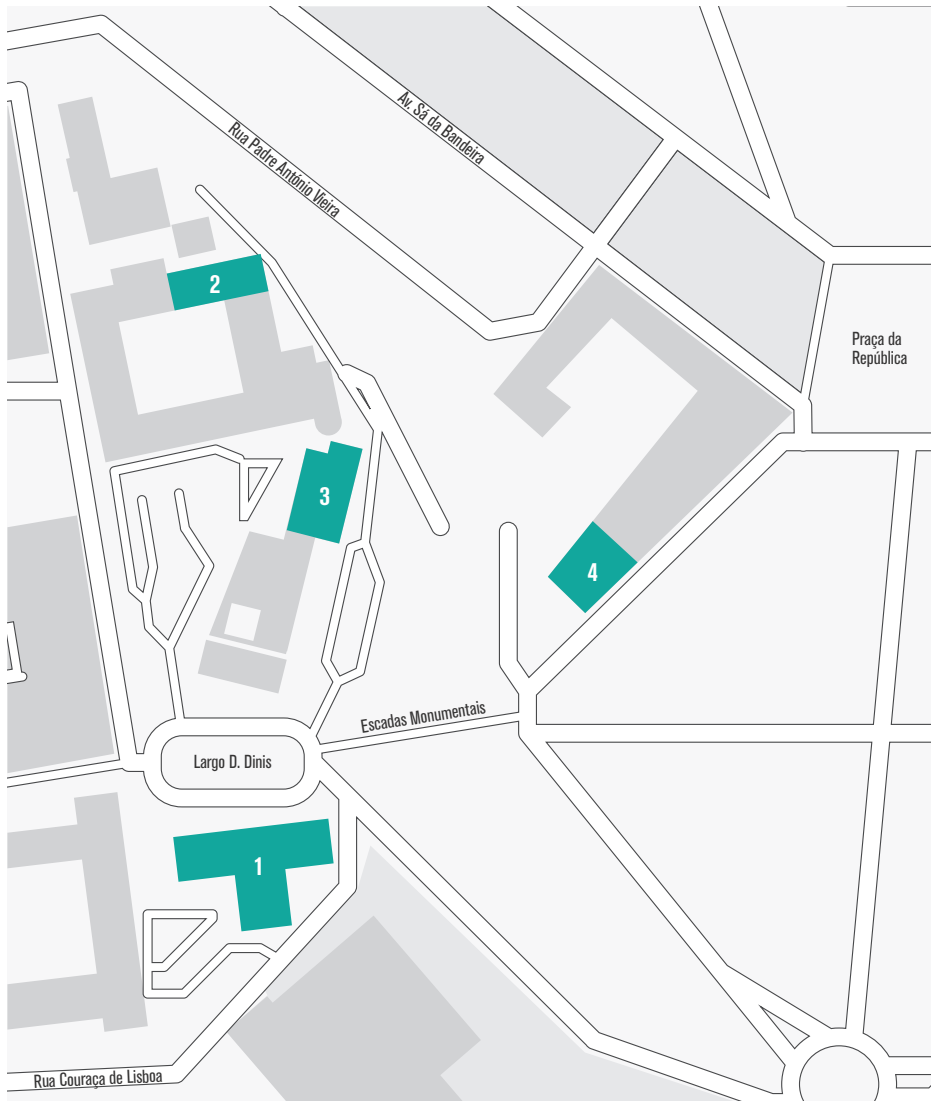
Tutorials offer participants the opportunity to learn more about well-established, as well as more recent, research, while workshops provide a friendly environment where new ideas can be presented and discussed by participants with similar interests.

In addition, three distinguished invited speakers will deliver keynote addresses at the conference. Ahmed Elgammal (Rutgers University, USA), Francis Heylighen (Vrije Universiteit Brussel, Belgium), and Kurt Mehlhorn (Max Planck Institute for Informatics, Saarbrücken, Germany) will speak on advances in the area of artificial intelligence and art, foundational concepts and mechanisms that underlie parallel problem solving in nature, and models of computation by living organisms, respectively. The 79 accepted papers will be presented in seven poster sessions over the course of the conference.

We thank the authors of all submitted manuscripts, and express our appreciation to all the members of the Program Committee and external reviewers who provided thorough evaluations of those submissions. We thank the keynote speakers, tutorial speakers, and workshop organizers for significantly enriching the scientific program with their participation. To all members of the Organizing Committee and local organizers, we extend our deep gratitude for their dedication in preparing and running the conference. Special thanks are due to the University of Coimbra for hosting the conference and, in particular, to INESC Coimbra, CISUC, the Department of Informatics Engineering, the Department of Mathematics, and the International Relations Unit, for their invaluable contribution to the organization of this event, and to Springer for sponsoring the Best Paper Award. Finally, we wish to personally thank Carlos Henggeler Antunes for his unconditional support.

September 2018

Anne Auger
 Carlos M. Fonseca
 Nuno Lourenço
 Penousal Machado
 Luís Paquete
 Darrell Whitley



- 1 Mathematics Department
- 2 Dom Dinis Cultural Centre

- 3 S. Jerónimo Canteen
- 4 Central (Blue) Canteen

Conference Location

Workshops, Tutorials, Keynotes	Mathematics Department (1)
Poster Sessions	Dom Dinis Cultural Centre (2)
Lunch	8 to 10 Sep. Central (Blue) Canteen (4) 11 to 12 Sep. S. Jerónimo Canteen (3)
Coffee Break	8 to 9 Sep. Mathematics Department – 3 rd Floor (1) 10 to 12 Sep. Dom Dinis Cultural Centre (2)
Registration	8 to 9 Sep. Mathematics Department (1) 10 to 12 Sep. Mathematics Department (1) (morning) 10 to 12 Sep. Dom Dinis Cultural Centre (2) (afternoon)

Informal Gathering

Saturday, September 8

19:00-22:00

There will be an informal gathering at Aqui Base Tango. Aqui Base Tango is a club that is housed in a former police station. It is located at Rua Venâncio Rodrigues, no. 8 (350 metres from Largo Dom Dinis).

Welcome Reception

Monday, September 10

19:00-22:00

The Welcome Reception will be held at the College of Santo Agostinho, which is currently occupied by the Faculty of Psychology and Education Science. Its construction started in 1593. The two-storey cloister is probably its main attraction, which combines Doric and Ionic elements (ground floor and upper floor, respectively).

Conference Dinner

Tuesday, September 11

19:00-23:30

The Conference Dinner will be held at Quinta do Encontro, Anadia, which is part of the Bairrada Wine Region. Prior to dinner, there will be a guided tour to the Wine Cellar of Quinta do Encontro.

Buses depart from Coimbra (Largo Dom Dinis, University of Coimbra) at 18:00 and return from Quinta do Encontro at 23:00.

Guided Tour – University of Coimbra

Wednesday, September 12

15:00-17:00

Established in 1290, the University of Coimbra is the oldest university in Portugal and among the oldest in the world. It is a UNESCO World Heritage site since 2013.

The meeting point will be at Pátio e Paço das Escolas (Royal Palace) at 15:00.

- Tutorials and Workshops:
(Mathematics Department)

- Keynotes
(Mathematics Department)
- Poster Sessions
(Dom Dinis Cultural Centre)

	Saturday 08/09/2018	Sunday 09/09/2018	Monday 10/09/2018	Tuesday 11/09/2018	Wednesday 02/09/2018			
08:30	Registration							
09:00	Registration	BGBTP	IOPMLDA	Tutorials	Kurt Mehlhorn	Ahmed Elgammal	Francis Heylighen	
09:30		Coffee Break						
10:00		Tutorials	BGBTP	IOPMLDA	Tutorials	PS 1	PS 4	PS 7
10:30	Lunch					Closing Session		
11:00						Lunch		
11:30	BB-DOB	DNN	Tutorials	AMO	EML	Tutorials	PS 2	PS 5
12:00	Coffee Break					Guided Tour UC		
12:30	BB-DOB	DNN	Tutorials	AMO	EML	Tutorials	PS 3	PS 6
13:00								
13:30								
14:00	Informal Gathering					Welcome Reception	Conference Dinner	
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Tutorials Workshops Keynotes Poster Sessions

Opening Session

Monday, September 10

09:00-09:15

Room 17A | *Chair:* Luís Paquete

Welcome Address

Rector of the University of Coimbra

Closing Session

Wednesday, September 12

12:30-13:30

Room 17A | *Chair:* Carlos M. Fonseca

Conference Wrap Up

Penousal Machado and Darrell Whitley

Award Ceremony

Emma Hart

PPSN 2020 Bid Presentations

Farewell

Monday, September 10

09:15-10:30



On Physarum Computations

Kurt Mehlhorn

Max Planck Institute for Informatics, Saarbrücken, Germany

Kurt Mehlhorn is a Director of the MPI for Informatics and Professor of Computer Science at Saarland University. He heads the algorithms and complexity group at the MPI for Informatics. He works on data structures and algorithms in a broad sense. He co-authored some 300 publications in the field, published six books, and is one of the people behind the LEDA software library. He supervised more than 80 PhD-students, many of whom have now faculty positions. He has received several prizes (Leibniz Award, Beckurts Award, Zuse Medal, Humboldt Award, EATCS Award, ACM Paris Kanellakis Theory and Practice Award, Erasmus Medal of the Academia Europaea) for his work. He holds Honorary Doctorate Degrees from Magdeburg, Waterloo, Aarhus, Gothenburg, and Patras universities and is an ACM Fellow. He is a member of the German Academy of Sciences Leopoldina, Academia Europaea, the German Academy of Science and Engineering acatech, the US Academy of Engineering, and the US Academy of Science. From 2002 to 2008, he was vice president of the Max Planck Society. He is a co-founder of Algorithmic Solutions Software GmbH.

Room 17A | *Chair:* Luís Paquete

Tuesday, September 11

09:00-10:30

**The Shape of Art History in the Eyes of the Machine**

Ahmed Elgammal
Rutgers University, USA

Dr. Ahmed Elgammal is a professor at the Department of Computer Science and an Executive Council Faculty at the Center for Cognitive Science at Rutgers University. He is the founder and director of the Art and Artificial Intelligence Laboratory at Rutgers, which focuses on data science in the culture domain. Prof. Elgammal has published over 160 peer-reviewed papers, book chapters, and books in the fields of computer vision, machine learning and digital humanities. He is a senior member of the Institute of Electrical and Electronics Engineers (IEEE). He received the National Science Foundation CAREER Award in 2006. Dr. Elgammal research on knowledge discovery in art history and AI-art generation received wide international media attention, including several reports on the Washington Post, New York Times, NBC, CBS News, the Daily Telegraph, Science News, and many others. Dr. Elgammal received his M.Sc. and Ph.D. degrees in computer science from the University of Maryland, College Park, in 2000 and 2002, respectively.

Room 17A | Chair: Penousal Machado

Wednesday, September 12

09:00-10:30

**Self-organization, Emergence and Stigmergy: coordination from the bottom-up**

Francis Heylighen
Vrije Universiteit Brussel, Belgium

Francis Heylighen received his PhD in theoretical physics in 1987 from the Free University of Brussels (VUB). After his PostDoc there he became first a Senior Research Associate, then a research professor. He then created the Evolution, Complexity and Cognition research group and the Global Brain Institute, which he both directs. The main focus of his research is the evolution of complexity: how do higher forms of organization originate and develop? How do systems self-organize, adapt and achieve some form of cognition? He has worked in particular on the development of collective intelligence or distributed cognition, and its application to the emerging "global brain".

His work has received a wide international recognition from peers, students and the general public. This is shown by such indicators as his H-index (49), the number of citations of his work (over 8000) in the Google Scholar database of academic publications, and appearances in the national and international media. He is a Fellow of the World Academy of Art and Science, member of the Global Agenda Councils of the World Economic Forum, recipient of the 2015 Outstanding Technology Award from the Web Intelligence Consortium and his biography has been listed in Who's Who in the World, Wikipedia, and other international directories.

Room 17A | Chair: Anne Auger

Saturday, September 8

14:00-18:00

Room 2.4	Black Box Discrete Optimization Benchmarking (BB-DOB) Pietro S. Oliveto, Markus Wagner, Thomas Weise, Borys Wróbel, and Aleš Zamuda
14:00-14:30	Discrete Real-World Problems in a Black-Box Optimization Benchmark Sebastian Raggel
14:30-15:00	Compiling a Benchmarking Test-Suite for Combinatorial Black-Box Optimization: A Position Statement Ofer M. Shir, Carola Doerr, and Thomas Bäck
15:00-15:30	Examples Implementing Black-Box Discrete Optimization Benchmarking Survey for BB-DOB@GECCO and BB-DOB@PPSN Aleš Zamuda, Goran Hrovat, Elena Lloret, Miguel Nicolau, and Christine Zarges
15:30-16:00	Coffee Break
16:00-16:30	A Dynamic Preference-Based Evolutionary Multi-Objective Optimization Benchmark Based on Reference Point? Qite Yang, Juan Zou, Gan Ruan, Shengxiang Yang, and Jinhua Zheng
16:30-17:00	Analyzing the Impact of Performance Indicator Parameterizations on the Assessment of Algorithm Performances Pascal Kerschke, Jakob Bossek, and Heike Trautmann
17:00-17:30	Optil.io: Online Platform for Benchmarking Optimization Algorithms Szymon Wasik, Maciej Antczak, Jan Badura, and Artur Laskowski
17:30-18:00	IOHProfiler: A Benchmarking and Profiling Tool for Iterative Optimization Heuristics Hao Wang, Furong Ye, Carola Doerr, Sander van Rijn, and Thomas Bäck

14:00-17:30

Room 2.2	Developmental Neural Networks Dennis Wilson, Julian F. Miller, and Sylvain Cussat-Blanc
14:00-14:10	Introduction Dennis G. Wilson, Julian F. Miller, and Sylvain Cussat-Blanc
14:10-15:10	The Secret Life of Neurons: From Birth to Adulthood Keynote by Sophie Pautot
15:10-15:30	Evolving Programs that Build Neural Networks for Multiple Problems Julian F. Miller, Dennis G. Wilson, and Sylvain Cussat-Blanc
15:30-16:00	Coffee Break
16:00-16:20	Distance-Based Kernels for Surrogate Model-Based Neuroevolution Jörg Stork, Martin Zaefferer, and Thomas Bartz-Beielstein
16:20-16:40	Minimum Requirements for an Artificial Rat Yile Ying, Alex Rose, Abubakar Siddique, and Will N. Browne
16:40-17:00	A Gene Regulatory Network Model for Axon Guidance Dennis G. Wilson, Sylvain Cussat-Blanc, and Hervé Luga
17:00-17:30	Panel discussions

Sunday, September 9

09:00-12:30

Room 2.4 Bridging the Gap Between Theory and Practice in Nature-Inspired Optimisation

Fernando G. Lobo and Thomas Jansen

09:00-09:15 **An Introduction to the Workshop**
Fernando G. Lobo and Thomas Jansen

09:15-09:50 **It's all About the Problem: Some Thoughts on Nature-Inspired Solver Software Development**
Carlos M. Fonseca

09:50-10:25 **Towards a Combinatorial Optimization API for Nature-Inspired Optimization Algorithms**
Eva Tuba, Carlos M. Fonseca, and Penousal Machado

10:30-11:00 Coffee Break

11:00-11:35 **Towards a More Practice-Aware Evaluation of Iterative Optimization Heuristics**
Carola Doerr

11:35-12:10 **Interplay Between Theory and Practice**
Fernando G. Lobo

12:10-12:30 **Discussion**

09:00-12:30

Room 2.5 Investigating Optimization Problems from Machine Learning and Data Analysis

Marcus Gallagher, Mike Preuss and Pascal Kerschke

09:00-09:30 **Introduction and Workshop Overview**
Marcus Gallagher, Mike Preuss, and Pascal Kerschke

09:30-10:00 **Exploratory Landscape Analysis of the MLDA Problem Set**
Marcus Gallagher and Sobia Saleem

10:00-10:30 **Evaluating Algorithm Performance on the MLDA Problem Set**
Marcus Gallagher, Sobia Saleem, Saskia Van Ryt, and Yukai Qiao

10:30-11:00 Coffee Break

11:00-11:30 **Audience Hands-On session**
Mike Preuss, Pascal Kerschke, and attendees

11:30-12:00 **Open Panel and Audience Discussion**
Workshop speakers and attendees

12:00-12:30 **Workshop Summary and Future Plans**

Sunday, September 9 (cont.)

14:00-17:30

Room 2.3	Advances in Multimodal Optimization Mike Preuss, Michael G. Epitropakis, and Xiaodong Li
14:00-14:15	Current State of Multimodal Optimization Michael Epitropakis, Xiaodong Li, and Mike Preuss
14:15-15:00	Multi-Modal Multi-Objective Optimization: Test Problems, Algorithms and Performance Indicators Hisao Ishibuchi
15:00-15:30	Discussion. How to Benchmark Multimodal Optimization Algorithms?
15:30-16:00	Coffee Break
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16:00-16:45	Exploiting a Problem's Multimodality for Improved Multi-Objective Optimization Pascal Kerschke
16:45-17:15	Discussion. Multimodal and/or Multi-Objective Optimization?
17:15-17:30	Wrap-Up Michael Epitropakis, Xiaodong Li, and Mike Preuss

14:00-17:30

Room 2.4	Evolutionary Machine Learning Giovanni Squillero and Alberto Tonda
14:00-14:18	EvoML Opening Giovanni Squillero and Alberto Tonda
14:18-14:36	Evolving Differentiable Gene Regulatory Networks Dennis G Wilson, Kyle Harrington, Sylvain Cussat-Blanc, and Hervé Luga
14:36-14:54	Eco-Evolutionary Search in a Metamorph Learner Iago Bonnici, Abdelkader Gouaïch, and Fabien Michel
14:54-15:12	Provably Efficient Search Heuristics by Learning-Inspired Parameter Control Benjamin Doerr, Carola Doerr, and Jing Yang
15:12-15:30	Observing the Population Dynamics in GE by Means of the Intrinsic Dimension Eric Medvet, Alberto Bartoli, Alessio Ansuini, and Fabiano Tarlao
15:30-16:00	Coffee Break
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16:00-16:18	Automatic Design of a Dynamic Multi-Objective Local Search Algorithm Camille Pageau, Aymeric Blot, Holger H. Hoos, Marie-Éléonore Kessaci, and Laetitia Jourdan
16:18-16:36	Feature Selection Using Multiobjective Evolutionary Algorithms Roman Denysiuk, René Pinto, M. Fernanda Costa, Lino Costa, and António Gaspar-Cunha
16:36-16:54	Multiobjective Evolutionary Classifier Design Using Class Scores by a Deep Convolutional Neural Network Yusuke Nojima, Sota Sakai, Naoki Masuyama, and Hisao Ishibuchi
16:54-17:12	MRI Gastric Images Processing Using a Multiobjective Fly Algorithm Shatha Al-Maliki, Evelyne Lutton, François Boué, and Franck Vidal
17:12-17:30	EvoML Closing Giovanni Squillero and Alberto Tonda

Saturday, September 8

11:00-12:30

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- Room 2.4 **Adaptive Parameter Choices in Evolutionary Computation**
Carola Doerr
- Room 3.1 **Bio-Inspired Approaches to Anomaly and Intrusion Detection**
Luis Martí and Marc Schoenauer
- Room 2.2 **Evolutionary Computation and Machine Learning in Cryptology**
Stjepan Picek
- Room 2.5 **Exploratory Landscape Analysis**
Pascal Kerschke and Mike Preuss
- Room 2.3 **Learning Classifier Systems as Learning Cognitive Systems**
Will Browne

14:00-15:30

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- Room 3.1 **Multiagent Systems and Agent-Based Modeling and Simulation**
Ana Bazzan
- Room 2.5 **Runtime Analysis of Population-Based Evolutionary Algorithms**
Per Kristian Lehre
- Room 2.3 **The Most Recent Advances on Multi-Modal Optimization**
Michael G. Epitropakis, Mike Preuss, and Xiaodong Li

16:00-17:30

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- Room 3.1 **Applications of Genetic Programming in Dynamic Scheduling**
Domagoj Jakobovic, Marko Đurasević, Yi Mei, Mengjie Zhang, and Su Nguyen
- Room 2.5 **Next Generation Genetic Algorithms**
Darrell Whitley
- Room 2.3 **Theory of Parallel Evolutionary Algorithms**
Dirk Sudholt

Sunday, September 9

09:00-10:30

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- Room 2.3 **Evolutionary Bilevel Optimization: An Emerging Area for Research and Application in EC**
Kalyanmoy Deb, Ankur Sinha, and Pekka Malo
- Room 3.1 **Semantic Genetic Programming**
Alberto Moraglio and Krzysztof Krawiec
- Room 2.2 **The Cartography of Computational Search Spaces**
Gabriela Ochoa

11:00-12:30

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- Room 3.1 **Cartesian Genetic Programming**
Julian F. Miller
- Room 2.3 **Introduction to Statistical Modeling of EC Systems and Experiments: A Visual Approach**
Mark Wineberg
- Room 2.2 **Multi-Objective Optimization with the jMetal Framework**
Antonio J. Nebro

14:00-15:30

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- Room 3.1 **Cloud-y Evolutionary Algorithms**
J.J. Merelo
- Room 2.2 **Computational Complexity Analysis of Genetic Programming**
Pietro Oliveto and Andrei Lissovoi
- Room 2.5 **Mathematical Programming as a Complement to Bio-Inspired Optimization**
Ofer Shir

16:00-17:30

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- Room 2.2 **A Small World Hidden in Evolutionary Computation Techniques**
Roman Šenkeřík
- Room 2.5 **Evolutionary Algorithms and Hyper-Heuristics**
Nelishia Pillay
- Room 3.1 **Genetic Improvement: Taking Real-World Source Code and Improving it Using Genetic Programming**
John Woodward and Saemundur O. Haraldsson

Monday, September 10

11:00-12:30

Poster
Session 1
–
Best Paper Nom.
–
Chair: Emma Hart

A Decomposition-Based Evolutionary Algorithm for Multi-Modal Multi-objective Optimization
Ryoji Tanabe and Hisao Ishibuchi

A General Dichotomy of Evolutionary Algorithms on Monotone Functions
Johannes Lengler

Algorithm Configuration Landscapes: More Benign than Expected?
Yasha Pushak and Holger Hoos

Evolutionary Search of Binary Orthogonal Arrays
Luca Mariot, Stjepan Picek, Domagoj Jakobovic, and Alberto Leporati

First-Hitting Times Under Additive Drift
Timo Kötzing and Martin S. Krejca

Learning Bayesian Networks with Algebraic Differential Evolution
Marco Bairoletti, Alfredo Milani, and Valentino Santucci

New Initialisation Techniques for Multi-Objective Local Search Application to the Bi-Objective Permutation Flowshop
Aymeric Blot, Manuel López-Ibáñez, Marie-Eleonore Kessaci, and Laetitia Jourdan

On Pareto Local Optimal Solutions Networks
Arnaud Liefooghe, Bilel Derbel, Sébastien Verel, Manuel López-Ibáñez, Hernán Aguirre, and Kiyoshi Tanaka

14:00-15:30

Poster
Session 2
–
Chair: Carlos Coello Coello

A Probabilistic Tree-Based Representation for Non-Convex Minimum Cost Flow Problems
Behrooz Ghasemishabankareh, Melih Ozlen, Frank Neumann, and Xiaodong Li

A Simple Indicator Based Evolutionary Algorithm for Set-Based Minmax Robustness
Yue Zhou-Kangas and Kaisa Miettinen

Analyzing Resilience to Computational Glitches in Island-Based Evolutionary Algorithms
Rafael Nogueras and Carlos Cotta

Fast Artificial Immune Systems
Dogan Corus, Pietro S Oliveto, and Donya Yazdani

First-Hitting Times for Finite State Spaces
Timo Kötzing and Martin S. Krejca

Lamarckian Evolution of Convolutional Neural Networks
Jonas Prellberg and Oliver Kramer

Linear Combination of Distance Measures for Surrogate Models in Genetic Programming
Martin Zaeferrer, Jörg Stork, Oliver Flasch, and Thomas Bartz-Beielstein

Optimisation and Illumination of a Real-world Workforce Scheduling and Routing Application (WSRP) via Map-Elites
Neil Urquhart and Emma Hart

PSO-Based Search Rules for Aerial Swarms Against Unexplored Vector Fields via Genetic Programming
Palina Bartashevich, Illya Bakurov, Sanaz Mostaghim, and Leonardo Vanneschi

Sensitivity of Parameter Control Mechanisms with Respect to Their Initialization
Carola Doerr and Markus Wagner

Towards Large-Scale Multiobjective Optimisation with a Hybrid Algorithm for Non-Dominated Sorting
Margarita Markina and Maxim Buzdalov

Understanding Climate-Vegetation Interactions in Global Rainforests Through a GP-Tree Analysis
Anuradha Kodali, Marcin Szubert, Kamalika Das, Sangram Ganguly, and Josh Bongard

Monday, September 10 (cont.)

16:00-17:30

- Poster
Session 3
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Chair:
Gabriela
Ochoa
- A Comparative Study of Large-Scale Variants of CMA-ES**
Konstantinos Varelas, Anne Auger, Dimo Brockhoff, Nikolaus Hansen, Yann Semet, Rami Kassab, Frédéric Barbaresco, and Ouassim Ait ElHara
- A Modern, Event-Based Architecture for Distributed Evolutionary Algorithms**
Juan Julián Merelo-Guervós and José Mario Garcia Valdez
- A Simple Proof for the Usefulness of Crossover in Black-Box Optimization**
Eduardo Carvalho Pinto and Carola Doerr
- Artificial Immune Systems Can Find Arbitrarily Good Approximations for the NP-Hard Partition Problem**
Dogan Corus, Pietro S. Oliveto, and Donya Yazdani
- Bridging Elementary Landscapes and a Geometric Theory of Evolutionary Algorithms: First Steps**
Marcos Diez García and Alberto Moraglio
- Conditional Preference Learning for Personalized and Context-Aware Journey Planning**
Mohammad Haqqani, Amirhomayoon Ashrafzadeh, Xiaodong Li, and Xinghuo Yu
- Efficient Recombination in the Lin-Kernighan-Helsgaun Traveling Salesman Heuristic**
Renato Tinós, Keld Helsgaun, and Darrell Whitley
- On the Performance of Baseline Evolutionary Algorithms on the Dynamic Knapsack Problem**
Vahid Roostapour, Aneta Neumann, and Frank Neumann
- Performance Assessment of Recursive Probability Matching for Adaptive Operator Selection in Differential Evolution**
Mudita Sharma, Manuel López-Ibáñez, and Dimitar Kazakov
- Self-Adaptive Crossover in Genetic Programming: The Case of the Tartarus Problem**
Thomas D. Griffiths and Aniko Ekart
- Use of Two Reference Points in Hypervolume-Based Evolutionary Multiobjective Optimization Algorithms**
Hisao Ishibuchi, Ryo Imada, Naoki Masuyama, and Yusuke Nojima
- What Are the Limits of Evolutionary Induction of Decision Trees?**
Krzysztof Jurczuk, Daniel Reska, and Marek Kretowski

Tuesday, September 11

09:00-10:30

- Poster
Session 4
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Chair:
Dirk
Thierens
- A First Analysis of Kernels for Kriging-Based Optimization in Hierarchical Search Spaces**
Martin Zaefferer and Daniel Horn
- Directed Locomotion for Modular Robots with Evolvable Morphologies**
Gongjin Lan, Milan Jelisavcic, Diederik Roijers, Evert Haasdijk, and Gusztai Eiben
- Empirical Analysis of Diversity-Preserving Mechanisms on Example Landscapes for Multimodal Optimisation**
Edgar Covantes Osuna and Dirk Sudholt
- Escherization with a Distance Function Focusing on the Similarity of Local Structure**
Yuichi Nagata
- GOMGE: Gene-Pool Optimal Mixing on Grammatical Evolution**
Eric Medvet, Alberto Bartoli, Andrea De Lorenzo, and Fabiano Tarlao
- Program Trace Optimization**
Alberto Moraglio and James McDermott
- Runtime Analysis of Evolutionary Algorithms for the Knapsack Problem with Favorably Correlated Weights**
Frank Neumann and Andrew M. Sutton
- Sampling Heuristics for Multi-Objective Dynamic Job Shop Scheduling Using Island Based Parallel Genetic Programming**
Deepak Karunakaran, Yi Mei, Gang Chen, and Mengjie Zhang
- Theoretical Analysis of Lexicase Selection in Multi-Objective Optimization**
Thomas Jansen and Christine Zarges
- Towards an Adaptive CMA-ES Configurator**
Sander van Rijn, Carola Doerr, and Thomas Bäck
- Tree-Structured Decomposition and Adaptation in MOEA/D**
Hanwei Zhang and Aimin Zhou
- Use of Reference Point Sets in a Decomposition-based Multi-Objective Evolutionary Algorithm**
Edgar Manóatl Lopez and Carlos A. Coello Coello

Tuesday, September 11 (cont.)

14:00-15:30

- Poster Session 5
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Chair: Leonardo Vanneschi
- A Double-Niched Evolutionary Algorithm and its Behavior on Polygon-Based Problems**
Yiping Liu, Hisao Ishibuchi, Yusuke Nojima, Naoki Masuyama, and Ke Shang
- Artificial Decision Maker Driven by PSO: An Approach for Testing Reference Point Based Interactive Methods**
Cristobal Barba-Gonzalez, Vesa Ojalehto, José García-Nieto, Antonio J. Nebro, Kaisa Miettinen, and Jose F Aldana Montes
- Challenges in High-Dimensional Reinforcement Learning with Evolution Strategies**
Nils Müller and Tobias Glasmachers
- Destructiveness of Lexicographic Parsimony Pressure and Alleviation by a Concatenation Crossover in Genetic Programming**
Timo Kötzing, J. A. Gregor Lagodzinski, Johannes Lengler, and Anna Melnichenko
- Exploration and Exploitation Without Mutation: Solving the Jump Function in $O(n)$ Time.**
Darrell Whitley, Swetha Varadarajan, Rachel Hirsch, and Anirban Mukhopadhyay
- Filtering Outliers in One Step with Genetic Programming**
Uriel Lopez, Leonardo Trujillo, and Pierrick Legrand
- Generalized Self-Adapting Particle Swarm Optimization Algorithm**
Mateusz Uliński, Adam Żychowski, Michał Okulewicz, Mateusz Zaborski, and Hubert Kordulewski
- On the Synthesis of Perturbative Heuristics for Multiple Combinatorial Optimisation Domains**
Christopher Stone, Emma Hart, and Ben Paechter
- Prototype Discovery Using Quality-Diversity**
Alexander Hagg, Alexander Asteroth, and Thomas Bäck
- Sampling Local Optima Networks of Large Combinatorial Search Spaces: The QAP Case**
Sébastien Verel, Fabio Daolio, Gabriela Ochoa, and Marco Tomassini
- Tailoring Instances of the 1D Bin Packing Problem for Assessing Strengths and Weaknesses of Its Solvers**
Ivan Amaya, José Carlos Ortiz-Bayliss, Santiago Enrique Conant-Pablos, Hugo Terashima, and Carlos Coello Coello
- Weaving of Metaheuristics with Cooperative Parallelism**
Jheisson López, Danny Munera, Daniel Diaz, and Salvador Abreu

16:00-17:30

- Poster Session 6
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Chair: Dirk Arnold
- A Model-Based Framework for Black-Box Problem Comparison Using Gaussian Processes**
Sobia Saleem, Marcus Gallagher, and Ian Wood
- A Suite of Computationally Expensive Shape Optimisation Problems Using Computational Fluid Dynamics**
Steven Daniels, Alma Rahat, Richard Everson, Gavin Tabor, and Jonathan Fieldsend
- A Surrogate Model Based on Walsh Decomposition for Pseudo-Boolean Functions**
Sébastien Verel, Bilel Derbel, Arnaud Liefoghe, Hernán Aguirre, and Kiyoshi Tanaka
- Critical Fractile Optimization Method Using Truncated Halton Sequence with Application to SAW Filter Design**
Kiyoharu Tagawa
- Extending Program Synthesis Grammars for Grammar-Guided Genetic Programming**
Stefan Forstenlechner, David Fagan, Miguel Nicolau, and Michael O'Neill
- Extending the Speed-Constrained Multi-Objective PSO (SMPSO) With Reference Point Based Preference Articulation**
Antonio J. Nebro, Juan J. Durillo, José García-Nieto, Cristóbal Barba-González, Javier Del Ser, Carlos A. Coello Coello, Antonio Benítez-Hidalgo, and José F. Aldana-Montes
- Heavy-Tailed Mutation Operators in Single-Objective Combinatorial Optimization**
Tobias Friedrich, Andreas Göbel, Francesco Quinzan, and Markus Wagner
- Heuristics in Permutation GOMEA for Solving the Permutation Flowshop Scheduling Problem**
Gerben Aalvanger, Hoang Luong, Peter Bosman, and Dirk Thierens
- Improving 1by1EA to Handle Various Shapes of Pareto Fronts**
Yiping Liu, Hisao Ishibuchi, Yusuke Nojima, Naoki Masuyama, and Ke Shang
- Level-Based Analysis of the Population-Based Incremental Learning Algorithm**
Per Kristian Lehre and Phan Trung Hai Nguyen
- Optimal Neuron Selection and Generalization: NK Ensemble Neural Networks**
Darrell Whitley, Renato Tinós, and Francisco Chicano
- Ring Migration Topology Helps Bypassing Local Optima**
Clemens Frahnöw and Timo Kötzing

Wednesday, September 12

09:00-12:30

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- Poster Session 7 – Chair: Thomas Jansen
- Adaptive Advantage of Learning Strategy: A Study Through Dynamic Landscape**
 Nam Le, Michael O'Neill, and Anthony Brabazon
 - Automated Selection and Configuration of Multi-Label Classification Algorithms with Grammar-Based Genetic Programming**
 Alex de Sá, Alex Freitas, and Gisele Pappa
 - Comparative Study of Different Memetic Algorithm Configurations for the Cyclic Bandwidth Sum Problem**
 Eduardo Rodriguez-Tello, Valentina Narvaez-Teran, and Frederic Lardeux
 - Design of a Surrogate Model Assisted (1+1)-ES**
 Arash Kayhani and Dirk Arnold
 - EDDA-V2 – An Improvement of the Evolutionary Demes Despeciation Algorithm**
 Illya Bakurov, Leonardo Vanneschi, Mauro Castelli, and Francesco Fontanella
 - Perturbation Strength and the Global Structure of QAP Fitness Landscapes**
 Gabriela Ochoa and Sebastian Herrmann
 - Precise Runtime Analysis for Plateaus**
 Denis Antipov and Benjamin Doerr
 - Spark Clustering Computing Platform Based Parallel Particle Swarm Optimizers for Computationally Expensive Global Optimization**
 Qiqi Duan, Lijun Sun, and Yuhui Shi
 - Sparse Incomplete LU-Decomposition for Wave Farm Designs Under Realistic Conditions**
 Didac Rodriguez Arbones, Nataliia Y. Sergiienko, Boyin Ding, Oswin Krause, Christian Igel, and Markus Wagner
 - Towards a More General Many-Objective Evolutionary Optimizer**
 Jesús Guillermo Falcón-Cardona and Carlos Artemio Coello Coello
 - Towards a Running Time Analysis of the (1+1)-EA for OneMax and LeadingOnes Under General Bit-Wise Noise**
 Chao Bian, Chao Qian, and Ke Tang

Local Organization

- Address Departamento de Engenharia Informática
 Faculdade de Ciências e Tecnologia
 Universidade de Coimbra
 Pólo II – Pinhal de Marrocos
 3030-290 Coimbra
- Phone (+351) 239 790 000
- E-mail ppsn2018@dei.uc.pt
- URL <http://ppsn2018.dei.uc.pt>

