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Parallel Problem Solving from Nature - PPSN XII

12th International Conference
Taormina, Italy, September 1-5, 2012
Proceedings, Part I

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Preface

This LNCS volume contains the proceedings of the 12th International Conference on Parallel Problem Solving from Nature (PPSN 2012). This biennial event constitutes one of the most important and highly regarded international conferences in evolutionary computation and bio-inspired metaheuristics. Continuing with a tradition that started in Dortmund, in 1990, PPSN 2012 was held during September 1–5, 2012 in Taormina, Sicily, Italy.

PPSN 2012 received 226 submissions from 44 countries. After an extensive peer-review process involving more than 230 reviewers, the Program Committee Chairs went through all the reports and ranked the papers according to the reviewers' comments. Each paper was evaluated by at least four reviewers. The top 105 manuscripts were finally selected for inclusion in this LNCS volume and for presentation at the conference. This represents an acceptance rate of 46%, which guarantees that PPSN will continue to be one of the most respected conferences for researchers working in natural computing around the world.

PPSN 2012 featured four distinguished keynote speakers: Angelo Cangelosi (University of Plymouth, UK), Natalio Krasnogor (University of Nottingham, UK), Panos M. Pardalos (University of Florida, USA), and Leslie G. Valiant (Harvard University, USA).

The meeting began with six workshops: “Evolving Predictive Systems” (Bogdan Gabrys and Athanasios Tsakonas), “Joint Workshop on Automated Selection and Tuning of Algorithms” Part A: Continuous Search Spaces—Focus on Algorithm Selection (Heike Trautmann, Mike Preuss, Olaf Mersmann, and Bernd Bischl), Part B: Discrete Search Spaces – Focus on Parameter Selection (Andrew Parkes and Ender Özcan), “Theoretical Aspects of Evolutionary Multiobjective Optimization: Interactive Problem Solving Sessions and New Results” (Dimo Brockhoff and Günter Rudolph), “Modeling Biological Systems” (Julia Handl, Joshua Knowles, and Yaochu Jin), and “Parallel Techniques in Search, Optimization, and Learning” (Enrique Alba and Francisco Luna). The workshops offered an ideal opportunity for the conference members to explore specific topics in evolutionary computation, bio-inspired computing, and metaheuristics in an informal and friendly setting.

PPSN 2012 also included eight tutorials: “Introduction to Bioinformatics” (Jaume Bacardit, University of Nottingham, UK), “Evolutionary Multi-Objective Optimization” (Jürgen Branke, University of Warwick, UK), “Implementing Artificial Evolution on GPGPU-Based Computing Eco-Systems with the EASEA-CLOUD Massively Parallel Platform” (Pierre Collet, Strasbourg University, France), “Programming by Optimization—A New Paradigm for Developing High-Performance Software” (Holger H. Hoos, University of British Columbia, Canada), “Computational Intelligence and Games” (Pier Luca Lanzi, Polytechnic of Milan, Italy), “Ant Colony Optimization” (Vittorio Maniezzo, University of Bologna,

Italy), “Complex Systems Science in Its Thirties” (Roberto Serra, University of Modena and Reggio Emilia, Italy), and “Expressive Genetic Programming” (Lee Spector, Hampshire College, USA).

We wish to express our gratitude to the authors who submitted their papers to PPSN 2012 and to the Program Committee members and external reviewers who provided thorough evaluations of all these submissions. We also express our profound thanks to Marisa Lappano Anile, Claudio Angione, Jole Costanza, Giovanni Carapezza, Giovanni Murabito, and all the members of the Organizing Committee for their substantial efforts in preparing for and running the meeting. Thanks to all the keynote and tutorial speakers for their participation, which greatly enhanced the quality of this conference. Finally, we also express our gratitude to all the organizations that provided financial support for this event.

September 2012

Carlos Coello Coello
Vincenzo Cutello
Kalyanmoy Deb
Stephanie Forrest
Giuseppe Nicosia
Mario Pavone

Organization

PPSN 2012 was organized and hosted by the Optimization and BioComputing Group of the Department of Mathematics and Computer Science, University of Catania, Italy. The University of Catania is the 29th oldest university in the world. Its establishment dates back to 1434.

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Workshop on Automated Selection and Tuning of Algorithms

Part B: Discrete Search Spaces – Focus on Parameter Selection

Andrew Parkes and Ender Özcan

Theoretical Aspects of Evolutionary Multiobjective Optimization: Interactive Problem Solving Sessions and New Results

Dimo Brockhoff and Günter Rudolph

Modeling Biological Systems Workshop

Julia Handl, Joshua Knowles, and Yaochu Jin

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Introduction to Bioinformatics

Jaume Bacardit

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Implementing Artificial Evolution on GPGPU-Based Computing Eco-Systems with the EASEA-CLOUD Massively Parallel Platform

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Programming by Optimization—A New Paradigm for Developing High-Performance Software

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Computational Intelligence and Games

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