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Proceedings, Part II

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Preface

We are very pleased to present to you this LNCS volume, the proceedings of the 11th International Conference on Parallel Problem Solving from Nature (PPSN 2010). PPSN is one of the most respected and highly regarded conference series in evolutionary computation, and indeed in natural computation as well. This biennial event was first held in Dortmund in 1990, and then in Brussels (1992), Jerusalem (1994), Berlin (1996), Amsterdam (1998), Paris (2000), Granada (2002), Birmingham (2004), Reykjavik (2006) and again in Dortmund in 2008.

PPSN 2010 received 232 submissions. After an extensive peer review process involving more than 180 reviewers, the program committee chairs went through all the review reports and ranked the papers according to the reviewers' comments. Each paper was evaluated by at least three reviewers. Additional reviewers from the appropriate branches of science were invoked to review interdisciplinary papers. The top 128 papers were finally selected for inclusion in the proceedings and presentation at the conference. This represents an acceptance rate of 55%, which guarantees that PPSN will continue to be one of the conferences of choice for bio-inspired computing and metaheuristics researchers all over the world who value the quality over the size of a conference.

The papers included in the proceedings volumes cover a wide range of topics, from evolutionary computation to swarm intelligence, from bio-inspired computing to real-world applications. Machine learning and mathematical games supported by evolutionary algorithms as well as memetic, agent-oriented systems are also represented. They all are the latest and best in natural computation. The proceedings are composed of two volumes divided into nine thematic sections.

In accordance with the PPSN tradition, all papers at PPSN 2010 were presented as posters. There were nine sessions of posters. Each session consisted of around 15 papers. For each session, we covered as wide a range of topics as possible so that participants with different interests could find some relevant papers at every session.

PPSN 2010 featured three distinguished keynote speakers: John Garibaldi, Zbigniew Michalewicz and Darrell Whitley who delivered lectures entitled: Ensemble Fuzzy Reasoning, Some Thoughts on Wine Production, and Elementary Landscapes Made Easy, respectively.

PPSN 2010 also included eight interesting tutorials. These covered the wide area of natural computing science. The first of them "A Rigorous Theoretical Framework for Measuring Generalization of Co-evolutionary Learning" (X. Yao) was devoted to the genetic algorithm theory while the following two "Foundations of Evolutionary Multi-objective Optimization" (F. Neumann, T. Friedrich) and "Hybrid Optimization Approaches" (G. Raidl) introduced important groups of algorithms inspired by nature. The next tutorials, "Natural Computing and

Finance” (T. Brabazon, M. O’Neill), “Heuristic and Meta-heuristic Approaches for Scheduling in Large Scale Distributed Computing Environments” (F. Xhafa) and “Artificial Immune Systems in Optimization and Classification Problems with Engineering and Biomedical Applications” (T. Burczyński, M. Bereta, W. Kuś), focused on important engineering, business and medical applications. Finally, “Learning to Play Games” (S. M. Lucas) and “The Complexity of Elections: New Domain for Heuristic Computations” (P. Faliszewski) concerned games and social problems.

PPSN 2010 also included four workshops. They made an excellent start to the five-day event. The workshops offered an ideal opportunity for participants to explore specific topics in natural computation in an informal setting. They sowed the seeds for the future growth of natural computation. The first of them “Self-tuning, Self-configuring and Self-generating Search Heuristics (Self* 2010)” (G. Ochoa, M. Schoenauer, D. Whitley) focused on developing automated systems to replace the role of a human expert in the design, tuning and generation of search heuristics. The next pair of workshops “Understanding Heuristics: How Do We Get the Best of Both Theory and Empirical Methods?” (E. Ozcan, A. Parkes, J. Rowe) and “Experimental Methods for the Assessment of Computational Systems (WEMACS)” (T. Bartz-Beielstein, M. Chiarandini, L. Paquete, M. Preuss) concerned two complementary theoretical and experimental approaches to the analysis of heuristic and meta-heuristic algorithms. The last one “Workshop on Parallel and Cooperative Search Methods” (D. Ouelhadj, E. Ozcan, M. Toulouse) dealt with cooperative parallel searches improving performance, especially when dealing with large scale combinatorial optimization problems.

The success of any conference depends on its authors, reviewers and organizers. PPSN 2010 was no exception. We are grateful to all the authors who submitted their papers and to all the reviewers for their outstanding work in refereeing the papers on a very tight schedule. We relied heavily on a team of volunteers, especially those in Kraków, to keep the PPSN 2010 wheel turning.

PPSN XI would not have been possible without the support of Microsoft Poland, Intel and HP.

September 2010

Robert Schaefer
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Organization

PPSN XI was organized and hosted by the Intelligent Information Systems Group of the Department of Computer Science, Faculty of Electrical Engineering, Automatics, Computer Science and Electronics, AGH University of Science and Technology, Poland. The conference took place in the AGH Conference and Teaching Center U-2, Kraków.

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Experimental Methods for the Assessment of Computational Systems (WEMACS)

Thomas Bartz-Beielstein, Marco Chiarandini, Luis Paquete and Mike Preuss

Workshop on Parallel and Cooperative Search Methods

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A Rigorous Theoretical Framework for Measuring Generalization of Co-evolutionary Learning

Xin Yao

Foundations of Evolutionary Multi-objective Optimization

Frank Neumann and Tobias Friedrich

Hybrid Optimization Approaches

Günther Raidl

Natural Computing and Finance

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Heuristic and Meta-heuristic Approaches for Scheduling in Large Scale Distributed Computing Environments

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