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# Learning and Intelligent Optimization

5th International Conference, LION 5  
Rome, Italy, January 17-21, 2011  
Selected Papers

Volume Editor

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# Preface

LION 5, the 5th International Conference on Learning and Intelligent OptimizationN, was held during January 17–21 in Rome, Italy. This meeting, which continues the successful series of LION conferences, aimed at exploring the intersections and uncharted territories between machine learning, artificial intelligence, mathematical programming and algorithms for hard optimization problems. The main purpose of the event was to bring together experts from these areas to discuss new ideas and methods, challenges and opportunities in various application areas, general trends and specific developments.

As in previous years, three different paper categories were available for submission: (1) regular papers on original and unpublished work, (2) short papers on original and unpublished work, and (3) works for oral presentation only. Accepted papers from the first two categories are published in the proceedings. A total of 99 submissions were received, from which 79 fell into the first category, 18 into the second one, and only 2 into the last one. After a thorough review process, 43 regular papers and 6 short papers were accepted for publication in the proceedings (the overall acceptance rate was 49%). None of the submissions from the third category was accepted for presentation.

These 49 contributions that were accepted for presentation cover the general track as well as the following four special sessions that were organized:

- *IMON: Intelligent Multiobjective Optimization*  
Organizers: Dario Landa-Silva, Qingfu Zhang, David Wolfe Corne, Hui Li
- *LION-PP: Performance Prediction*  
Organizers: Kate Smith-Miles, Leo Lopes
- *Self\* EAs: Self-Tuning, Self-Configuring and Self-Generating Evolutionary Algorithms*  
Organizers: Gabriela Ochoa, Marc Schoenauer
- *LION-SWAP: Software and Applications*  
Organizers: Mauro Brunato, Youssef Hamadi, Silvia Poles, Andrea Schaerf

The conference program was further enriched by the following tutorials, given by respected scientists in their respective domains. Carlos A. Coello Coello, from CINVESTAV-IPN (México), spoke about “Metaheuristics for Multiobjective Optimization,” Yaochu Jin, from the University of Surrey (UK), talked about “A Systems Approach to Evolutionary Aerodynamic Design Optimization,” Silvia Poles, from EnginSoft (Italy), gave a tutorial on “Multiobjective Optimization for Innovation in Engineering Design,” and Roberto Battiti, from the University of Trento (Italy) spoke about “Reactive Business Intelligence and Data Mining.”

The technical program also featured two invited talks by Benjamin W. Wah from the University of Illinois at Urbana-Champaign in USA (title: “Planning

Problems and Parallel Decomposition: A Critical Look”) and Edward Tsang from the University of Essex in UK (title: “Intelligent Optimization in Finance and Economics”). Additionally, there was also a steering talk by Xin Yao, from the University of Birmingham in the UK, with the title: “Evolving and Designing Neural Network Ensembles.”

Finally, we would like to express our sincere thanks to the authors for submitting their papers to LION 5, and to all the members of the Program Committee for their hard work. The organization of such an event would not be possible without the voluntary work of the Program Committee members. Many thanks also go to the invited speakers and tutorial speakers and to Thomas Stützle, for serving as the scientific liaison with Springer. Special thanks go to Marco Schaerf and Laura Palagi from the Sapienza Università di Roma who dealt with the local organization of this event. Final thanks go to Franco Mascia, the Web Chair of LION 5.

Last but not least, we would also like to acknowledge the contribution of our sponsors: the Associazione Italiana per l'Intelligenza Artificiale, IEEE Computational Intelligence Society, Microsoft Research, Sapienza Università di Roma, and University of Trento for their technical co-sponsorship, as well as the industrial sponsor EnginSoft S.P.A.

April 2011

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