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Intelligent Distributed Computing XII

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Preface

Intelligent distributed computing emerged in the 70s as a result of the exploitation of synergies between different ideas coming from the fields of Intelligent and Distributed Computing. It is a stream directly derived from artificial intelligence, yielding a new generation of intelligent systems built upon the combination of approaches from this classical field with computational intelligence, distributed and multi-agent systems.

This book collects a number of research contributions gravitating on recent advances intelligent and distributed computing, comprising both architectural and algorithmic findings related to these fields. A major focus is placed on new techniques and applications for evolutionary computation, swarm intelligence, multi-agent systems, multi-criteria optimization and Deep/Shallow machine learning models, all conceived as technological drivers to enable autonomous reasoning and decision-making in complex distributed environments. Part of the book is also devoted to new scheduling and resource allocation methods for distributed computing systems. The book comprises the peer-reviewed proceedings of the 12th International Symposium on Intelligent Distributed Computing (IDC 2018), which was held in Bilbao, Spain, from 15 to 17 October 2018. IDC 2018 continues the legacy of the prior IDC Symposium Series as an initiative of two research groups: (i) Systems Research Institute, Polish Academy of Sciences, Warsaw, Poland, and (ii) Software Engineering Department, University of Craiova, Craiova, Romania.

After a rigorous peer-reviewed process, the International Program Committee selected 38 papers, which are published in these conference proceedings. The selection of these contributions was rigorous with the intention of maintaining the high quality of the conference. We would like to thank the Program Committee for their hard work during the review process. This peer-reviewed phase is very important for achieving the high-quality standards of the IDC conference. We would also like to thank Janusz Kacprzyk, editor of Studies in Computational Intelligence series and member of the Steering Committee, for his support and encouragement for the development of the IDC Symposium Series. The organization also feels indebted to Thomas Ditzinger, Viktoria Meyer and Ramamoorthy

Rajangam from Springer, for their kind support during the production of the conference proceedings.

The 38 contributions published in this volume tackle a wide variety of topics related to theory and applications of intelligent distributed computing. We also want to highlight the organization of four different special sessions: Intelligent And Distributed Optimization For Logistics, Transportation And Vehicle Routing (INDILOG), Soft Computing And Computational Sustainability (COMPSUS), Multi-Agent Systems Technology and Learning (MASTL 2018) and Machine Learning methods applied to practical Predictive Maintenance problems (ML-PdM). We want to dedicate a sincere thanks to the organizers of the three tutorials held during the conference: Multi-Objective Big Data Optimization with jMetalSP (JMETALSP), The K-means algorithm on Big Data domains (KMBD) and Applying Machine Learning to detect Android Malware: AndroPyTool and OmniDroid.

IDC 2018 enjoyed outstanding keynote speeches by distinguished guest speakers: Prof. Jose A. Lozano—Full Professor in the University of the Basque Country (UPV-EHU), Spain, and Research Professor in the Basque Center for Applied Mathematics (BCAM), Spain; Dr. David Camacho—Associate Professor in Universidad Autónoma de Madrid, Spain; Francisco Herrera—Full Professor in the University of Granada, Spain; Dr. Eleni I. Vlahogianni—Associate Professor in the National Technical University of Athens, Greece; and Prof. Albert Bifet—Full Professor in Telecom ParisTech, France.

Finally, we appreciate the efforts made by of all the organizers from the Joint Research Lab (JRL)—University of the Basque Country, Basque Center of Applied Mathematics and TECNALIA Research and Innovation, for collaborating in the organization of this event. Special thanks also to the people from the Bizkaia Aretoa, for hosting this event in such a beautiful venue.

June 2018

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