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Intelligent Distributed Computing XIII

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Preface

Intelligent distributed computing appeared in the 1970s as an outcome of the exploitation of synergies between different research and industrial trends coming from the fields of Intelligent Systems and Distributed Computing. It is a stream directly derived from artificial intelligence, granting novel and significant intelligent solutions built upon the combination of models from this classical field with computational intelligence, distributed, multi-agent systems and computer security.

This volume collects a range of research contributions exposing innovative advances of intelligent and distributed computing, comprising both architectural and algorithmic findings related to these fields. A major focus is placed on new models, techniques, and applications for intelligent distributed and high-performance architectures, ephemeral and unreliable computing, intelligent distributed knowledge representation and processing, networked intelligence, distributed swarm robotics systems, nature-inspired methods for data science and machine learning, and many others. The book comprises the peer-reviewed proceedings of the 13th International Symposium on Intelligent Distributed Computing (IDC 2019), which was held in St. Petersburg, Russia, October 7–9, 2019. IDC 2019 continues the legacy of the prior IDC Symposium Series as an initiative of two research groups: Systems Research Institute, Polish Academy of Sciences, Warsaw, Poland, and Software Engineering Department, University of Craiova, Craiova, Romania.

IDC 2019 event comprised the following 11 sessions: (1) Internet of Things, Cloud Computing, and Big Data, (2) Data Analysis, Mining, and Machine Learning, (3) Multi-agent and Service-Based Distributed Systems, (4) Distributed Algorithms and Optimization, (5) Modeling Operational Processes for Intelligent Distributed Computing, (6) Advanced Methods for Social Network Analysis and Inappropriate Content Counteraction, (7) Intelligent Distributed Computing for Cyber-physical Security and Safety, (8) Intelligent Distributed Decision Support Systems, (9) Intelligent Human–Machine Interfaces, (10) Security for Intelligent Distributed Computing—Machine Learning vs. Chains of Trust, and (11) Visual Analytics in Distributed Environment. The proceedings book contains contributions of 28 regular and 36 short papers selected from 105 received submissions from 17

countries. Each submission was carefully reviewed of least three members of the Program Committee. Acceptance and publication were judged based on the relevance to the conference topics, clarity of presentation, novelty, and accuracy of the contribution. The acceptance rates were 26.66%, counting only regular papers, and 60.95% when including also short ones.

We would like to thank Janusz Kacprzyk, editor of Studies in Computational Intelligence series and member of the Steering Committee, for his continuous support and encouragement for the development of the IDC Symposium Series. Also, we would like to thank the IDC 2019 Program Committee members for their work in promoting the event and refereeing submissions. A special thank goes to all colleagues who submitted their work to this event.

IDC 2019 enjoyed outstanding keynote speeches by distinguished invited speakers: Prof. Helen Karatza—Professor Emeritus, Department of Informatics, Aristotle University of Thessaloniki, Greece, and Prof. Vladimir Gorodetsky—Professor of Computer Science, InfoWings, Russia.

Finally, we acknowledge and appreciate the efforts made by of all the organizers from the Laboratory of Computer Security Problems—St. Petersburg Institute for Informatics and Automation of the Russian Academy of Sciences for collaborating in the organization of the conference. Special thanks also to the people from the ITMO University, for hosting the event in such a beautiful place.

August 2019

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