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Information and Software Technologies

25th International Conference, ICIST 2019
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Proceedings



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Preface

We are delighted to present you this book, *Information and Software Technologies*, which is a collection of papers that were presented at the 25th International Conference on Information and Software Technologies, ICIST 2019. The annual conference took place during October 10–12, 2019, in Vilnius, Lithuania.

The book consists of four chapters, which correspond to the four major areas that were covered during the conference, namely, “Information Systems,” “Business Intelligence for Information and Software Systems,” “Software Engineering,” and “Information Technology Applications.” These chapters are further subdivided according to the nine special sessions that were held at the conference. They are the following: (a) Innovative Applications for Knowledge Transfer Support, (b) e-Health Information Systems, (c) Intelligent Methods for Data Analysis and Computer Aided Software Engineering, (d) Intelligent Systems and Software Engineering Advances, (e) Smart e-Learning Technologies and Applications, (f) Language Technologies, (g) Digital Transformations, (h) Information Technology Security, and (i) Software and Model Metrics and Measurements.

Every year ICIST attracts researchers from all over the world, and this year was not an exception – we received 121 submissions from 32 countries. More importantly, there were participants from many more countries, which indicates that the conference is truly gaining more and more international recognition as it brings together a vast number of brilliant specialists who represent the aforementioned fields and share information about their newest scientific research investigations and the results achieved. Since we always strive to make the conference presentations and proceedings of the highest quality possible, we only accept papers that present the results of various investigations directed to the discovery of new scientific knowledge in the area of information and software technologies. Hence, only 46 papers were accepted for publication (i.e., a 38% acceptance rate). All the papers were reviewed and selected by the Program Committee, which comprised 65 reviewers (together with 64 additional reviewers) from over 80 academic institutions. As usual, each submission was reviewed following the double-blind process by at least two reviewers. When necessary, some of the papers were reviewed by three or four reviewers. Our deepest thanks and appreciation go to all the reviewers for devoting their precious time to produce thorough reviews and feedback to the authors.

We would also like to express our gratitude to the session chairs and co-chairs, Prof. Marcin Woźniak (Silesian University of Technology), Prof. Christian Napoli (University of Catania), Prof. Carsten Wolff and Prof. Christian Reimann (Dortmund University of Applied Sciences and Arts), Prof. Justyna Patalas-Maliszewska (University of Zielona Góra), Prof. Nadine Schlüter (University of Wuppertal), Prof. Rolf Engelbrecht (ProRec), Prof. Audrius Lopata (Vilnius University), Prof. Jurgita Kapočiūtė-Dzikienė (Vytautas Magnus University), Peter Dirix (University of Leuven), Prof. Jakub Swacha (University of Szczecin), Prof. Ricardo

Queiros (Polytechnic Institute of Porto), Assoc. Prof. Danguolė Rutkauskienė (Kaunas University of Technology), Prof. Radu Adrian Vasiu (Politechnica University of Timisoara), and Prof. dr. Sanjay Misra (Covenant University, Nigeria) for their expertise, assistance, and invaluable contribution in making the conference a top-quality scientific event.

In addition, we would like to thank the local Organizing Committee and the Faculty of Informatics, Kaunas University of Technology, for the conference would not have been a great success without their tremendous support. We are also grateful to the Research Council of Lithuania for financial support.

The proceedings of the ICIST 2019 conference are published as a volume of *Communications in Computer and Information Science* series for the eighth time. This would not be possible without the kind assistance provided by Leonie Kunz, Aliaksandr Birukou, and Ingrid Beyer, Springer, for which we are utmost grateful. We are very proud of this collaboration and believe that this fruitful partnership will continue for many more years to come.

July 2019

Robertas Damaševičius
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