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Databases and Information Systems

12th International Baltic Conference, DB&IS 2016
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Proceedings

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Preface

This volume contains a selection of the papers presented at the 12th International Baltic Conference on Databases and Information Systems 2016 (DB&IS 2016). The conference was held during July 4–6, 2016, in Riga, Latvia. DB&IS 2016 continued the DB&IS series of biennial conferences, which have been held in Trakai (1994), Tallinn (1996, 2002, 2008, 2014), Riga (1998, 2004, 2010), and Vilnius (2000, 2006, 2012).

During this period, the DB&IS conference has become an international forum for researchers and developers in the field of databases, information systems, and related areas. The conference features original research and application papers on the theory, design, and implementation of today's information systems on a set of themes and issues.

The volume of *Communications in Computer and Information Science* series by Springer marks a new step for the conference. Having the proceedings published by Springer has raised the bar for our authors and will contribute to our on-going aim of improving the quality of the event.

DB&IS 2016 was organized by the Faculty of Computing, University of Latvia. The international Program Committee had 56 representatives from 21 countries all over the world. This year, 62 submissions from 16 countries were received. At least three reviewers evaluated each conference paper applying the single-blind type of peer review. As a result, 25 papers were accepted as full papers for publication in the present volume. The conference program was extended with several good talks, and additional papers were accepted for publication by the *Baltic Journal of Modern Computing* (BJMC). The conference was also accompanied by a doctoral consortium.

The selected papers span a wide spectrum of topics related to the development of information systems and data processing. The first significant topic covered is the development of ontology applications. The contributions address research on ontology visualization, ad hoc querying using controlled natural language, data mapping from one representation to another, as well as creating and exploiting concept maps in teaching and learning. The second topic is traditional for the DB&IS conferences — tools, technologies, and languages for model-driven development. There are papers that describe different kinds of models, metamodels, model transformations, tools for model-driven development, and business process modeling. The third group of papers addresses issues related to decision support systems and data mining, starting from specific novel techniques and finishing with domain-oriented systems that discover knowledge and improve human life. Natural language processing and building linguistic components for information systems are a rapidly developing research area promising to lead to excellent practical outcomes. This volume includes papers that deal with natural language processing and propose different usage of results. The other papers are related to advanced systems and technologies such as self-management of IS, the semantic-driven design of IS, human–computer interaction, improvement of IS performance, automatic usability evaluation, model-driven testing of real-time

distributed systems, development of adaptive e-learning systems, and knowledge management performance measurement.

We would like to express our warmest thanks to all authors who contributed to the 12th International Baltic Conference on Databases and Information Systems 2016. Our special thanks to the invited speakers, Prof. Andris Ambainis, Prof. Gintautas Dzemyda, and Prof. Jaak Vilo, for sharing their knowledge. We are very grateful to the members of the international Program Committee and additional referees for their reviews and comments. We are grateful to the presenters, session chairs, and conference participants for their time and effort that made the DB&IS 2016 success. We also wish to express our thanks to the conference organizing team, the University of Latvia, Exigen Services Latvia, the IEEE, the IEEE Latvia Section, and other supporters for their contribution and making the event possible. Last, but not least, we would like to thank Springer for their excellent cooperation during the publication of this volume.

July 2016

Vineta Arnicane
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