

Preface

This volume contains the papers presented at the 27th International Conference on Database and Expert Systems Applications (DEXA 2016), which was held in Porto, Portugal, during September 5–8, 2016. On behalf of the Program Committee, we commend these papers to you and hope you find them useful.

Database, information, and knowledge systems have always been a core subject of computer science. The ever-increasing need to distribute, exchange, and integrate data, information, and knowledge has added further importance to this subject. Advances in the field will help facilitate new avenues of communication, to proliferate interdisciplinary discovery, and to drive innovation and commercial opportunity.

DEXA is an international conference series which showcases state-of-the-art research activities in database, information, and knowledge systems. The conference and its associated workshops provide a premier annual forum to present original research results and to examine advanced applications in the field. The goal is to bring together developers, scientists, and users to extensively discuss requirements, challenges, and solutions in database, information, and knowledge systems.

DEXA 2016 solicited original contributions dealing with any aspect of database, information, and knowledge systems. Suggested topics included but were not limited to:

- Acquisition, Modeling, Management and Processing of Knowledge
- Authenticity, Privacy, Security, and Trust
- Availability, Reliability and Fault Tolerance
- Big Data Management and Analytics
- Consistency, Integrity, Quality of Data
- Constraint Modeling and Processing
- Cloud Computing and Database-as-a-Service
- Database Federation and Integration, Interoperability, Multi-Databases
- Data and Information Networks
- Data and Information Semantics
- Data Integration, Metadata Management, and Interoperability
- Data Structures and Data Management Algorithms
- Database and Information System Architecture and Performance
- Data Streams, and Sensor Data
- Data Warehousing
- Decision Support Systems and Their Applications
- Dependability, Reliability and Fault Tolerance
- Digital Libraries, and Multimedia Databases
- Distributed, Parallel, P2P, Grid, and Cloud Databases
- Graph Databases
- Incomplete and Uncertain Data
- Information Retrieval

- Information and Database Systems and Their Applications
- Mobile, Pervasive, and Ubiquitous Data
- Modeling, Automation and Optimization of Processes
- NoSQL and NewSQL Databases
- Object, Object-Relational, and Deductive Databases
- Provenance of Data and Information
- Semantic Web and Ontologies
- Social Networks, Social Web, Graph, and Personal Information Management
- Statistical and Scientific Databases
- Temporal, Spatial, and High-Dimensional Databases
- Query Processing and Transaction Management
- User Interfaces to Databases and Information Systems
- Visual Data Analytics, Data Mining, and Knowledge Discovery
- WWW and Databases, Web Services
- Workflow Management and Databases
- XML and Semi-structured Data

Following the call for papers, which yielded 137 submissions, there was a rigorous review process that saw each paper reviewed by three to five international experts. The 39 papers judged best by the Program Committee were accepted for long presentation. A further 29 papers were accepted for short presentation.

As is the tradition of DEXA, all accepted papers are published by Springer. Authors of selected papers presented at the conference were invited to submit extended versions of their papers for publication in the Springer journal *Transactions on Large-Scale Data- and Knowledge-Centered Systems (TLDKS)*.

We wish to thank all authors who submitted papers and all conference participants for the fruitful discussions. We are grateful to Bruno Buchberger and Gottfried Vossen, who accepted to present keynote talks at the conference.

The success of DEXA 2016 is a result of the collegial teamwork from many individuals. We like to thank the members of the Program Committee and external reviewers for their timely expertise in carefully reviewing the submissions. We are grateful to our general chairs, Abdelkader Hameurlain, Fernando Lopes, and Roland R. Wagner, to our publication chair, Vladimir Marik, and to our workshop chairs, A Min Tjoa, Zita Vale, and Roland R. Wagner.

We wish to express our deep appreciation to Gabriela Wagner of the DEXA conference organization office. Without her outstanding work and excellent support, this volume would not have seen the light of day.

Finally, we would like to thank GECAD (Research Group on Intelligent Engineering and Computing for Advanced Innovation and Development) at ISEP (Instituto Superior de Engenharia do Porto) for being our hosts for the wonderful days in Porto.

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