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Database and Expert Systems Applications

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Preface

This volume contains the papers presented at the 29th International Conference on Database and Expert Systems Applications (DEXA 2018), which was held in Regensburg, Germany, during September 3–6, 2018. 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 that 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 2018 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 160 submissions, there was a rigorous review process that saw each submission refereed by three to six international experts. The 35 submissions judged best by the Program Committee were accepted as full research papers, yielding an acceptance rate of 22%. A further 40 submissions were accepted as short research papers.

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 substantially extended versions of their conference papers for publication in the Springer journal *Transactions on Large-Scale Data- and Knowledge-Centered Systems (TLDKS)*. The submitted extended versions underwent a further review process.

The success of DEXA 2018 was the result of collegial teamwork from many individuals. We wish to thank all authors who submitted papers and all conference participants for the fruitful discussions.

We are grateful to Xiaofang Zhou (The University of Queensland) for his keynote talk on "Spatial Trajectory Analytics: Past, Present, and Future" and to Tok Wang Ling (National University of Singapore) for his keynote talk on "Data Models Revisited: Improving the Quality of Database Schema Design, Integration and Keyword Search with ORA-Semantics."

This edition of DEXA also featured three international workshops covering a variety of specialized topics:

- BDMICS 2018: Third International Workshop on Big Data Management in Cloud Systems
- BIOKDD 2018: 9th International Workshop on Biological Knowledge Discovery from Data
- TIR 2018: 15th International Workshop on Technologies for Information Retrieval

We would like to thank the members of the Program Committee and the external reviewers for their timely expertise in carefully reviewing the submissions. We are grateful to our general chairs, Abdelkader Hameurlain, Günther Pernul, and

Roland R. Wagner, to our publication chair, Vladimir Marik, and to our workshop chairs, A Min Tjoa 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 like to thank Günther Pernul and his team for being our hosts during the wonderful days in Regensburg.

July 2018

Sven Hartmann
Hui Ma

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