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# New Trends in Database and Information Systems

ADBIS 2022 Short Papers, Doctoral Consortium and Workshops:  
DOING, K-GALS, MADEISD, MegaData, SWODCH, Turin, Italy  
September 5–8, 2022, Proceedings

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# Preface

This year ADBIS – the Conference on Advances in Databases and Information Systems – celebrated its 26th anniversary.

The first ADBIS conference was held in Saint Petersburg, Russia (1997). Since then, ADBIS has taken place annually, with previous editions were held in: Poznan, Poland (1998); Maribor, Slovenia (1999); Prague, Czech Republic (2000); Vilnius, Lithuania (2001); Bratislava, Slovakia (2002); Dresden, Germany (2003); Budapest, Hungary (2004); Tallinn, Estonia (2005); Thessaloniki, Greece (2006); Varna, Bulgaria (2007); Pori, Finland (2008); Riga, Latvia (2009); Novi Sad, Serbia (2010); Vienna, Austria (2011); Poznan, Poland (2012); Genoa, Italy (2013); Ohrid, North Macedonia (2014); Poitiers, France (2015); Prague, Czech Republic (2016); Nicosia, Cyprus (2017); Budapest, Hungary (2018); Bled, Slovenia (2019); Lyon, France (2020); and Tartu, Estonia (2021).

The official ADBIS portal – <http://adbis.eu> – provides up to date information on all ADBIS conferences, committees, publications, and issues related to the ADBIS community.

The 26th ADBIS was held in Turin, Italy, during September 5–8, 2022, as a hybrid event. It received significant attention from both the research and industrial communities, as 90 papers were submitted to the conference. The papers were reviewed by an international Program Committee consisting of 85 members. The Program Committee selected 28 short papers from the main ADBIS conference, an acceptance rate of 42%, for inclusion in this volume. These papers cover the following topics: data modeling and visualization, data processing (fairness, cleaning, pre-processing), information and process retrieval, data access optimization, graph data, data science, and machine learning.

Additionally, this volume includes papers accepted at the five workshops and Doctoral Consortium, which accompanied ADBIS 2022. Each workshop had its own international Program Committee, whose members served as the reviewers of papers included in this volume. The maximum paper acceptance rate at each of these events did not exceed 50%. In total, 53 papers were submitted to these workshops, out of which 26 were selected for presentation and publication in this volume, giving an overall acceptance rate of 49%.

The following five workshops were run at ADBIS 2022:

DOING: 3rd Workshop on Intelligent Data – From Data to Knowledge, chaired by Mirian Halfeld-Ferrari (Université d’Orléans, France) and Carmem S. Hara (Universidade Federal do Parana, Brazil). The idea underlying DOING is to gather researchers in natural language processing, databases, and artificial intelligence to discuss two main problems: (1) how to extract information from textual data and represent it in knowledge bases, and (2) how to propose intelligent methods for handling and maintaining these databases with new forms of requests, including efficient, flexible, and secure analysis mechanisms, adapted to the user, and with quality and privacy preservation guarantees.

**K-GALS: 1st Workshop on Knowledge Graphs Analysis on a Large Scale**, chaired by Mariella Bonomo (University of Palermo, Italy) and Simona E. Rombo (University of Palermo, Italy). The goal of K-GALS is to provide participants with the opportunity to introduce and discuss new methods, theoretical approaches, algorithms, and software tools that are relevant to the knowledge graphs based research, especially when it is focused on a large scale. Relevant issues include how knowledge graphs can be used to represent knowledge, how systems managing knowledge graphs work, and which applications can be provided on top of a knowledge graphs, in a distributed environment.

**MADEISD: 4th Workshop on Modern Approaches in Data Engineering and Information System Design**, chaired by Ivan Luković (University of Belgrade, Serbia), Slavica Kordić (University of Novi Sad, Serbia), and Sonja Ristić (University of Novi Sad, Serbia). The main goal of MADEISD is to address open questions and real potentials for various applications of modern approaches and technologies in data engineering and information system design so as to develop and implement effective software services in support of information management in various organization systems.

**MegaData: 2nd Workshop on Advanced Data Systems Management, Engineering, and Analytics**, chaired by Feras M. Awaysheh (University of Tartu, Estonia), Fahed Alkhabbas (Malmö University, Sweden), and Said Alawadi (Uppsala University, Sweden). MegaData aims to report on the advances and trends in database deployment models and environments from both the infrastructure and application levels. This year, questions related to how to develop data as the foundation for advanced databases and information systems and what the next generation of data systems will look like led the discussion on the latest trends in modern data systems.

**SWODCH: 2nd Workshop on Semantic Web and Ontology Design for Cultural Heritage**, chaired by Antonis Bikakis (University College London, UK), Roberta Ferrario (ISTC-CNR, Italy), Stéphane Jean (University of Poitiers and ISAE-ENSMA, France), Béatrice Markhoff (University of Tours, France), Alessandro Mosca (Free University of Bozen-Bolzano, Italy), and Marianna Nicolosi Asmundo (University of Catania, Italy). The foundational purpose of SWODCH is to gather original research work about both application and foundational issues emerging from the design of conceptual models, ontologies, and Semantic Web technologies for the digital humanities, here understood according to its broader definition including cultural heritage, digital history, archaeology, and related fields. The application-oriented focus of SWODCH, on the other hand, aims at bringing together stakeholders from various scientific fields involved in the development or deployment of Semantic Web solutions, including computer scientists, data scientists, and digital humanists.

The ADBIS 2022 Doctoral Consortium (DC) provided a forum for PhD students to present their research projects to the scientific community. DC papers describe the status of PhD students' research, a comparison with relevant related work, their results, and plans on how to experiment, validate and consolidate their contribution. Through the Doctoral Consortium, PhD students receive feedback from a selected group of mentors about potential opportunities and perspectives and suggestions to pursue their work. The PhD Consortium allows PhD students to establish international collaborations with members and participants of the ADBIS community.

The 2022 edition of the ADBIS DC included seven papers accepted after a very selective peer-review process, which are published in this volume. Additionally, the ADBIS 2022 DC program included a panel about strategies for preparing for post-PhD life with professionals with accomplished careers in academia, industry, and entrepreneurship.

The ADBIS 2022 Organizing Committee supported diversity and inclusion by offering some grants, supporting a few researchers to participate in the conference and become part of the ADBIS community. All the grants were assigned based on the underrepresented community, gender, and role/position. The grants include:

- two free regular registrations, assigned to researchers from Argentina and Brazil,
- three regular registration fee discounts of 200 Euros, assigned to researchers from Estonia, Lebanon, and Italy, and
- four regular registration fee discounts of 150 Euros, assigned to researchers from Croatia, France, and Italy.

We would like to wholeheartedly thank all participants, authors, PC members, workshop organizers, session chairs, doctoral consortium chairs, workshop chairs, volunteers, and co-organizers for their contributions in making ADBIS 2022 a great success. We would also like to thank the ADBIS Steering Committee and all sponsors.

July 2022

Silvia Chiusano  
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