

# EDBT/ICDT-WS 2021

## The Workshops of the EDBT/ICDT 2021 Joint Conference

March 27, 2021

### Message from the Chairs

It is our great pleasure to present on behalf of the entire conference organizing committee and the workshop organizers, the proceedings of the Workshops co-located with the 24th International Conference on Extending Database Technology (EDBT) and the 24th International Conference on Database Theory (ICDT), held on March 23, 2021 Nicosia, Cyprus. The EDBT/ICDT 2021 joint conference and all of its workshops took place fully online due to the global COVID-19 pandemic.

The EDBT and ICDT series of conferences are prestigious forums for exchanging novel results that extend the foundations and applications of data management technologies. Starting this year, EDBT/ICDT participates in an effort to promote diversity and inclusion in all aspects of professional activities. This year, five exciting workshops continue the tradition of focusing on emerging topics in data management, complementing the areas covered by the main technical program.

We thank the workshop organizers, PC members and external reviewers for their effort in organizing these workshops, and the authors for continuing to submit their high-quality work to the EDBT/ICDT workshops making the workshops possible.

Sincerely,  
Evaggelia Pitoura, Workshops Chair  
Constantinos Costa, Workshops Proceedings Chair

## Workshops

### **BigVis 2021: 4th International Workshop on Big Data Visual Exploration and Analytics**

Information Visualization is nowadays one of the cornerstones of Data Science, turning the abundance of Big Data being produced through modern systems into actionable knowledge. The BigVis workshop focuses on a broad spectrum of data exploration, visualization and analytics issues, from traditional ones, such as efficient data storage, querying & indexing for enabling visual analytics, to new ways for visual presentation of massive data, efficient interaction and personalization techniques that can fit to different user needs.

BigVis 2021 attracted international participation from academia and industry: Ten research papers were submitted, four regular and two short papers were selected for publication and for the first time, BigVis considered a Best Paper Award. We own our sincere gratitude to the 45 members of the Technical Program Committee who contributed in assembling such a high-quality program, working within a very tight schedule. The BigVis 2021 program included also two keynotes given by Georgia Koutrika (ATHENA Research Center, Greece) and Michael Sedlmair (University of Stuttgart, Germany) related to “intelligent data assistants” and “machine learning and visualization”, respectively.

#### **Organizing Committee:**

|                       |  |
|-----------------------|--|
| Nikos Bikakis         | ATHENA Research Center, Greece         |
| Panos K. Chrysanthis  | University of Pittsburgh, USA          |
| George Papastefanatos | ATHENA Research Center, Greece         |
| Tobias Schreck        | Graz University of Technology, Austria |

### Program Committee:

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| Natalia Andrienko          | Fraunhofer, Germany  |
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| Alexander Rind             | St. Pölten University of Applied Sciences, Austria         |
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| Hans-Jörg Schulz           | Aarhus University, Denmark                                 |
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| Kostas Stefanidis          | University of Tampere, Finland                             |
| Christian Tominski         | University of Rostock, Germany                             |
| Yannis Tzitzikas           | University of Crete & FORTH-ICS, Greece                    |
| Katerina Vrotsou           | Linköping University, Sweden                               |
| Chaoli Wang                | University of Notre Dame, USA                              |
| Junpeng Wang               | Visa Research  |
| Chen Wei                   | Zhejiang University, China                                 |
| Yingcai Wu                 | Zhejiang University, China                                 |
| Jiazhi Xia                 | Central South University, China                            |
| Panpan Xu                  | Bosch Research   |
| Hongfeng Yu                | University of Nebraska-Lincoln, USA                        |

## BMDA 2021: 4th International Workshop on Big Mobility Data Analytics

From spatial to spatio-temporal and, then, to mobility data. So, what's next? it is the rise of mobility-aware integrated Big Data analytics. The Big Mobility Data Analytics (BMDA) workshop, initiated in 2018 with EDBT Conference, aims at bringing together experts in the field from academia, industry and research labs to discuss the lessons they have learned over the years, to demonstrate what they have achieved so far, and to plan for the future of "mobility". In its 4th edition, BMDA workshop will foster the exchange of new ideas on multidisciplinary real-world problems, discuss proposals about innovative solutions, and identify emerging opportunities for further research in the area of big mobility data analytics, such as deep learning on mobility data, edge computing, visual analytics, etc.

Papers submitted to the workshop were reviewed by a Program Committee comprising 26 international experts in the field. Each paper received at least three reviews, based on which the final decision for acceptance was made by the 4 PC Chairs. The workshop received a total of 12 submissions. After the reviewing process, 6 regular papers, and 3 demo papers were accepted for presentation at the workshop.

### Organizing Committee:

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|--------------------|--|
| Cyril Ray          | Arts & Métiers Institute of Technology and Naval Academy, France |
| Chiara Renso       | ISTI - CNR Pisa, Italy   |
| Mahmoud Sakr       | Université Libre de Bruxelles, Belgium                           |
| Yannis Theodoridis | University of Piraeus, Greece                                    |

### Program Committee:

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| Nicolas Baskiotis         | Université Pierre et Marie Curie, France                 |
| Gianluca Bontempi         | Université Libre de Bruxelles, Belgium                   |
| Eva Chondrodima           | University of Piraeus, Greece                            |
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| Harris Georgiou           | University of Piraeus, Greece                            |
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| Amr Magdy                 | University of California, Riverside, USA                 |
| Vinicius Monteiro de Lira | ISTI-CNR Pisa, Italy                                     |
| Mirco Nanni               | ISTI-CNR Pisa, Italy                                     |
| Kostas Patroumpas         | IMSI, Athena Research Center, Greece                     |
| Nikos Pelekis             | University of Piraeus, Greece                            |
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| Robert Weibel             | University of Zurich, Switzerland                        |
| Karine Zeitouni           | University of Versailles-Saint-Quentin, France           |
| Dimitrios Zissis          | University of the Aegean, Greece                         |

## **DARLI-AP 2021: 5th International workshop on Data Analytics solutions for Real-Life Applications**

Information and Communication Technologies has made available a massive amount of heterogeneous data in various real application domains. Digging deep into these data collections can create a rich landscape of valuable insights to add intelligence to the targeted field and significantly impact business activities. In this process, the human plays a crucial role in generating data, driving a user and context-aware analysis process, and demanding accessible and understandable knowledge at the end of the process. Various application-driven challenges about data science arise dealing with the creation, storage, search, sharing, modeling, analysis, and visualization of data, information, and knowledge that need to be customized based on the critical application requirements.

DARLI-AP allows academics and practitioners from various research areas to share their experiences designing and developing cutting-edge analytics solutions for real-life applications. The DARLI-AP international program committee is composed of 15 experts working in data science and related domains. For the 2021 edition, 20 submitted papers were evaluated by at least two experts members of the program committee, leading to an acceptance rate of 55%.

### **Organizing Committee:**

|                       |                              |
|-----------------------|------------------------------|
| Tania Cerquitelli     | Politecnico di Torino, Italy |
| Silvia Chiusano       | Politecnico di Torino, Italy |
| Genoveva Vargas-Solar | CNRS, LIRIS-LAFMIA, France   |

### **Program Committee:**

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| Elena Daraio                 | Politecnico di Torino, Italy                           |
| Jérôme Darmont               | Université de Lyon, France                             |
| Javier Espinosa Oviedo       | Delft University of Technology, Germany                |
| Patrick Marcel               | University Francois Rabelais of Tours, France          |
| Sara Migliorini              | Università degli Studi di Verona, Italy                |
| Kjetil Norvag                | Norwegian University of Science and Technology, Norway |
| Eliana Pastor                | Politecnico di Torino, Italy                           |
| Elisa Quintarelli            | Politecnico di Milano, Italy                           |
| Simona Rombo                 | University of Palermo, Italy                           |
| Paolo Soda                   | Università Campus Bio-Medico di Roma, Italy            |
| Domenico Ursino              | Università Politecnica delle Marche, Italy             |
| Robert Wrembel               | Poznan University of Technology, Poland                |
| Jose Luis Zechinelli Martini | Universidad de las Américas, Mexico                    |

## **PIE+Q 2021: 3rd International Workshop on Processing Information Ethically, a plus for data Quality**

The Third International Workshop on Processing Information Ethically, a plus for data Quality (PIE+Q 2021) hosts papers on the conceptual and technological approaches for dealing with the ethical issues that arise in data management. While such demands are already broadly reflected into new codes of ethics and legally binding regulations, it is necessary to stress that ethical aspects are also strictly related to Data Quality; indeed, when ethically critical decisions are taken on the basis of data analysis, the fact that the analyzed dataset satisfies basic ethical requirements is needed to trust the outcome of the process. Therefore, it is our community's precise responsibility to acknowledge the need for the design of responsible information system within a data quality perspective and, as a consequence, to provide the technical means to take care of the ethical aspects of all the activities belonging to the so-called information life-cycle: source selection, knowledge extraction, data integration, and all the statistical, data mining and machine learning techniques that go under the broad category of data analysis.

We are indebted to the members of the program committee for their meticulous work in the selection process: Matteo Lissandrini (Aalborg University), Tommaso Teofili (Adobe Systems), Davide Martinenghi (Politecnico di Milano), Elisa Quintarelli (Università di Verona), H. V. Jagadish (University of Michigan), Rajesh Bordawekar (IBM), Ernest Teniente (Universitat Politècnica de Catalunya), and John Puentes (IMT Atlantique). Last, but not least, we would like to thank the authors who submitted their work to this workshop, the invited speakers H. V. Jagadish and Paolo Papotti, and all the participants who contributed to the success of the event.

### **Organizing Committee:**

|                   |                              |
|-------------------|------------------------------|
| Riccardo Torlone  | Roma Tre University, Italy   |
| Letizia Tanca     | Politecnico di Milano, Italy |
| Donatella Firmani | Roma Tre University, Italy   |
| Elena Nieddu      | Roma Tre University, Italy   |

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| Tommaso Teofili    | Adobe Systems                        |
| Davide Martinenghi | Politecnico di Milano                |
| Elisa Quintarelli  | Università di Verona                 |
| H. V. Jagadish     | University of Michigan               |
| Rajesh Bordawekar  | IBM                                  |
| Ernest Teniente    | Universitat Politècnica de Catalunya |
| John Puentes       | IMT Atlantique                       |

## **SIMPLIFY 2021: 1st International Workshop on Data Analytics and Machine Learning Made Simple**

Although there exists a plethora of techniques, algorithms and tools to manage, query and analyze various types of data, they typically require a high degree of data management skills and expertise, as well as significant time and effort for data preparation, parameter tuning and design and implementation of data analytics and machine learning pipelines. The aim of the SIMPLIFY workshop is to bring together computer scientists with interests in this topic to present recent innovations and to stimulate further development of new approaches that greatly simplify the work of a data analyst when performing data analytics, or when employing machine learning algorithms, over Big Data.

Papers submitted to the workshop were reviewed by a Program Committee comprising 22 international experts in the field. Each paper received at least two reviews, based on which the final decision for acceptance was made by the 3 PC Chairs. The workshop received a total of 12 submissions. After the reviewing process, 6 regular papers, 4 short papers, and 1 demo paper were accepted for presentation at the workshop.

### **Organizing Committee:**

|                        |  |
|------------------------|--|
| Antonios Deligiannakis | Technical University of Crete, Greece                  |
| Manolis Koubarakis     | National and Kapodistrian University of Athens, Greece |
| Dimitris Skoutas       | Athena Research Center, Greece                         |

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| Konstantina Bereta    | National and Kapodistrian University of Athens |
| Daniele Bonetta       | Oracle Labs                                    |
| Bikash Chandra        | Ecole Polytechnique Fédérale de Lausanne       |
| Nikos Giatrakos       | Athena Research Center                         |
| Damien Graux          | ADAPT Centre and Trinity College Dublin        |
| Asterios Katsifodimos | Delft University of Technology                 |
| Georgia Koutrika      | Athena Research Center                         |
| Matteo Lissandrini    | Aalborg University                             |
| Davide Mottin         | Aarhus University                              |
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