Message from the Chairs

On behalf of the entire conference organizing committee and the workshop organizers we are delighted to present the proceedings of the Workshops of the EDBT/ICDT 2018 Joint Conference, held on March 26, 2018, in Vienna, Austria.

The International Conference on Extending Database Technology (EDBT) and the International Conference on Database Theory (ICDT) are two prestigious forums for the exchange of the latest research results in data management and the theoretical foundations of database systems. While having the same overarching goal of presenting cutting-edge results, ideas, techniques, and theoretical advances in databases, the workshops of the EDBT/ICDT joint conference are separately tasked by focusing on emerging topics, complementing the areas covered by the main technical program.

This volume covers the *International Workshop on Data Analytics Solutions for Real-Life Applications (DARLI-AP)*, the *International Workshop on Big Data Visual Exploration and Analytics (BigVis)*, and the workshop *Big Mobility Data Analytics (BMDA)*. The proceedings of the workshop *Design, Optimization, Languages and Analytical Processing of Big Data (DOLAP)*, which was co-located with EDBT/ICDT 2018 as well, are published in a separate volume [1].

Data Analytics Solutions for Real-Life Applications (DARLI-AP) DARLI-AP aims at promoting and sharing research and innovation on data analytics solutions/strategies for real-life and cutting-edge applications. The use of Information and Communication Technologies has made a huge amount of heterogeneous data available in various real application domains (e.g., smart cities, health care systems, financial applications, banking and insurance, Industry 4.0). A data scientist is required to tackle the no-trivial task of selecting the best techniques to effectively and efficiently deal with issues related to storage, search, sharing, modeling, analysis, and visualization of data, information, and knowledge. The complexity of the task increases with variable data distributions, data heterogeneity, and data volume. Furthermore, a rich spectrum of knowledge can be extracted from the data to characterize user behaviors, improve the quality of provided services, or even devise new ones, thus increasing the benefits of real-life applications.

DARLI-AP allows academics and practitioners from various research areas to share their experiences on designing cutting-edge analytics solutions for real-life applications. Researchers are encouraged to present their work-in-progress research activity describing innovative methodologies, algorithms, or platforms addressing all facets of the data analytics process. Also industrial implementations of data analytics applications as well as design and deployment experience reports are welcome.

Big Data Visual Exploration and Analytics (BigVis) One of the major challenges of the Big Data era is the availability of a great amount and variety of massive datasets to be analyzed by non-corporate data analysts such as research scientists, data journalists, policy makers, SMEs, and individuals. A major characteristic of these datasets is that they are: accessible in a raw format that is not being loaded or indexed in a database (e.g., plain text files, json, rdf), dynamic, dirty, and heterogeneous in nature. Data-curious users who would like to access and analyze these datasets face great challenges that are even more burdensome for the increasing number of non-expert users. The purpose of visual data exploration is to facilitate information perception and manipulation, knowledge extraction, and inference by non-expert users. In the Big Data era, several

challenges arise in the field of data visualization and analytics. First, modern exploration and visualization systems should offer scalable data management techniques in order to efficiently handle billion objects datasets, limiting the system response to a few milliseconds. Besides, systems must address the challenge of on-the-fly scalable visualizations over large and dynamic sets of volatile raw data, offering efficient interactive exploration techniques, as well as mechanisms for information abstraction, sampling, and summarization for addressing problems related to information over-plotting. Further, they must encourage user comprehension offering customization capabilities to different user-defined exploration scenarios and preferences according to the analysis needs. Overall, the challenge is to enable users to gain value and insights out of the data as rapidly as possible, minimizing the role of IT-experts in the loop.

The BigVis workshop aims at addressing the above challenges and issues by providing a forum for researchers and practitioners to discuss, exchange, and disseminate their work. BigVis addresses the research areas of Data Management and Mining, Information Visualization, and Human-Computer Interaction, and encourages novel works that establish ties between these communities.

Big Mobility Data Analytics (BMDA)   Nowadays, we have the means to collect, store, and process mobility data of an unprecedented quantity, quality, and timeliness. This is mainly due to the wide spread of GPS-equipped devices, including new generation smartphones. As ubiquitous computing pervades our society, mobility represents a very useful source of information. Movement traces, especially when combined with societal data, can aid transportation engineers, urban planners, and eco-scientists towards decision making in a wide spectrum of applications, such as traffic engineering and risk management.

The objective of BMDA is to bring together researchers and practitioners interested in scalable data-intensive applications that manage and analyze big mobility data. The workshop fosters the exchange of new ideas on multidisciplinary real-world problems, the discussion on proposals about innovative solutions, and the identification of emerging research opportunities in the area of big mobility data analytics. Thereby, all layers of the Big Data Value Analytics reference model are of interest, namely data management, data processing, data analytics, data visualization, and user interaction. BMDA intends to bridge the gap between researchers and big data stakeholders, including experts from critical domains, such as urban / maritime / aviation transportation or human complex networks. Most importantly it aims at unveiling real-world problems and depicting novel solutions in such domains that require innovative data analytics solutions.

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Nikolaus Augsten, *Workshop Chair*
Michael Böhlen, *EDBT Program Chair*
Benny Kimelfeld, *ICDT Program Chair*
Reinhard Pichler, *General Chair*

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References

[1] Il-Yeol Song, Alberto Abelló, Robert Wrembel: Proceedings of the 20th International Workshop on Design, Optimization, Languages and Analytical Processing of Big Data co-located with the EDBT/ICDT Joint Conference, Vienna, Austria, 2018. CEUR Workshop Proceedings, vol. 2062.