26th International Conference on Database Theory

ICDT 2023, March 28–31, 2023, Ioannina, Greece

Edited by

Floris Geerts

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Preface

The 26th International Conference on Database Theory (ICDT 2023) was held in Ioannina, Greece, from March 28 to March 31, 2021.

The Program Committee has selected 21 research papers out of 49 submissions for publication at the conference. It has further decided to give the Best Paper Award to *The I/O Complexity of Enumerating Subgraphs of Constant Sizes* by Shiyuan Deng, Francesco Silvestri and Yufei Tao, and the Best Newcomer Paper Award to *An Optimal Algorithm for Sliding Window Order Statistics* by Pavel Raykov. We congratulate the winners!

Apart from the 21 regular papers, these proceedings include invited papers associated with the (shared) EDBT/ICDT keynotes by Leonid Libkin (University of Edinburgh & ENS Paris) and Gonzalo Navarro (University of Chile), as well as the invited paper associated with the ICDT invited tutorial by Seshadhri Comandur (University of California).

A committee formed by Wang-Chiew Tan, Diego Figueira, and George Fletcher has decided to give the Test-of-Time Award for ICDT 2023 to the two ICDT 2013 papers *A Theory of Pricing Private Data* by Chao Li, Daniel Y. Li, Gerome Miklau and Dan Suciu, and *Querying Graph Databases with XPath* by Leonid Libkin, Wim Martens and Domagoj Vrgoč.

We would like to thank all people who contributed to the success of ICDT 2023, including the authors of all submitted papers, keynote and invited tutorial speakers, and, of course, all members of the Program Committee as well as the external reviewers, for the very substantial work that they have invested over the two submission cycles of ICDT 2023. Their commitment and sagacity were crucial to ensure that the final program of the conference satisfies the highest standards. We would also like to thank the ICDT Council members for their support on a wide variety of matters, and the local organizers of the EDBT/ICDT 2023 conference, led by General Chairs Nikos Mamoulis and Evaggelia Pitoura, for the great job they did in organizing the conference and co-located events. Finally, we wish to acknowledge Dagstuhl Publishing for their support with the publication of the proceedings in the LIPIcs (Leibniz International Proceedings in Informatics) series.

Floris Geerts and Brecht Vandevoort
March 2023

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The ICDT 2023 Test-of-Time Award

In 2013, the International Conference on Database Theory (ICDT) began awarding the ICDT Test-of-Time (ToT) award, with the goal of recognizing one paper, or a small number of papers, presented at earlier ICDT conferences that have best met the "test of time". In 2023, the award recognizes two papers selected from the proceedings of the ICDT 2013 conference that have had the highest impact in terms of research, methodology, conceptual contribution, or transfer to practice over the past decade. The award was presented during the EDBT/ICDT 2023 Joint Conference, March 28 – 31, 2023.

The 2023 ToT Committee consists of Wang-Chiew Tan, Diego Figueira, and George Fletcher. After careful consideration and soliciting external assessments, the committee has chosen the following contributions for the 2023 ICDT Test-of-Time Award:

A Theory of Pricing Private Data
Chao Li, Daniel Y. Li, Gerome Miklau and Dan Suciu

This paper presents a theoretical framework for monetizing private data which empowers individuals to control their data through financial means. In this framework, data owners are financially compensated for their loss of privacy where lower prices are assigned to noisier query answers. This framework adopts and extends prior techniques on data pricing and differential privacy. It is the first time an end-to-end perspective on data pricing, combining the problems of pricing and revenue allocation, was provided. This paper has widespread influence on research on data pricing both within and beyond the database community.

Querying Graph Databases with XPath
Leonid Libkin, Wim Martens and Domagoj Vrgoč

This paper presents a graph language called GXPath (short for Graph XPath) that strikes an interesting balance between expressiveness and complexity and is influential in the Graph Query Language (GQL) standard. GXPath permits expressive queries that can be efficiently evaluated and has a strong influence on GQL as well as SQL/PGQ (for querying graph databases in SQL) which are currently being finalized in the same ISO committee that maintains the SQL Standard. This paper showcases how theoretical work can be directly influential in industry and academic community consensus building around the upcoming Graph Query Language (GQL) standard.

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The ICDT Test-of-Time Award Committee for 2023

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