

Editor's Notes

Welcome to the June 2021 issue of the ACM SIGMOD Record!

This issue starts with the Database Principles column featuring an article by Doleschal, Kimelfeld, and Martens. The article starts with an observation that information extraction can be viewed as a process in which relational operators are applied to relations extracted from text. Given this conceptual connection between relational databases and information extraction, the main question addressed in the article is whether principles of relational data management can be leveraged in text analytics. The authors examine this and related questions through the lens of document spanners, a framework that has been established to build the foundations of relational principles in information extraction. Formally in this framework, a document is a string d over a finite alphabet, a span of d represents a substring of d by its start and end positions, and a spanner is a function that maps every document d into a relation over the spans of d . The article presents an overview of recent research efforts in this area, including query evaluation and complexity analysis, aggregate queries, provenance, and parallel correctness. The authors also provide pointers to work in related areas and describe open directions of further research.

The Surveys column features an article by Doulkeridis, Vlachou, Pelekis, and Theodoridis that provides an overview of state-of-the-art big-data processing frameworks and techniques for data of interest in mobility analytics, that is, for spatial, spatio-temporal, and trajectory data. The need for mobility analytics gives rise to research and practical challenges in many domains, including urban contexts, air-traffic management, and marine applications. The authors survey prototype systems and frameworks that represent key building blocks for applications that involve mobility analytics. The article presents overviews of storage techniques and of spatial and spatio-temporal parallel processing frameworks. The presentation of individual systems is coupled with explanations of prominent underlying methods for partitioning, indexing, and query processing, thus serving as a guide for further research in the area. The authors conclude with a discussion of challenging open problems in the field of mobility analytics.

It is a pleasure to introduce two new SIGMOD Record columns, Advice to Mid-Career Researchers and DBrainstorming. The former column opens with an introduction by the column editor Tamer Özsu. The first article featured in the column is by Patrick Valduriez; it discusses challenges and presents experience-based hints for researchers who have successfully completed the junior stage of their career and are looking at the next step. The author invites the reader to examine why they want to do (or keep doing) research, describes the challenge of shifting from being “woodcutter” to becoming “forester,” examines approaches to coming up with research projects and to cultivating collaborations, and shares many other ideas and insights with mid-career researchers. As part of the bigger picture, the article will also be of interest to mentors of mid-career researchers, to junior faculty, as well as to graduate students and to those undergraduate students who are thinking about research-oriented careers.

The goal of the second new SIGMOD Record column, DBrainstorming, is to discuss new and potentially controversial ideas that might be of interest and potentially of benefit to the research community. The column series opens with an article by Manos Athanassoulis on transparent data transformations; the article explores what would happen if there were a way to decouple physical data layout from data-access performance. The ideas explored in the article culminate in calls for collaboration between the data-management community and researchers in other disciplines, including programming languages and software engineering.

The Distinguished Profiles column features two articles. The first article is an interview with Sourav Bhowmick, professor at Nanyang Technological University in Singapore (NTU), ACM Distinguished Member, recipient of the VLDB Service Award and of a Lecturer of the Year Award from NTU, and a member of the initiative on Diversity and Inclusion in Database Conference Venues. Sourav's Ph.D. is from NTU. In this interview, he talks about the areas of research in which he has been working, including the unusual and fascinating area of human-data interaction. Sourav explains the importance of detecting conflicts of interest in database-conference venues, which can be viewed as a data-cleaning problem, and shares his thoughts and experience in addressing major challenges in this area. He speaks about contributions of his own visual art to humanitarian causes, shares thoughts on parallels between creating art and creating science, and shares ideas of interest to fledgling and mid-career database researchers. The second interview in the column is with Viktor Leis, who won the 2018 ACM SIGMOD Jim Gray Dissertation Award for his thesis entitled Query Processing and optimization in Modern Database Systems. Viktor is now at the University of Erlangen-Nuremberg; his Ph.D. is from the Technical University of Munich. In the interview, Viktor talks about his thesis, how it has advanced the state of the art, and what impact it has had in industry. He reminisces on his Ph.D. time and provides advice for graduate students.

The Reports column features an article by Dosso, Ferilli, Manghi, Poggi, Serra, and Silvello. The authors report on the outcomes of the Italian Research Conference on Digital Libraries (IRCDL), which took place online in February 2021, with 145 participants in attendance. The focus of the conference this year was on bridging the field of research and information science with the related field of digital libraries. The article summarizes the keynote by Prof. Carole Goble and overviews the papers presented in six thematic sessions, as well as the panel organized to discuss the future of Digital Libraries. The conference materials are available online; in addition, the authors point the readers to the next IRCDL conference, which is to be held in Italy in 2022.

On behalf of the SIGMOD Record Editorial board, I hope that you enjoy reading the June 2021 issue of the SIGMOD Record!

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Rada Chirkova

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