Guest Editor's Notes

Welcome to the March 2019 issue of the ACM SIGMOD Record!

The new year of 2019 begins with a special issue on the **2018 ACM SIGMOD Research Highlight Award**. This is an award for the database community to showcase a set of research projects that exemplify core database research. In particular, these projects address an important problem, represent a definitive milestone in solving the problem, and have the potential of significant impact. This award also aims to make the selected works widely known in the database community, to our industry partners, and to the broader ACM community.

The award committee and editorial board included Yanlei Diao, Zack Ives, Wim Martens, Jun Yang, and Divesh Srivastava. We solicited articles from PODS 2018, SIGMOD 2018, VLDB 2018, ICDE 2018, EDBT 2018, and ICDT 2018, as well as from community nominations. Through a careful review process nine articles were finally selected as 2018 Research Highlights. The authors of each article worked closely with an associate editor to rewrite the article into a compact 8-page format, and improved it to appeal to the broad data management community. In addition, each research highlight is accompanied by a one-page technical perspective written by our associate editor or an external expert on the topic presented in the article. The technical perspective provides the reader with an overview of the background, the motivation, and the key innovation of the featured research highlight, as well as its scientific and practical significance.

The 2018 research highlights cover a broad set of topics, including (a) a combination of applied and theoretical research to understand why regular path queries in graph database applications behave better than worst-case complexity results suggest ("Bridging Theory and Practice with Query Log Analysis"); (b) a novel programming framework and system for systemizing the implementation of privacy algorithms. ("ektelo: A Framework for Defining Differentially-Private Computations"); (c) a principled approach to learn and reason about the entity matching classification task over a vector of similarity scores ("Entity Matching with Quality and Error Guarantees"); (d) a rigorous demonstration that theoretical ideas for enumerating the answers to a query can actually work in practice and deal with updates to the data ("Efficient Query Processing for Dynamically Changing Datasets"); (e) an innovative use of database techniques for scalable processing of massive datasets to solve the general problem of signal reconstruction ("Efficient Signal Reconstruction for a Broad Range of Applications"); (f) modeling the interaction between humans and data systems to satisfy the user's information need as a cooperative two-player game, where the strategy to play this game is learned through reinforcement learning ("How Do Humans and Data Systems Establish a Common Query Language?"); (g) a first study of the expressive power of linear algebra, used in machine learning algorithms, and how it relates to that of the relational algebra ("MATLANG: Matrix operations and their expressive power"); (h) the first algorithms for random sampling from data streams in the time decay model ("Online Model Management via Temporally Biased Sampling"); and (i) a new succinct data structure that can filter for point queries, range queries, and approximate counts efficiently while balancing the various hardware and workload trade-offs ("Succinct Range Filters").

On behalf of the SIGMOD Record Editorial Board, I hope that you enjoy reading the March 2019 issue of the SIGMOD Record!

Divesh Srivastava

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