Advances in Database Technology — EDBT 2018

21st International Conference
on Extending Database Technology
Vienna, Austria, March 26–29, 2018
Proceedings

Editors

Michael Böhlen
Reinhard Pichler
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Series ISSN: 2367-2005

Editors

Michael Böhlen, University of Zürich, Switzerland
Reinhard Pichler, TU Wien, Austria
Norman May, SAP Research, Germany
Erhard Rahm, University of Leipzig, Germany
Shan-Hung Wu, National Tsing Hua University, Taiwan
Katja Hose, Aalborg University, Denmark

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OpenProceedings ISBN: 978-3-89318-078-3

DOI of this front matter: 10.5441/002/edbt.2018.01

Foreword

The International Conference on Extending Database Technology (EDBT) is a leading international forum for database researchers, developers, and users to present and discuss cutting-edge ideas, and to exchange techniques, tools, and experiences related to data management. Data management is an essential enabling technology for scientific, business, and social communities. It is driven by the requirements of applications across many scientific, business and social communities, and runs on diverse technical platforms associated with the web, enterprises, clouds and mobile devices. The database community has a continuing tradition of contributing with models, algorithms and architectures to the set of tools and applications that enable day-to-day functioning of our societies. Faced with the broad challenges of today's applications, data management technology constantly broadens its reach, exploiting new hardware and software to achieve innovative results.

EDBT 2018 solicited submissions of original research contributions, descriptions of industrial solutions and applications, and proposals for tutorials and software demonstrations. We encouraged submissions of research papers related to all aspects of data management. In addition to regular research paper submissions, EDBT 2018 again encouraged the submission of short research papers, which includes visionary papers that provide a forum for the identification and discussion of new or emerging areas, innovative or risky approaches, or emerging applications that require extensions of established techniques. Short papers are presented as posters at plenary poster sessions of the conference. This provides an excellent opportunity to describe significant work in progress or research that is best communicated interactively and fosters discussions.

The program committees of EDBT accepted 35 out of 142 submitted regular research papers, resulting in an acceptance rate of 24.6% for the research track; 23 out of 84 submitted short research papers, resulting in an acceptance rate of 27.4% for short research papers; 16 out of 37 demos, resulting in an acceptance rate of 43.2% for the demonstration track; and 10 out of 28 industrial and application papers, resulting in an acceptance rate of 35.7% for industrial and application papers. The papers will be presented in twelve research paper sessions, three industrial and application sessions, as well as two plenary poster and demonstration sessions. The program additionally features four workshops, one of which is the well-established DOLAP workshop that has successfully been co-located with EDBT since many years. Finally, the conference program includes four tutorials and an EDBT and ICDT joint session on research challenges.

I would like to thank all authors for their contributions: a successful conference crucially depends on high-quality submissions. I also would like to thank all reviewers for serving on the EDBT 2018 program committee, in particular for the high quality and timely handling of all reviews and discussions. This community service requires a lot of work on a tight schedule, and is what makes our research community function and ensures the sustained impact of our research. Thanks to this effort we can look forward to an exciting program and attractive EDBT conference in Vienna from March 26-29, 2018.

A warm thanks to Norman Paton and Divesh Srivastava for serving on the Test-of-Time Award committee to select the paper from EDBT 2008 that has had the most lasting influence. The committee selected the paper Social ties and their relevance to churn in mobile telecom networks by Koustuv Dasgupta, Rahul Singh, Balaji Viswanathan, Dipanjan Chakraborty, Sougata Mukherjea, Amit A. Nanavati, and Anupam Josi for the test-of-time award.

Lei Chen, Wolfgang Lehner and Kian-Lee Tan generously accepted to serve on the Best Paper committee. As best paper, the committee selected the paper Temporally-Biased Sampling for Online Model Management by Brian Hentschel from Harvard University, Peter Haas from the University of Massachusetts Amherst, and Yuanyuan Tian from IBM Almaden Research Center. The EDBT best paper runner-up was awarded to the paper GeoAlign: Interpolating Aggregates over Unaligned Partitions by Jie Song from the University of Michigan, Danai Koutra from the University of Michigan, Murali Mani from the University of Michigan, Flint, and H. Jagadish from the University of Michigan. Congratulations to the awardees and a warm thanks to the committee members for their work.

The EDBT 2018 program is the result of the joint effort of many people who shared their experience and time to contribute to the EDBT 2018 program and make the conference a success. Norman May served as PC chair for industrial and application papers; Shan-Hung as PC chair for the demonstration track; Erhard Rahm as tutorial chair; Nikolaus Augsten as workshop chair; and Dan Olteanu as challenge session organizer. My warmest thank to all these people.

The general chair, Reinhard Pichler and the local organizers worked hard to make all necessary arrange¬ments for a successful event. Special thanks to Katja Hose, the proceedings chair; Dimitris Sacharidis, the sponsorship chair; and Shqiponja Ahmetaj, Markus Kröll, and Wolfgang Fischl, the website chairs, for tirelessly finding solutions for all our needs and making things happen. Norman Paton was most helpful in advising and coordinating with the EDBT Executive Board.

I hope that you find EDBT 2018 inspiring, informative, and enjoyable and look forward to meeting you in Vienna.

Michael Böhlen
EDBT 2018 Program Chair

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Test-of-Time Award

Since 2014, the Extended Database Technology (EDBT) Conference awards the EDBT test-of-time award, with the goal of recognizing papers presented at EDBT Conferences that have had the most impact in terms of research, methodology, conceptual contribution, or transfer to practice.
This year the award has been given to a paper from the EDBT 2008 Conference in Nantes, France. The award was bestowed upon the paper:

Social ties and their relevance to churn in mobile telecom networks

by Koustuv Dasgupta, Rahul Singh, Balaji Viswanathan, Dipanjan Chakraborty, Sougata Mukherjea, Amit A. Nanavati and Anupam Josi

published in the EDBT 2008 Proceedings, pp. 668–677, DOI: 10.1145/1353343.1353424.

This industry track paper reports on an analysis of mobile telecoms data, with a view to predicting which customers will leave. The analysis involves commercial mobile telephony data, in which nodes are customers and edges represent calls. The hypothesis tested is that it is possible to predict who will leave a network based on earlier departures among their connections. The main technique investigated is the use of spreading activation, to predict the heat of nodes based on the heat of connected notes. It is shown how the approach based on connections is more effective than classification techniques based on other properties of the nodes. As a result, the paper provides early and compelling experience on the combination an important real problem (churn in mobile telecom networks) with a powerful technique (social ties) and applies it on large real data (telecom operator network over 4 months). The approach has influenced many subsequent studies, for the same problem, but also for analyses involving different types of network and different hypotheses. Social network analysis continues as an important and active area ten years later, and this paper continues to be widely cited.

The EDBT 2018 Test-of-Time Award Committee consisted of Michael Böhlen, Divesh Srivastava and Norman Paton. The EDBT Test-of-Time award for 2018 will be presented during the EDBT/ICDT 2018 Conference, March 26–29, in Vienna, Austria (`http://edbticdt2018.at`).

Best Paper Award

The best paper award was bestowed upon the paper:

Temporally-Biased Sampling for Online Model Management

by Brian Hentschel from Harvard University, Peter Haas from the University of Massachusetts Amherst, and Yuanyuan Tian from the IBM Almaden Research Center. DOI: 10.5441/002/edbt.2018.11

The paper proposes a temporally-biased sampling method for a stream of batches that weighs recent data items more heavily. The inclusion probabilities of data items decay exponentially over time. The authors introduce a reservoir-based temporally-biased sampling method that asserts an upper bound on the sample size while keeping the decay of the sample predictable. The problem is well motivated and described, and the paper offers an excellent solution that is formalized precisely, is robust in the presence of evolving data, and has been implemented and evaluated for a distributed setting.

The best paper runner-up award was bestowed upon the paper:

GeoAlign: Interpolating Aggregates over Unaligned Partitions

by Jie Song from the University of Michigan, Danai Koutra from the University of Michigan, Murali Mani from the University of Michigan, Flint, and H. Jagadish from the University of Michigan. DOI: 10.5441/002/edbt.2018.32

This paper introduces a novel technique to integrate geographical summaries over unaligned geographical regions, e.g., counties and ZIP codes. While traditional techniques assume that the data in each region is uniformly distributed, the proposed approach infers the distribution based on other datasets. The proposed idea is novel, refreshing, and nicely motivated. The described solutions are practical, have been implemented and evaluated, and there is good potential for follow-up work.

The EDBT 2018 Best Paper Award Committee consisted of Michael Böhlen, Lei Chen, Wolfgang Lehner, and Kian-Lee Tan. The EDBT Best Paper Awards for 2018 will be presented during the EDBT/ICDT 2018 Conference, March 26-29, in Vienna, Austria (`http://edbticdt2018.at`).

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