Advances in Database Technology — EDBT 2017

20th International Conference
on Extending Database Technology
Venice, Italy, March 21–24, 2017
Proceedings

Editors

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Sebastian Breß

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Editors

Volker Markl, Technische Universität Berlin (TU Berlin), Germany
Salvatore Orlando, Ca' Foscari University of Venice (CFU), Italy
Bernhard Mitschang, Universität Stuttgart, Germany
Periklis Andritsos, University of Toronto, Canada
Kai-Uwe Sattler, TU Ilmenau, Germany
Sebastian Breß, German Research Center for Artificial Intelligence (DFKI), Germany

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Foreword

The International Conference on Extending Database Technology (EDBT) is a leading international forum for database researchers, practitioners, developers, and users to discuss cutting-edge ideas, and to exchange techniques, tools, and experiences related to data management. Data management is an essential enabling technology for scientific, engineering, business, and social communities. Data management technology is driven by the requirements of applications across many scientific and business 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 enabling 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 2017 solicited submissions of original research contributions, as well as descriptions of industrial and application achievements, and proposals for tutorials and software demonstrations. We encouraged submissions of research papers related to all aspects of data management defined broadly, and particularly encouraged work on topics of emerging interest in the research and development communities.

In addition to regular research paper submissions, EDBT 2017 solicited the submission of research papers that come within special topics of interest: "Vision", "Experiments and Analyses" and "Database Technology and Behavior, Security, Ethics, Rights and Duties of Citizens". These papers were reviewed by the same program committee as regular research papers. However, a dedicated co-chair for each special topic provided specific instructions to the reviewers of these papers and coordinated discussions, decisions, and meta-review formulation.

One innovation of EDBT 2017 is the solicitation of short papers, which are presented as posters at the plenary poster session of the conference. These short papers provide an opportunity to describe significant work in progress or research that is best communicated in an interactive or graphical format. In particular, these works contain smaller or more speculative ideas, controversial research topics, and new applications of old ideas or the reworking of previous studies. Short papers were reviewed by the research program committee in a second, independent call after the regular research paper submissions had been reviewed and decided.

The program committees of EDBT accepted 37 out of 168 submitted regular research papers, resulting in an acceptance rate of 22% for the research track; 22 out of 93 submitted short papers, resulting in an acceptance rate of 23.6% for short research papers; 18 out of 45 demos, resulting in an acceptance rate of 40% for the demonstration track; 9 out of 24 industrial and application papers, resulting in an acceptance rate of 37.5%, as well as 3 out of 8 tutorials, again resulting in an acceptance rate of 37.5%.

The papers will be presented in nine research paper sessions, four industrial and application sessions (one invited), two plenary poster sessions, and two demo sessions. In addition, the program features six workshops, one of which is dedicated to European Research projects with a focus on the Horizon 2020 program, four joint keynotes with the ICDT conference, three tutorials, and one panel on the special topic "Database Technology and Behavior, Security, Ethics, Rights and Duties of Citizens". I would like to thank all authors for their contributions, as a successful conference crucially relies on high-quality submissions. The submission numbers indicate a healthy EDBT community. I also would like to thank all co-chairs and reviewers for serving on the EDBT program committee, in particular for the timely handling of all reviews and discussions with a high degree of professionalism and very high review and discussion quality. This enabled us to notify authors with no or only very little delay despite several reviewing cycles and only one month of reviewing and discussion time. Even though these community service contributions require a lot of work on a tight schedule, they are what make our research community function and ensure the overall impact of research in our field.

I firmly believe that we can look forward to an interesting program and exciting conference on March 21–24, 2017, in Venice.

Volker Markl
EDBT 2017 Program Chair

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Test-of-Time Award

In 2014, the Extended Database Technology conference (EDBT) began awarding the EDBT test-of-time (ToT) award, with the goal of recognising papers presented at EDBT Conferences that have had the most impact in terms of research, methodology, conceptual contribution, or transfer to practice.
This year, covering the conferences from 1996 to 2002, the award has been given to:

Mining Sequential Patterns:
Generalizations and Performance Improvements.

by Ramakrishnan Srikant, Rakesh Agrawal

published in the EDBT 1996 proceedings, 3–17.

This paper has made substantial contributions to data mining, and has had great influence on the work of others, as reflected by over 2900 citations on Google Scholar.
The paper formalizes a new variant of the problem of mining *sequential* patterns and develops and implements GSP, an algorithm to solve this problem. This paper extends the definition of sequence mining that was introduced by the same authors in a previous publication: Mining Sequential Patterns. ICDE 1995. The goal is to discover all sequential patterns with a user-specified minimum support from a database of sequences, where each sequence is a list of transactions ordered by transaction-time, and each transaction is a set of items. The proposed extensions are:

1. Time constraints: the authors generalised their previous definition of sequential patterns to admit max-gap and min-gap time constraints between adjacent elements of a sequential pattern.

2. Sliding windows: the authors relaxed the restriction that all the items in an element of a sequential pattern must come from the same transaction, and allowed a user-specified window-size within which the items can be present.

3. Taxonomies: the sequential patterns may include items across different levels of a taxonomy.

GSP guarantees that all rules that have a user-specified minimum support. It is shown to be much faster than the AprioriAll algorithm in the previous publication (on both synthetic and real data). GSP has been implemented as part of the Quest data mining prototype at IBM Research, and is incorporated in the IBM data mining product.
The EDBT 2017 Test of Time Award Committee consisted of Peter Triantafillou, Gustavo Alonso, Sihem Amer-Yahia, Ralf Hartmut Güting and Volker Markl.
The EDBT ToT award for 2017 will be presented during the EDBT/ICDT 2017 Joint Conference, March 21–24, in Venice, Italy (http://edbticdt2017.unive.it/).

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