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Preface

SSTD 2011 was the 12th in a series of events that discuss new and exciting research in spatio-temporal data management and related technologies. Previous symposia were successfully held in Santa Barbara (1989), Zurich (1991), Singapore (1993), Portland (1995), Berlin (1997), Hong Kong (1999), Los Angeles (2001), Santorini, Greece (2003), Angra dos Reis, Brazil (2005), Boston (2007), and Aalborg, Denmark (2009). Before 2001, the series was devoted solely to spatial database management, and called SSD. From 2001, the scope was extended in order to also accommodate temporal database management, in part due to the increasing importance of research that considers spatial and temporal aspects jointly.

SSTD 2011 introduced several innovative aspects compared to previous events. In addition to the research paper track, the conference hosted a demonstrations track, and as a novelty, a vision and challenges track focusing on ideas that are likely to guide research in the near future and to challenge prevalent assumptions.

SSTD 2011 received 63 research submissions from 22 countries. A thorough review process led to the acceptance of 24 high-quality papers, geographically distributed as follows: USA 9, Germany 3, Greece 2, Canada 2, Switzerland 1, Norway 1, Republic of Korea 1, Japan 1, Italy 1, Hong Kong 1, Denmark 1, China 1. The papers are classified in the following categories, each corresponding to a conference session: (1) Moving Objects and Sensor Networks, (2) Temporal and Streaming Data, (3) Knowledge Discovery, (4) Spatial Networks, (5) Multidimensional Query Processing, (6) Access Methods.

This year's best paper award went to "FAST: A Generic Framework for Flash-Aware Spatial Trees." The paper presents a general technique for converting a traditional disk-oriented structure to an access method that works well on flash-memory devices. Applicable to several well-known structures (including the B- and R-trees), the technique aims at achieving two purposes simultaneously: (a) minimizing the update and query overhead, and (b) preventing the loss of data even in a system crash, thus ensuring data durability. The paper contains several novel ideas, which are of independent interests since they may also be useful in designing other flash-aware algorithms. In addition, the paper features a real system that implements the proposed technique and is demonstrated to have excellent performance in practice through extensive experiments. Besides the best paper, a few other high-quality research papers were selected and the authors were invited to submit extended versions of their work to a special issue of the *Geoinformatica* journal (Springer).

Although the previous symposium in the SSTD series (2009) also included a demonstrations track, submissions were evaluated alongside regular research papers by a single Program Committee. SSTD 2011, for the first time, appointed dedicated Co-chairs to organize an autonomous demonstrations track, who in

turn recruited a separate Program Committee comprising 9 members. The purpose of this track was to illustrate engaging systems that showcase underlying solid research and its applicability. The track received 16 submissions from a total of 51 authors or co-authors coming from Germany (21), USA (21), Canada (5), Italy (2), Switzerland (1), and France (1). The selection criteria for the demonstration proposals included novelty, technical advances, and overall practical attractiveness of the demonstrated system. Out of the 16 submissions, 8 were accepted and presented in a special session of the symposium. The best demonstration paper was recognized with “SSTD 2011’s Best Demo Award.”

Another novelty in SSTD 2011 was the vision and challenges track. The aim of this track was to describe revolutionary ideas that are likely to guide research in the near future, challenge prevalent assumptions in the research community, and identify novel applications and technology trends that create new research directions in the area of spatial and spatiotemporal databases. A separate 12-member Program Committee was formed for this track (coordinated by the same Co-chairs of the demonstrations track). Twenty-one submissions were received from a total of 58 authors and co-authors from USA (19), Germany (7), Italy (2), Greece (2), Brazil (1), U.K. (1), Switzerland (1). Eight of the submissions were accepted and were presented in the symposium in two dedicated sessions. The top three contributions, chosen based on their technical merit as well as their presentation in the symposium, received the Headwaters Awards. The awards were valued at \$1,000, \$750, and \$500 for the three selected contributions (in the form of travel reimbursements), and were kindly sponsored by the Computing Community Consortium (CCC) of the Computing Research Association (CRA).

The keynote address titled “Underexplored Research Topics from the Commercial World” was delivered by Erik Hoel (ESRI). Two panels were held. Panel A titled “Envisioning 2020 Spatial Research Challenges and Opportunities” was chaired by Erwin Gianchandani (CCC) and Panel B titled “Sustainable Energy: Spatial Challenge” was chaired by Ghaleb Abdulla (USDOE LLNL).

To be able to create such a highly attractive SSTD 2011 symposium program, we owe our gratitude to a range of people. We would like to thank the authors, irrespectively of whether their submissions were accepted or not, for their support of the symposium series and for sustaining the high quality of the submissions. We are grateful to the members of the Program Committees (and the external reviewers) for their thorough and timely reviews. In addition, we are grateful to Nikos Mamoulis for his advice and support. We hope the technical program put together for this edition of the SSTD symposium series leads to interesting and fruitful discussions during and after the symposium.

June 2011

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