

CONFERENCE REPORT

REPORT ON THE 6TH ADBIS'2002 CONFERENCE

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Abstract. The 6th East European Conference ADBIS 2002 was held on September 8–11, 2002 in Bratislava, Slovakia. It was organised by the Slovak University of Technology (and, in particular, its Faculty of Electrical Engineering and Information Technology) in Bratislava in co-operation with the ACM SIGMOD, the Moscow ACM SIGMOD Chapter, and Slovak Society for Computer Science. The call for papers attracted 115 submissions from 35 countries. The international program committee, consisting of 43 researchers from 21 countries, selected 25 full papers and 4 short papers for a monograph volume published by the Springer Verlag. Beside those 29 regular papers, the volume includes also 3 invited papers presented at the Conference as invited lectures. Additionally, 20 papers have been selected for the Research communications volume. The authors of accepted papers come from 22 countries of 4 continents, indicating the truly international recognition of the ADBIS conference series. The conference had 104 registered participants from 22 countries and included invited lectures, tutorials, and regular sessions. This report describes the goals of the conference and summarizes the issues discussed during the sessions.

1 INTRODUCTION

The series of ADBIS conferences is a successor of annual international workshops bearing the same title that were organised by the Moscow ACM SIGMOD Chapter in 1993–1996. In 1997, the first East European Conference on Advances in Databases and Information Systems was held in St. Petersburg, Russia and the series has been continuing through Poznan, Poland in 1998, Maribor, Slovenia in 1999, Prague, Czech Republic in 2000, and Vilnius, Lithuania in 2001 to embark in Bratislava, Slovakia in 2002. The Conference has become the prime event for gathering of researchers from Central and Eastern Europe working in the area, providing an internationally recognised forum for presentation of their research results. More than that, the Conference has evolved into one of the important conferences in this research area organised in Europe, but attended by researchers from all over the world.

There is no better way to support the above statements than to give basic data about the ADBIS 2002 Conference. It attracted 115 submissions from 35 countries of all continents (alas, except of Africa). The submissions were subject to a rigorous review process with each paper having been reviewed by 3, sometimes even more referees. There were many good papers, but the Conference is known for its continuous effort to set and comply with high standards of quality of the accepted papers. After many discussions both face-to-face and online, 25 full papers and 4 short papers were accepted for a monograph volume published by the Springer Verlag [1], which serves also as the proceedings of the Conference.

In accordance with the aim of the Conference to provide a forum for the widest possible communication among researchers interested in high quality scientific results, and with the already established practice at ADBIS conferences, we decided to accept several other papers and publish them in an additional volume named Research Communications. We would like to stress that this was only possible due to the fact that among the 115 submissions there have been many more interesting good papers than the number we could include in the monograph volume published by the Springer Verlag. We should also stress that the papers were subject to the same rigorous review process and only in the final decision making we sorted the accepted papers into two volumes. The Research Communications volume [2] includes 20 papers of respectable scientific merit that were also included in the program of the ADBIS 2002 Conference.

The Conference programme was complemented by two tutorials. Their printed versions are included in the third volume of the ADBIS 2002 proceedings [3].

ADBIS conferences encourage active participation of young researchers, primarily by granting an award for the best paper authored solely by a student. In 2002, Chris Giannella (Indiana University) received this award for his contribution “An Axiomatic Approach to Defining Approximation Measures for Functional Dependencies”.

The scientific scope of ADBIS 2002 was of interest to a wide scientific community because of the multidisciplinary nature of information systems. It includes data min-

ing and knowledge discovery aspects, spatiotemporal and spatial databases, mobile databases, multidimensional databases, information systems, object-oriented and deductive databases, workflows, data warehouses, data modeling, web databases and semistructured data, advanced systems and applications. The contributions represent research areas that will greatly influence the functionality, usability and acceptability of future information products and services.

In the sequel, we shall give a short description of the conference activities. To give the reader an idea of the topics discussed, next we shall outline very briefly the contents of the papers that were included in the Springer proceedings, grouped similarly. We shall also describe briefly the tutorials.

2 INVITED LECTURES

ADBIS'2002 featured three invited lectures by renowned scientists:

Prof. Paolo Atzeni (Università di Roma Tre) lectured on “Time: A coordinate for web modeling”. He discussed how the specification of web sites at the logical level can greatly benefit from the introduction of specific features for the representation of time. It could also support the notions of versions and editions of objects in the site. Time as a more general coordinate of web models allows various forms of specializations and variations, such as those related to location, language, user preferences or device type.

The lecture titled “Truth is not enough: privacy and security in ASP and web service environments” by Claus Boyens and Oliver Gunther (Humboldt Universität zu Berlin) was presented by the latter author. The lecture dealt with a situation of a customer who does not feel comfortable about entrusting sensitive personal or corporate data to an application service provider in an unprotected manner. Several solutions were reviewed how customers can use a provider's services without giving it access to any sensitive data. The focus was on privacy homomorphisms, which is an encryption technique, and on how to integrate them into existing service architectures.

Hans-Jorg Schek (ETH Zurich) presented a lecture in Infrastructure for information spaces (his co-authors were Heiko Schuldt, Christoph Schüler and Roger Weber). Immense number of different information sources poses a great challenge for the development of future tools that will be suitable to access, process, and maintain information. Information in the continuous information space is distributed, heterogeneous and undergoes continuous changes. The lecture elaborates some of the aspects related to process-based coordination within the information space and reports on research results, but also stimulates new research in the wide area.

3 DATA MINING AND KNOWLEDGE DISCOVERY

It should not come as a surprise that data mining and knowledge discovery were among the topics that were most frequent — in relative terms — in submissions,

accepted papers and also informal discussions. The topic has become a standard theme of ADBIS conferences.

Chris Gianella (Indiana University, Bloomington) considered the problem of defining an approximation measure for functional dependencies. He was able to prove that a unique measure satisfies a set of axioms that he formulated to express properties of approximation measures. As already noted above, the paper was awarded the Young Researcher Prize as the best paper written by a student.

Robert Kovaľ and Pavol Návrat (Slovak University of Technology, Bratislava) reported on their research investigating means of intelligent support for retrieval of web documents.

Shuigeng Zhou and Jihong Guan prosed an approach to speed-up the process of text classification based on pruning the training corpus. They claim their approach is especially suitable for on-line text classification.

Gabriela Polčicová and Pavol Návrat studied clustering of words based on their semantic similarity. They use word clusters to represent items for recommending new items by contents-based filtering.

Marek Wojciechowski and Macej Zakrzewicz (Poznan University of Technology) argue that a data mining query optimizer should consider alternative data mining algorithms as well as alternative data paths. They use the concept of materialized views to describe possible data access paths for frequent itemset discovery.

4 MOBILE DATABASES

Sergio Ibarri, Eduardo Mena (University of Zaragoza) and Arantza Illarramendi (University of the Basque Country, Donostia) introduced a new approach to monitoring continuous location queries using mobile agents.

Ukhyum Lee and Buhyun Hwang (Chonnam National University, Kwangju) proposed optimistic concurrency control based on timestamp interval for broadcast environment.

George Samaras and Christoforos Panayiotou (University of Cyprus, Nicosia) presented a flexible personalization architecture for wireless system specification languages. Their system utilizes various characteristics of mobile agents to support flexibility, scalability, modularity and user mobility.

Oleg Shigiltchoff, Panos Chrysanthis (University of Pittsburgh) and Evaggelia Pitoura (University of Ioannina) studied multiversion data broadcast organizations. They identified two basic multiversion organizations, namely vertical and horizontal broadcasts and proposed an efficient compression scheme applicable to both.

5 SPATIOTEMPORAL AND SPATIAL DATABASES

Sotiris Brakatsoulas, Dieter Pfoser and Yannis Theodoridis (Computer Technology Institute, Patras) revisited R-tree construction principles and argued that it is a ty-

pical clustering problem which can be addressed by incorporating existing clustering algorithms.

Antonio Corral, Joaquin Canadas (University of Almeria) and Michael Vassilakopoulos (Aristotle University, Thessaloniki) investigated performance of three approximate algorithms for distance-based queries in high-dimensional data spaces using R-trees.

Elena Jurado and Manuel Barrena (Extremadura University) proposed a new algorithm for efficient similarity search in feature spaces with the Q-tree.

Baher A. El-Geresy, Alia I. Abdelmoty (University of Glamorgan) and Christopher B. Jones (Cardiff University) analyzed different approaches to spatio-temporal geographic information systems from a causal perspective.

Joon-Hee Kwon and Yong-Ik Yoon (Sookmyung Women's University, Seoul) proposed an access method for integrating multi-scale geometric data.

6 MULTIDIMENSIONAL DATABASES AND INFORMATION SYSTEMS

Fuat Akal, Klemens Bohm and Hans-Jorg Schek (ETH Zurich) focused on OLAP Query Evaluation in a Database Cluster. Results of their performance study on intra-query parallelism show that a query optimizer should work in two phases: query decomposition, subqueries optimization and evaluation.

Enrique Medina and Juan Trujillo (Universidad de Alicante) presented the common warehouse metamodel as a standard for representing multidimensional properties.

Albertas Caplinskas, Audrone Lupeikiene (Institute of Mathematics and Informatics, Vilnius) and Olegas Vasilecas (Vilnius Gediminas Technical University) proposed a theoretical framework to analyze and evaluate information systems specification languages. They argue that the analysis must be performed on the basis of linguistic system and quality model, which provides a set of attributes characterizing the properties of the language.

7 OBJECT ORIENTED AND DEDUCTIVE DATABASES

Piotr Habela (Polish-Japanese Institute of Information Technology, Warsaw), Mark Roantree (Dublin City University) and Kazimierz Subieta (Institute of Computer Science, Warsaw) suggested flattening the metamodel for object databases to reduce complexity and to support extendibility.

José Parama, Nieves Brisaboa, Miguel Penabad and Angeles Places (Universidade da Coruña) presented a semantic query optimization approach to optimize linear datalog programs. Their contribution is an algorithm that builds a program that is equivalent to a given program but more efficient when applied over a database.

Alexandre Zamulin (A. P. Ershov Institute of Information Systems, Novosibirsk) defined an object algebra for the ODMG standard.

8 DATA MODELING AND WORKFLOWS

Thomas Feyer and Bernhard Thalheim (Computer Science Institute, Cottbus) developed an approach to many-dimensional schema modeling, based on explicit treatment of dimensions such as the kernel, association, the log, meta-characterization and lifespan dimensions.

Alexandre Kononov (Lomonosov Moscow State University) presented an extended object-oriented data model for data warehouse claiming that it is more flexible, natural and simple.

Johann Eder and Wolfgang Gruber (University of Klagenfurt) presented a meta-model for structured workflows supporting workflow transformation in the form of a classical nested control structure representation as well as the graph representations.

9 WEB DATABASES AND SEMISTRUCTURED DATA

Maxim Grinev (Moscow State University) and Sergey Kuznetsov (Institute of System Programming, Moscow) described query rewriting techniques for the Xquery language that is implemented as part of the BizQuery virtual data integration system.

Mona Marathe and Hemalatha Diwakar (University of Pune) suggested a new architecture of a blended-query and result-visualization mechanism for web-accessible databases and associated implementation issues. The mechanism comprises of prioritized multi-database querying and a summary querying.

Yannis Stavarakas (National Technical University of Athens), Manolis Gergatoulis (Institute of Informatics and Telecommunications, Aghia Paraskevi Attikis), Christos Doukeridis and Vassilis Zafeiris (National Technical University of Athens) were concerned with accommodating changes in semistructured databases using multidimensional object exchange model.

Jixue Liu and Chengfei Liu (University of South Australia) defined a pattern definition language for expressing extraction patterns as a declarative way of searching XML data in XSL extensible stylesheet language.

10 ADVANCED SYSTEMS AND APPLICATIONS

Peter Dolog and Mária Bieliková (Slovak University of Technology, Bratislava) discussed variability modeling for reuse in hypermedia engineering. They proposed a domain engineering based method for hypermedia development.

Lilian Harada (Fujitsu Laboratories, Kawasaki) presented an algorithm for complex temporal patterns detection over continuous data streams. It resembles the sliding window process of the Boyer-Moore algorithm, but it allows complex predicates.

11 TUTORIALS

The ADBIS 2002 Conference continued in the tradition of offering first class tutorials on the day before the formal opening.

Timos Sellis (National Technical University of Athens) gave an excellent tutorial on design and maintenance of data warehouses. He started with definitions of data warehouses and on-line analytical processing. He then introduced architectures of data warehouse systems. The tutorial included also a look at open research issues such as storage and query processing alternatives.

The second tutorial was presented by Awais Rashid (Lancaster University). The theme was aspect-oriented programming. After having introduced it, Rashid explained the role of aspect-oriented programming in the context of database systems. He sees a strong role for it to be played in database systems due to the inherent support for localization and customization of crosscutting concerns.

12 CONCLUSIONS

All in all, the ADBIS 2002 Conference was a success. The number of submissions, acceptance ratio, in other words quality and quantity of papers presented, high quality invited lectures, excellent tutorials, the number of participants and their distribution across almost all continents, friendly atmosphere, rich and attractive cultural program, all this contributed to the success of the Bratislava event.

As far as topics of the Conference are concerned, one can see from the overview given above that the Conference not only keeps in touch with the latest developments in databases and information systems, but contributes to setting a future research agenda in these areas, too.

The 7th ADBIS event will be organized by the Moscow ACM SIGMOD Chapter, the University of Applied Sciences at Dresden and the Brandenburg University of Technology at Cottbus during 3–6 of September 2003 at Dresden, Germany. See <http://dbis-conference.informatik.tu-cottbus.de/adbis2003/> for further information. It is anticipated that this event will continue the successful history of the ADBIS Conference.

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