

Preface

The Ninth East-European Conference on Advances in Databases and Information Systems was held on September 12-15, 2005, in Tallinn, Estonia. It was organized in a cooperation of the Institute of Cybernetics at Tallinn University of Technology, the Department of Computer Engineering of Tallinn University of Technology, and the Moscow chapter of ACM SIGMOD.

The main objective of the ADBIS series of conferences is to provide a forum for the dissemination of excellent research accomplishments and to promote interaction and collaboration between the Database and Information Systems research communities from Central and East European countries and the rest of the world. The 2005 conference continued the ADBIS conferences held in St. Petersburg (1997), Poznan (1998), Maribor (1999), Prague (2000), Vilnius (2001), Bratislava (2002), Dresden (2003), and Budapest (2004). The Conference consisted of regular sessions with technical contributions reviewed and selected by an international program committee, as well as of invited talks and tutorials given by leading scientists. For the first time the ADBIS conferences had a satellite event, a workshop on data mining and knowledge discovery. The ADMKD 2005 workshop, with own international program committee as well as proceedings served as a forum to encourage researchers and practitioners to discuss and investigate data mining research and implementation issues, to share experience in developing and deploying data mining systems.

We very much acknowledge the Program Committee members for their reviewing and accepting heavy workload. Our thanks go also to the additional referees carefully reviewing the submissions. Without the willingness and enthusiasm of many scientists sharing their expertise and voluntarily donating their time for thoroughly evaluating the merits of submitted work, this conference would not be possible. We wish to thank all the organizing team and our sponsors, who have made the conference possible. Our special thanks go to Ms. Kristiina Kindel for maintaining ADBIS 2005 web site and Mr. Rein Lõugas for technical preparation of manuscript of the conference proceedings. Last but not least, we thank all the participants, who really made the conference.

Johann Eder

Hele-Mai Haav

Ahto Kalja

Jaan Penjam

Program at a Glance

	September 11 Sunday	September 12 Monday	September 13 Tuesday	September 14 Wednesday	September 15 Thursday	September 16 Friday	
	Institute of Cybernetics (IoC), Room B101	House of the Blackheads	House of the Blackheads	House of the Blackheads	House of the Blackheads	Institute of Cybernetics	
8:30-9:00	Registration	Registration	Registration	Registration	Registration		
9:00-10:30	Tutorial 1: Web IS	<i>Opening Ceremony</i> Session 1: Invited talk	Session 4: Invited talk	Session 8	Session 11	ADMKD WS Session 2	
10:30-11:00	<i>Coffee break</i>	<i>Coffee break</i>	<i>Coffee break</i>	<i>Coffee break</i>	<i>Coffee break</i>	<i>Coffee break</i>	
11:00-12:30	Tutorial 1: Web IS	Sessions 2A & 2B	Sessions 5A & 5B	Sessions 9A & 9B	Session 12 Session 13: Closing	ADMKD WS Session 3	
12:30-14:30	<i>Lunch</i>	<i>Lunch</i>	<i>Lunch</i>	<i>Lunch</i>	Closing Reception	<i>Lunch and Closing</i>	
	14:00-14:30 Registration						
14:30-16:00	Tutorial 2: Mobile Location Solutions	Sessions 3A & 3B	14:30-15:30	Sessions 6A & 6B	Sessions 10A & 10B	15:00-15:20	Registration to ADMKD WS at IoC, Room B101
						15:20-15:30	Opening
						15:30-16:30	Keynote Speech
16:00-16:30	<i>Coffee break</i>	<i>Coffee break</i>	15:30-16:00	<i>Coffee break</i>			
16:30-18:00	Tutorial 2: Mobile Location Solutions	Sightseeing	16:00-17:00	Sessions 7A & 7B	16:30-17:00	<i>Coffee Break</i>	
18:00-19:00	Registration				17:00-18:30	Session 1	
19:00-21:00	<i>Welcome Reception at the Institute of Cybernetics Akadeemia 21</i>	<i>Steering Committee meeting Pikk 26</i>	<i>Concert Tallinn Chamber Choir Kohtu 6</i>	<i>Conference Dinner at Olde Hansa Vana turg 1</i>			

Sunday, September 11

- 9:00-12:30 **Tutorial 1:** Institute of Cybernetics, Akadeemia 21, Room B101
Foundations of Web Information Systems
Klaus-Dieter Schewe and Bernhard Thalheim
- 14:00-14:30 *Registration*
- 14:30-18:00 **Tutorial 2:** Institute of Cybernetics, Akadeemia 21, Room B101
Mobile Location Solutions and Data Management Challenges.
Yannis Theodoridis
- 18:00-19:00 **Registration**
- 19:00-21:00 *Welcome Reception, Institute of Cybernetics, Akadeemia 21*

Monday, September 12

- 8:30-9:00 Registration
- 9:00-9:20 **Opening**
Chair: **Ahto Kalja** **Room: Olaf's Hall**
Jaan Penjam, Johann Eder, Hele-Mai Haav
- 9:20-10:30 **Session 1: Keynote Speech**
Chair: **Ahto Kalja** **Room: Olaf's Hall**

XML Databases and Beyond - Plenty of Architectural Challenges Ahead
Theo Härder
- 11:00-12:30 **Session 2A: Database Theory I**
Chair: **Bernhard Thalheim** **Room: Olaf's Hall**

Usable Recursive Queries
Tomasz Pieciukiewicz, Krzysztof Stencel, Kazimierz Subieta
- Relation-collapse: An Optimisation Technique for the Similarity Algebra SA
Thomas Herstel, Ingo Schmitt
- On Modal Deductive Databases
Linh Anh Nguyen
- 11:00-12:30 **Session 2B: XML and Databases I**
Chair: **Andras Benczur** **Room: Brothers Hall**

Algebraic Semantics of XML Schema
Leonid Novak, Alexandre Zamulin
- Efficient XPath Evaluation
Bing Wang, Ling Feng, Yun Shen
- A Prototype for Translating XQuery Expressions into XSLT Stylesheets
Niklas Klein, Sven Groppe, Stefan Böttcher, Le Gruenwald

14:30-16:00 **Session 3A: Database Modelling and Physical Database Design I**
Chair: **Sergei Kuznetsov** **Room: Olaf's Hall**

A Multi-Version Data Model and Semantic-Based Transaction Processing Protocol
Alexander Yakovlev

Managing Schema Versions in Object-Oriented Databases
Xian Liu, David Nelson, Simon Stobart, Sue Stirk

Efficient Integrity Checking for Databases with Recursive Views
Henning Christiansen, Davide Martinenghi

14:30-16:00 **Session 3B: Semantic Based Knowledge Systems**
Chair: **Olegas Vasilecas** **Room: Brothers Hall**

Towards the Semantic Web - An Approach to Reverse Engineering of Relational Databases to Ontologies
Irina Astrova

Social Network Problem in Enron Corpus
Jiri Dvorsky, Petr Gajdos, Eliska Ochodkova, Jan Martinovic, Vaclav Snasel

An Architecture for Natural Language Dialog Applications in Data Exploration and Presentation Domain
Algirdas Laukaitis, Olegas Vasilecas, Raimondas Berniunas, Eimontas Augilius

Tuesday, September 13

9:00-10:30 **Session 4: Invited Talk**
Chair: **Hele-Mai Haav** **Room: Olaf's Hall**

Ontology-driven Conceptual Modelling
Nicola Guarino

11:00-12:30 **Session 5A: Database Modelling and Physical Database Design II**
Chair: **Yannis Manolopoulos** **Room: Olaf's Hall**

A Formal Model for the Problem of View Selection for Aggregate Queries
Jingni Li, Zohreh Asgharzadeh Talebi, Rada Chirkova, Yahya Fathi

Efficient Main-Memory Algorithms for Set Containment Join Using Inverted Lists
Dmitry Shaporenkov

Optimising Performance of Object-Oriented and Object-Relational Systems by Dynamic Method Materialization
Mariusz Masewicz, Robert Wrembel, Juliusz Jezierski

- 11:00-12:30 **Session 5B: XML and Databases II**
Chair: **Jaroslav Pokorny** **Room: Brothers Hall**
- Three Layer Evolution Model for XML Stored in Relational Databases
Andrey Simanovsky
- Schema-based Query Optimization for XQuery Queries
Sven Groppe, Stefan Böttcher
- Using Data Warehouse Resources for Assessment of E-Learning Influence on University Processes
Darja Solodovnikova, Laila Niedrite
- 14:30-15:30 **Session 6A: Database Theory II**
Chair: **Leonid Kalinichenko** **Room: Olaf's Hall**
- Declarative Data Fusion - Syntax, Semantics and Implementation
Jens Bleiholder, Felix Naumann
- Non-destructive Integration of Form-based Views
Jan Hidders, Jan Paredaens, Philippe Thiran, Geert-Jan Houben, Kees van Hee
- 14:30-15:30 **Session 6B: XML and Databases III**
Chair: **Vaclav Snasel** **Room: Brothers Hall**
- Combining Tree Structure Indexes With Structural Indexes in Query
Vu Le Anh, Attila Kiss
- A DataGuide-based Concurrency Control Protocol for Cooperation on XML Data
Peter Pleshachkov, Petr Chardin, Sergey Kuznetsov
- 16:00-17:00 **Session 7A: Information Systems and Software Engineering I**
Chair: **Alexander Zamulin** **Room: Olaf's Hall**
- Conceptual Content Management for Software Engineering Processes
Sebastian Bossung, Hans-Werner Sehring, Michael Skusa, Joachim W. Schmidt
- Using Step-Wise Refinement to Build a Flexible Lightweight Storage Manager
Thomas Leich, Sven Apel, Gunter Saake

- 16:00-17:00 **Session 7B: Advanced database technology (invited talks)**
Chair: **Irina Astrova** **Room: Brothers Hall**
- Oracle Grid Computing
Madis Pärn
- Integrating automated deduction and databases: the XSTONE toolkit.
Tanel Tammet
- 19:00-20:00 *Concert: Tallinn Chamber Choir, Hall of Estonian Academy of Sciences, Kohtu 6*

Wednesday, September 14

- 9:00-10:30 **Session 8: IS Development**
Chair: **Rainer Manthey** **Room: Olaf's Hall**
- On Business Rules Automation: the BR-centric IS Development Framework
Irma Valatkaite, Olegas Vasilecas
- CFP Taxonomy of the Approaches for Dynamic Web Content Acceleration
Stavros Papastavrou, George Samaras, Paraskevas Evripidou, Panos K. Chrysanthis
- Long-term Temporal Data Representation of Personal Health Data
Tore Mallaug, Kjell Bratbergsengen
- 11:00-12:30 **Session 9A: Information Systems and Software Engineering II**
Chair: **Hannu Jaakkola** **Room: Olaf's Hall**
- BiChord: An Improved Approach for Lookup Routing in Chord
Junjie Jiang, Ruoyu Pan, Feng Pan, Weinong Wang
- Transformation from Requirements to Design for Service Oriented Information Systems
Lina Ceponiene, Lina Nemuraite
- Data Integration Using DataPile Structure
David Bednarek, David Obdrzalek, Jakub Yaghob, Filip Zavoral

11:00-12:30 **Session 9B: Database Modelling and Physical Database Design III**
Chair: **Uwe Wloka** **Room: Brothers Hall**

D-ARIES: A Distributed Version of the ARIES Recovery Algorithm
Jayson Speer, Markus Kirchberg

Classification of Paths in ER Schemas by Using a Description Logic
Xu Kaibo, Feng Junkang

14:30-16:00 **Session 10A: Information Systems and Software Engineering III**
Chair: **Merik Meriste** **Room: Olaf's Hall**

Architecture of Pattern Management Software System
Erki Eessaar

Software Quality and Life Cycles
Hannu Jaakkola, Bernhard Thalheim

On a Concept of Scalable Security: PKI-based Model using
Additional Cryptographic Modules
Bogdan Ksiezopolski, Zbigniew Kotulski

14:30-16:00 **Session 10B: Query Processing**
Chair: **Boris Novikov** **Room: Brothers Hall**

VA-files vs. R*-trees in Distance Join Queries
Antonio Corral, Alejandro D'Ermiliis, Yannis Manolopoulos, Michael Vassilakopoulos

The Expressivity of Constraint Query Languages with Boolean
Algebra Linear Cardinality Constraints
Peter Revesz

Evolutionary Learning of Boolean Queries by Genetic Programming
Suhail S. J. Owais, Pavel Kromer, Vaclav Snasel

19:00-21:00 *Conference Dinner at Olde Hansa, Vana Turg 1*

Social Program

Welcome Reception

Sunday, September 11 at 19:00-21:00
Institute of Cybernetics, Akadeemia 21

Sightseeing Tour (walking)

Monday, September 12 at 16:30-18:00
Departure from House of the Blackheads (Conference venue)

Concert: Tallinn Chamber Choir

Tuesday, September 13 at 19:00-20:00
Hall of Estonian Academy of Sciences, Kohtu 6

Conference Dinner

Wednesday, September 14 at 19:00-21:00
Restaurant Olde Hansa, Vana Turg 1

Closing Reception

Thursday, September 15 at 12:30-13:30
House of the Blackheads (Conference venue)

1st ADBIS Workshop on Data Mining and Knowledge Discovery-ADMKD 2005

Location: Institute of Cybernetics

Program

Thursday, September 15

- 15:20-15:30 **Opening**
Chair: **Tadeusz Morzy** **Room: B101**
- 15:30-16:30 **Keynote Speech**
Representing and Discovering Frequent Patterns with Negation
Marzena Kryszkiewicz
- 17:00-18:30 **Session 1: Database techniques in data mining**
Chair: Mikolaj Morzy **Room: B101**
- SQL-based Approach to Incremental Association Rule Mining
Himavalli Kona, Sharma Chakravarthy, Akshaya Arora
- Accelerating the Relevance Vector Machine via Data Partitioning
David Ben-Shimon, Armin Shmilovici
- Concurrent Processing of Frequent Itemset Queries Using FP-Growth
Algorithm
Marek Wojciechowski, Krzysztof Gałęcki, Krzysztof Gawronek

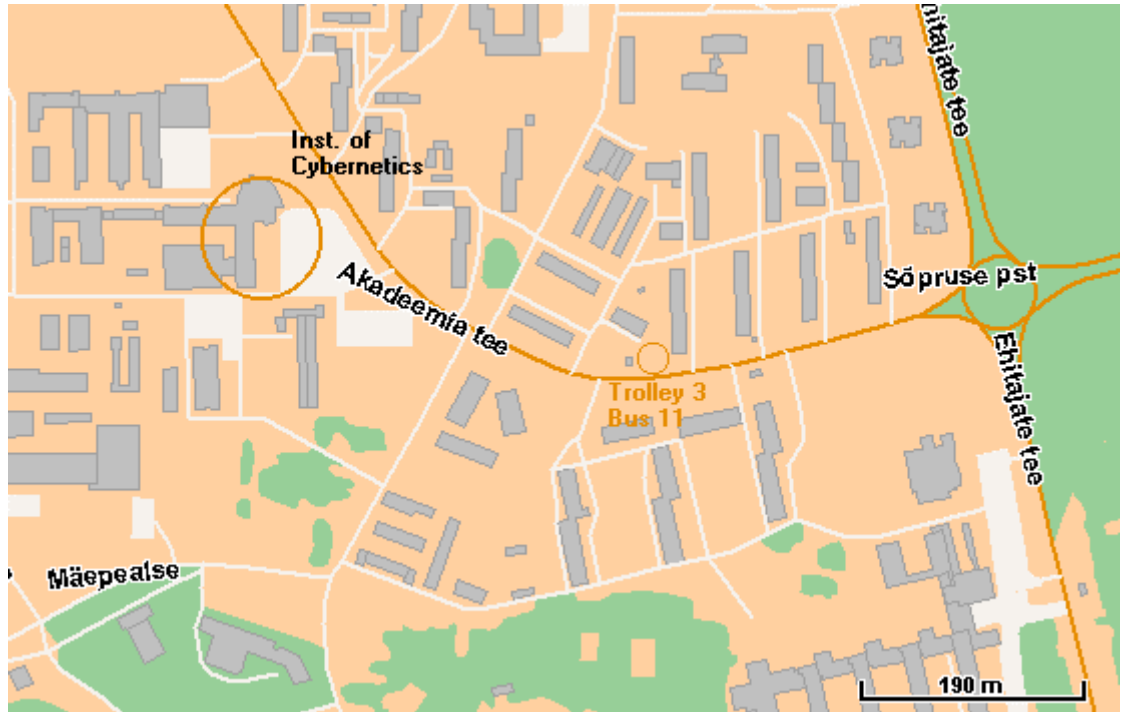
Friday, September 16

- 9:00-10:30 **Session 2: Supervised learning and Applications of data mining**
Chair: **Sharma Chakravarthy** **Room: B101**
- On Combining Principal Components with Parametric LDA-based Feature Extraction for Supervised Learning
Mykola Pechenizkiy, Alexey Tsymbal, Seppo Puuronen
- Intelligent Data Analysis Center: A Client/Server Mining Model over the Internet
Ágnes Vathy-Fogarassy, Gábor Balázs, Tamás Tobak, István Vassányi
- Density-based Measure of Reputation of Sellers in Online Auctions
Mikołaj Morzy
- 11:00-12:30 **Session 3: Mining sequential data**
Chair: **Marzena Kryszkiewicz** **Room: B101**
- Indexing of sequential patterns for efficient analysis of data mining results
Witold Andrzejewski, Tadeusz Morzy, Mikołaj Morzy
- Discovery of Significant Intervals in Sequential Data
Ambika Srinivasan, Sunit Shrestha, Sharma Chakravarthy
- Pruning Discovered Sequential Patterns Using Minimum Improvement Threshold
Stanisław Prinke, Marek Wojciechowski, Maciej Zakrzewicz
- 12:30-13:30 *Lunch and **Closing***

Maps



Conference venue House of the Blackheads, Pikk 26



Institute of Cybernetics, Akadeemia tee 21