

Proceedings

**Seventeenth International Conference
on Database and Expert Systems
Applications**

DEXA 2006

Contents

Proceedings of the Seventeenth International Conference on Database and Expert Systems Applications

DEXA 2006

Message from the Program Chairs	xvii
Program Committee	xviii

W01 – NBiS '06

9th International Workshop on Network-Based Information Systems

Workshop Introduction and Organizers	3
--	---

Session 1: Agent-Based Systems

Security on MASs with XML Security Specifications	5
<i>Emerson Oliveira, Zair Abdelouahab, and Denivaldo Lopes</i>	
Fault-Tolerant Distributed Systems in a Mobile Agent Model	10
<i>Youhei Tanaka, Naohiro Hayashibara, Tomoya Enokido, and Makoto Takizawa</i>	
A Model for User Profiling in an ASP Environment	15
<i>M. Albanese, A. Chianese, A. Penta, A. Picariello, and L. Passariello</i>	

Session 2: Fault Detection and Fault-Tolerant

Performance Analysis of the ϕ Failure Detector with Its Tunable Parameters	20
<i>Naohiro Hayashibara and Makoto Takizawa</i>	
A Dynamic Fault-Tolerant Model for Open Distributed Computing	25
<i>Rodrigo Lanka, Kentaro Oda, Hiroki Najima, and Takaichi Yoshida</i>	
Architecture Evaluation for Distributed Auto-ID Systems	30
<i>Hong-Hai Do, Jürgen Anke, and Gregor Hackenbroich</i>	

Session 3: Distributed Systems

Distributed Disaster Information System over Japan Gigabit Network	35
<i>Hiroyuki Echigo, Hiroaki Yuze, Tsuyoshi Hoshikawa, Kazuo Takahata, Nobuhiro Sawano, and Yoshitaka Shibata</i>	

Efficient Target Selection in Similarity Preserve Hash for Distributed Geographical Origin Identification System of Vegetables.....	40
<i>Nobuyoshi Sato, Minoru Uehara, Koichiro Shimomura, Hirobumi Yamamoto, and Kenichi Kamijo</i>	
A Quality Enhancement Model Considering Service Providers and Consumers Relation	45
<i>Valbona Barolli, Heihachiro Fukuda, Leonard Barolli, and Makoto Takizawa</i>	

Session 4: Mobile and Sensor Networks

Impact of Radio Irregularities on Topology Tradeoffs of WSNs	50
<i>G. De Marco, T. Yang, and L. Barolli</i>	
Regularity Analysis Using Time Slot Counting in the Mobile Clickstream	55
<i>Toshihiko Yamakami</i>	
Interaction Styles for Service Discovery in Mobile Business Applications.....	60
<i>Markus Aleksy, Colin Atkinson, Philipp Bostan, Thomas Butter, and Martin Schader</i>	
An Efficient ZHLS Routing Protocol for Mobile Ad Hoc Networks	66
<i>Takashi Hamma, Takashi Katoh, Bhed Bahadur Bista, and Toyoo Takata</i>	

Session 5: Networking and Applications

Optimising Performance in Network-Based Information Systems: Virtual Organisations and Customised Views	71
<i>Nickolas J. G. Falkner, Paul D. Coddington, and Andrew L. Wendelborn</i>	
Automatic Generation of an Instruction Set Simulator for Educational Use	77
<i>Hideaki Yanagisawa, Minoru Uehara, and Hideki Mori</i>	
Tokens for Anonymous Communication in the Internet.....	83
<i>Ariyan Durrresi, Vamsi Paruchuri, Leonard Barolli, Raj Jain, and Makoto Takizawa</i>	

W02 – SAACS '06

4th International Workshop on Self-Adaptable and Autonomic Computing Systems

Workshop Introduction and Organizers	91
--	----

Session 1

Retrofitting Zeroconf to Type-Safe Self-Organising Systems	93
<i>P. Miseldine and A. Taleb-Bendiab</i>	
Requirements on the Use of Goal-Directed Imitation for Self-Adaptation.....	98
<i>Marcel Hiel and Hans Weigand</i>	
Agent-Based Petroleum Offshore Monitoring Using Sensor Networks	103
<i>Sajid Hussain, M Rafiqul Islam, Elhadi Shakshuki, and M. S. Zaman</i>	
Generic Support for Policy-Based Self-Adaptive Systems.....	108
<i>Richard John Anthony</i>	

Session 2

Towards Scaleable Self-Governance through Situated Cognitive Systems: Utilising Deliberative Logic to Provide an Encompassing Epistemic Layer.....	114
<i>M. Randles, A. Taleb-Bendiab, and P. Miseldine</i>	
A Novel Cluster Parallel File System	119
<i>Wenguo Wei, Shoubin Dong, Ling Zhang, and Jialin Li</i>	
Automatic Database Clustering Using Data Mining.....	124
<i>Sylvain Guinepain and Le Gruenwald</i>	
Exploring Adaptation and Self-Adaptation in Autonomic Computing Systems.....	129
<i>M. T. Ibrahim, R. J. Anthony, T. Eymann, A. Taleb-Bendiab, and L. Gruenwald</i>	

W03 – TAKMA '06

7th International Workshop on Theory and Applications of Knowledge Management

Workshop Introduction and Organizers.....	139
---	-----

Session 1: Knowledge Guidelines and Standards

Towards a Maturity Model for Learning Organizations—The Role of Knowledge Management	141
<i>Lena Aggestam</i>	
Individual Knowledge Generation for Individual User Environments by Relating User Network Ontology to Local Protocols	146
<i>Kenichi Nishikawa, Nobuhide Nishiyama, Fumihiko Ito, and Tetsuya Yamamura</i>	
Capturing and Using the Operational Semantics of Large Distributed Systems: Sharing Common Application Requirements in Virtual Organisations	151
<i>Nickolas J. G. Falkner, Paul D. Coddington, and Andrew L. Wendelborn</i>	

Session 2: Knowledge Sharing

Co-Protégé: Collaborative Ontology Building with Divergences.....	156
<i>Alicia Díaz, Guillermo Baldo, and G�r�me Canals</i>	
Application of a Community of Practice to Improve Knowledge Sharing in Offshoring Relations	161
<i>Niels de Vrij, Remko Helms, and Pim Voogd</i>	
Structuring Short-Term Organizational Memories by Argumentation Based Transient-Scenarios.....	166
<i>Dino Borri, Adele Celino, Grazia Concilio, and Anna De Liddo</i>	

Session 3: Knowledge Discovery and Acquisition

Text Mining of Business News for Forecasting.....	171
<i>Petr Kroha, Ricardo Baeza-Yates, and Bj�rn Krellner</i>	
Learning Term Spaces Based on Visual Feedback	176
<i>Michael Granitzer, Thomas Neidhart, and Mathias Lux</i>	

Plagiarism Detection in Large Sets of Press Agency News Articles	181
<i>Wolfgang Kienreich, Michael Granitzer, Vedran Sabol, and Werner Klieber</i>	

W04 – BIDM '06

4th International Workshop on Biological Data Management

Workshop Introduction and Organizers	189
--	-----

Session 1

A Tool for Collaborative Construction of Large Biological Ontologies.....	191
<i>Jie Bao, Zhiliang Hu, Doina Caragea, James Reecy, and Vasant G. Honavar</i>	
ClustDB: A High-Performance Tool for Large Scale Sequence Matching	196
<i>Jürgen Kleffe, Friedrich Möller, and Burghardt Wittig</i>	
SIB: Database and Tool for the Integration and Browsing of Large Scale Image High-Throughput Screening Data.....	201
<i>Karol Kozak, Marta Kozak, and Eberhard Krausz</i>	

Session 2

In Services: Data Management for <i>In Silico</i> Workflows	206
<i>Fabrizio Nogueira da Silva, Maria Cláudia Cavalcanti, Alberto M. R. Dávila</i>	
Storage Processing of Mass Spectrometry Data.....	211
<i>Sebastian Klie and Steffen Neumann</i>	
Extracting Metadata from Biological Experimental Data.....	216
<i>Badr Al-Daihani, Alex Gray, and Peter Kille</i>	

Session 3

Comparative Analysis of Exon Skipping Patterns in Human and Mouse.....	223
<i>Yu-Wei Chiu, Fang-Rong Hsu, and Man-Kwan Shan</i>	
Exploiting Geometrical Properties on Protein Similarity Search.....	228
<i>Saiful Akbar, Josef Küng, and Roland Wagner</i>	

W05 – GLOBE '06

3rd International Workshop on Grid and Peer-to-Peer Computing Impacts on Large Scale Heterogeneous Distributed Database Systems

Workshop Introduction and Organizers	235
<i>Invited Paper: Middleware for Next Generation Distributed Systems: Main Challenges and Perspectives</i>	237
<i>Guy Bernard</i>	

Session 1: Data Grid and Mobility

DASCOSA: Database Support for Computational Science Applications.....	241
<i>Kjetil Nørnvåg</i>	
Mobility Extensions for Knowledge Discovery Workflows in Data Mining Grids.....	246
<i>Karin Anna Hummel, Georg Böhs, Peter Brezany, and Ivan Janciak</i>	
<i>Invited Paper: Pattern Matching Using n-Gram Sampling of Cumulative Algebraic Signatures: Preliminary Results</i>	251
<i>Witold Litwin, Riad Mokadem, Philippe Rigaux, and Thomas Schwarz</i>	

Session 2: P2P Systems and Query Processing

Range Queries in Massively Distributed Data.....	256
<i>Maria-Del-Pilar Villamil, Claudia Roncancio, and Cyril Labbé</i>	
A P2P Resource Discovery System Based on a Forest of Trees.....	261
<i>Moreno Marzolla, Matteo Mordacchini, and Salvatore Orlando</i>	

Session 3: Dataspace and Load Balancing

Towards Realization of Dataspaces.....	266
<i>Ibrahim Elsayed, Peter Brezany, and A Min Tjoa</i>	
On-Line Balancing of Horizontally-Range-Partitioned Data in Distributed Spatial Telemetric Data Warehouse	273
<i>Marcin Gorawski and Maciej Kaminski</i>	

W06 – WBC '06

6th International Workshop on Web Based Collaboration

Workshop Introduction and Organizers.....	281
---	-----

Session 1

Document Exchange Methodology for Collaborative Work in e-Government	283
<i>Flavio Corradini, Alberto Polzonetti, Romeo Pruno, and Lucio Forastieri</i>	
On the Execution of Collaborative Business Processes	288
<i>Belinda M. Carter and Maria E. Orłowska</i>	
Supporting On-Demand Collaboration in Web-Based Communities	293
<i>Stefan Paal, Lars Bröcker, and Marion Borowski</i>	

Session 2

Towards Integrating Collaborative Business Process Based on a Process Ontology and EbXML Collaboration Scenario	299
<i>Razika Driouche, Zizette Boufaïda, and Fabrice Kordon</i>	
Refinement of Correspondences in EXSMAL for XML Document Transformation	304
<i>Herzi Khaled, Aïcha-Nabila Benharkat, and Youssef Amghar</i>	

A New Approach for Information Exchange within Public Registries Based on RosettaNet Standards	309
<i>Konrad Fuks and Waldemar Wiczerzycki</i>	

Session 3

A Framework of the Impact of Cyberspace on Contemporary Organizations	314
<i>Janusz Wielki</i>	
Design of a Web-Based Application for Wireless Sensor Networks	319
<i>Sajid Hussain, Nick Schofield, and Abdul W. Matin</i>	

W07 – WebS '06

5th International Workshop on Web Semantics

Workshop Introduction and Organizers	327
--	-----

Session 1

Bridging the Gap between the Semantic Web and Existing Network Services	329
<i>Nickolas J. G. Falkner, Paul D. Coddington, and Andrew L. Wendelborn</i>	
How to Make It Faster and at Lower Cost? B2B Integration with Semantic Web Services	334
<i>Silvestre Losada, Dariusz Kłeczek, Richard Benjamins, Jesus Contreras, Oscar Corcho, Jose Luis Bas, and Sergio Bellido</i>	

Session 2

OntoSphere3D: A Multidimensional Visualization Tool for Ontologies	339
<i>Alessio Bosca and Dario Bonino</i>	
Handling Heterogeneous Academic Curricula	344
<i>Richard Hackelbusch</i>	

Session 3

Using Ontologies in Context-Aware Applications	349
<i>Damião Ribeiro de Almeida, Cláudio de Souza Baptista, and Fabio Gomes de Andrade</i>	
A High-Level Architecture of a Metadata-Based Ontology Matching Framework	354
<i>Malgorzata Mochol and Elena Paslaru Bontas Simperl</i>	
Lightweight Ontology-Based Service Discovery in Mobile Environments	359
<i>Devis Bianchini, Valeria De Antonellis, Michele Melchiori, and Denise Salvi</i>	

Session 4

Browsing the Semantic Web	365
<i>Ora Lassila</i>	
ONTODELLA—A Projection and Linking Service for Semantic Web Applications	370
<i>Kim Viljanen, Teppo Käsälä, Eero Hyvönen, and Eetu Mäkelä</i>	

W08 – HADIS '06

2nd International Workshop on High Availability of Distributed Systems

Workshop Introduction and Organizers 377

Session 1: Middleware-Based Replication

Nondeterminism in ORBs: The Perception and the Reality 379

Joseph Slember and Priya Narasimhan

Using Replication to Build Highly Available .NET Applications 385

Johannes Osrael, Lorenz Frohofer, Georg Stoifl, Lucas Weigl, Klemen Zagar, Igor Habjan, and Karl M. Goeschka

Middleware-Based Data Replication: Some History and Future Trends 390

J. E. Armendáriz-Íñigo, Hendrik Decker, J. R. González de Mendivil, and F. D. Muñoz-Escóí

Session 2: Fault Tolerance, Failure Detection, and Recovery

Fault-Tolerant Distributed Stream Processing System 395

Marcin Gorawski and Pawel Marks

Implementing the Ω Failure Detector in the Crash-Recovery Model with Partial Connectivity and/or Synchrony 400

Mikel Larrea and Cristian Martín

CORBA Replication Support for Fault-Tolerance in a Partitionable Distributed System 406

Stefan Beyer, Francesc D. Muñoz-Escóí, and Pablo Galdámez

W09 – FlexDBIST '06

1st International Workshop on Flexible Database and Information System Technology

Workshop Introduction and Organizers 413

Session 1: Invited Paper

Invited Paper: Bipolar Queries and Queries with Preferences 415

Sławomir Zadrozny and Janusz Kacprzyk

Session 2: Flexibility in Databases

A Knowledge-Based Approach for Database Flexible Querying 420

N. Hachani and H. Ounelli

Avenues to Flexible Data Integrity Checking 425

Hendrik Decker and Davide Martinenghi

On a Qualitative Approximate Inclusion—Application to the Division of Fuzzy Relations	430
<i>Patrick Bosc and Olivier Pivert</i>	

Session 3: Data Mining

Using Gaussians Functions to Determine Representative Clustering Prototypes	435
<i>Minyar Sassi, Amel Grissa Touzi, and Habib Ounelli</i>	
dmFSQL: A Language for Data Mining	440
<i>Ramón Alberto Carrasco, María Amparo Vila, and Francisco Araque</i>	

Session 4: Demonstration

The PENG System: Practice and Experience.....	445
<i>Gabriella Pasi, Gloria Bordogna, and Robert Villa</i>	

Session 5: Searching and Context-Aware Computing

MetaOn—Ontology Driven Metadata Construction and Management for Intelligent Search in Text and Image Collections	450
<i>Haralampos Karanikas, Nikos Pelekis, Dimitris K. Iakovidis, Ioannis Kopanakis, Thomas Mavrouidakis, and Yannis Theodoridis</i>	
An Evaluation of Query Languages for Context-Aware Computing	455
<i>Pari Delir Haghighi, Arkady Zaslavsky, and Shonali Krishnaswamy</i>	

W10 – XANTEC '06

1st International Workshop on XML Data Management Tools and Techniques

Workshop Introduction and Organizers	463
--	-----

Session 1

<i>Invited Paper:</i> Automating Change Detection and Notification of Web Pages.....	465
<i>Sharma Chakravarthy and Subramanian C Hari Hara</i>	
A Method for XQuery Transform Implementation Based on Shadow Mechanism.....	470
<i>Maria Rekouts, Maxim Grinev, and Alexander Boldakov</i>	
Answering Queries in the Presence of XML Keys	476
<i>Mehdi Essid, Omar Boucelma, and Stéphane Bressan</i>	
A Data Model and an Algebra for Querying XML Documents.....	482
<i>Giacomo Buratti and Danilo Montesi</i>	

Session 2

<i>Invited Paper:</i> On the Problem of Coupling Java Algorithms and XML Parsers.....	487
<i>Giuseppe Psaila</i>	

XShreX: Maintaining Integrity Constraints in the Mapping of XML Schema to Relational.....	492
<i>Qiuju Lee, Stéphane Bressan, and Wenny Rahayu</i>	
Extracting Partition Statistics from Semistructured Data	497
<i>John N. Wilson, Richard Gourlay, Robert Japp, and Mathias Neumüller</i>	

Session 3

An Architecture for an XML-Template Engine Enabling Safe Authoring	502
<i>Falk Hartmann</i>	
XTC—The XML Transformation Coordinator for XML Document Transformation Technologies	507
<i>Daniel Fötsch and Andreas Speck</i>	
Finding Syntactic Similarities between XML Documents.....	512
<i>Davood Rafiei, Daniel L. Moise, and Dabo Sun</i>	
A Classification for Comparing Standardized XML Data.....	517
<i>Lena Strömbäck</i>	

W11 – LAAIC '06

2nd International Workshop on Logical Aspects and Applications of Integrity Constraints

Workshop Introduction and Organizers.....	525
---	-----

Session 1: New Openness, Incompleteness, and Streams

<i>Invited Paper: Consistent Query Answering: Opportunities and Limitations</i>	<i>527</i>
<i>Jan Chomicki</i>	
An Integrity Semantics for Open World Databases.....	532
<i>Hendrik Decker</i>	
A Strongly Minimal Axiomatisation of Multivalued Dependencies in Incomplete Database Relations	537
<i>Sebastian Link</i>	
History Checking of XML Data Streams.....	542
<i>Alessandro Campi and Paola Spoletini</i>	

Session 2: Optimization and Consistency

Optimising Query Answering in the Presence of Access Limitations	547
<i>Andrea Cali and Diego Calvanese</i>	
Trying to Cater for Replication Consistency and Integrity of Highly Available Data.....	553
<i>J. E. Armendáriz-Iñigo, J. R. Juárez-Rodríguez, H. Decker, and F. D. Muñoz-Escoí</i>	
Consistent Query Answering by Minimal-Size Repairs	558
<i>Andrei Lopatenko and Leopoldo Bertossi</i>	

Session 3: Distributed and Parallel Databases

- Checking Integrity Constraints—How It Differs in Centralized, Distributed and Parallel Databases..... 563
Hamidah Ibrahim
- On Using Simplification and Correction Tables for Integrity Maintenance in Integrated Databases 569
Henning Christiansen and Davide Martinenghi

W12 – PMKD '06

2nd International Workshop on Philosophies and Methodologies for Knowledge Discovery, Deployment, and Development of Decision Support Systems

- Workshop Introduction and Organizers 577

Session 1

- Keynote Paper: Data Mining Researcher, Who Is Your Customer? Some Issues Inspired by the Information Systems Field*..... 579
Seppo Puuronen, Mykola Pechenizkiy, and Alexey Tsymbal
- Social Enterprise Architecture: Towards an Extendable and Scaleable System Architecture for KM 584
Flavio Corradini, Alberto Polzonetti, Romeo Pruno, and Roberto D'Angelo
- Analyzing Behavioral Data for Refining Cognitive Models of Operator 588
Olivier Georgeon, Alain Mille, and Thierry Bellet

Session 2

- Invited Paper: Intelligent Data Mining Assistance via CBR and Ontologies*..... 593
Michel Charest, Sylvain Delisle, Ofelia Cervantes, and Yanfen Shen
- Genetic Algorithms and Neural Networks in the Molecular Design of Novel Fibers 598
Hugh M. Cartwright, Rohan M. Gunatillake, and Les Sztandera
- Visualization and Bayesian Nets to Link Business Aims through KDD to Deployment..... 603
Keith Rennolls

Session 3

- Some Approaches to the Model Error Problem in Data Mining Systems..... 608
V. Reznikov

W13 – GRep '06

2nd International Workshop on Data Management in Global Data Repositories

- Workshop Introduction and Organizers 615

<i>Invited Paper: How Can Mobile Agents and Cost Model Approaches Help for Distributed Query Optimization?</i>	617
<i>Abdelkader Hameurlain and Franck Morvan</i>	
<i>Invited Paper: Data Replication and Update Management in Mobile Ad Hoc Networks</i>	622
<i>Takahiro Hara</i>	
Processing of Multiple Long-Running Queries in Large-Scale Geo-Data Repositories	627
<i>Wee Hyong Tok and Stéphane Bressan</i>	
Realization of Continuous Queries with k NN Join Processing in Spatial Telemetric Data Warehouse	632
<i>Marcin Gorawski and Wojciech Gębczyk</i>	
P2P-Join: A Keyword Based Join Operation in Relational Database Enabled Peer-to-Peer Systems	637
<i>Zhigang Chen, Zhongding Huang, Bo Ling, and Jiang Li</i>	
Modeling Analytical Indicators Using Data Warehouse Metamodel.....	642
<i>Andrzej Januszewski and Tadeusz Pankowski</i>	
Schema Repository for Database Schema Evolution.....	647
<i>Hassina Bounif and Rachel Pottinger</i>	
Identifying Indirect Attribute Correspondences in Multilingual Schemas.....	652
<i>Hongding Wang, Shaohua Tan, Shiwei Tang, Dongqing Yang, and Yunhai Tong</i>	
Virtual Repository Supporting Integration of Pluginable Resources	657
<i>Kamil Kuliberda, Piotr Błaszczak, Grzegorz Balcerzak, Krzysztof Kaczmarek, Radosław Adamus, and Kazimierz Subieta</i>	
Density Estimation Technique for Data Stream Classification.....	662
<i>Nittaya Kerdprasop and Kittisak Kerdprasop</i>	
Data Growth in Banking Sector	667
<i>Maytham Safar and Abdullah Al-Najjar</i>	

W14 – PDMST '06

3rd International Workshop on P2P Data Management, Security and Trust

Workshop Introduction and Organizers	675
--	-----

Session 1: Privacy, Trust, and Security in P2P Networks I

<i>Keynote Talk: Innovative Ideas in Privacy Research</i>	677
<i>Bharat Bhargava</i>	
Privacy, Security and Trust in P2P Environments: A Perspective.....	682
<i>Anirban Mondal and Masaru Kitsuregawa</i>	
Developing and Managing Trust in Peer-to-Peer Systems	687
<i>Liang Ge, Junzhou Luo, and Yaobin Xu</i>	
A Trust-Aware, P2P-Based Overlay for Intrusion Detection.....	692
<i>Claudiu Duma, Martin Karresand, Nahid Shahmehri, and Germano Caronni</i>	

Session 2: Privacy, Trust, and Security in P2P Networks II

<i>Invited Paper: How to Use Events and Rules for Supporting Role-Based Security?</i>	698
<i>Raman Adaikkalavan and Sharma Chakravarthy</i>	
Trust and Security in Mobile Peer-to-Peer System	703
<i>Vijay Kumar</i>	
String-Matching and Update through Algebraic Signatures in Scalable Distributed Data Structures	708
<i>Riad Mokadem and Witold Litwin</i>	
A Protocol for Secure Content Distribution in Pure P2P Networks.....	712
<i>Esther Palomar, Juan M. Estevez-Tapiador, Julio C. Hernandez-Castro, and Arturo Ribagorda</i>	

Session 3: P2P Architectures and Searching

A P2P Integration Architecture for Protein Resources	717
<i>Kajal T. Claypool and Sanjay Madria</i>	
Opportunistic Networks: Challenges in Specializing the P2P Paradigm	722
<i>Leszek Lilien, Z. Huma Kamal, and Ajay Gupta</i>	
DBNet: A Service-Oriented Database Architecture.....	727
<i>Wee Hyong Tok and Stéphane Bressan</i>	
Service and Resource Discovery Using P2P.....	732
<i>Mika Pennanen, Sami Lehtonen, and Sami Pönkänen</i>	
Author Index	737