# Table of Contents

18th International Conference on Database and Expert Systems Applications

**DEXA 2007**

---

**Message from the Program Chairs**

---

## W01 — XANTEC ‘07

2nd International Workshop on XML Data Management Tools & Techniques

---

**Workshop Introduction and Organizers**

---

- **Querying XML Data Using PC Cluster System**
  - Toshiyuki Amagasa, Kentarou Kido, and Hiroyuki Kitagawa
  - Page 5

- **FOX: Inference of Approximate Functional Dependencies from XML Data**
  - Fabio Fassetti and Bettina Fazzinga
  - Page 10

- **A Generic Framework for Target-Specific Transformation Operators in XML Transformation Languages**
  - Daniel Fötsch
  - Page 15

- **Synopsis Data Structures for XML Databases: Models, Issues, and Research Perspectives**
  - Angela Bonifati and Alfredo Cuzzocrea
  - Page 20

- **Modeling and Validating Spatio-Temporal Conceptual Schemas in XML Schema**
  - Massimo Franceschet, Angelo Montanari, and Donatella Gubiani
  - Page 25

- **XML Query Optimization: Specify Your Selectivity**
  - Sven Hartmann and Sebastian Link
  - Page 30

- **Freshness Control of XML Documents for Query Load Balancing**
  - Stéphane Gançarski, Cécile Le Pape, and Alda Lopes Gançarski
  - Page 35

- **Incrementally-Updatable Stream Processors for XPath Queries Based on Merging Automata via Ordered Hash-Keys**
  - Hajime Takekawa and Hiroshi Ishikawa
  - Page 40
Session 1: Visual Data Analysis

Keynote Speech
Video Shots Comparison Using the Mallows Distance .............................................................. 49
  Costantino Grana, Danielle Borghesani, and Rita Cucchiara

Unsupervised Learning of Manifolds via Linear Approximations ........................................... 54
  Hassan A. Kingravi, M. Emre Celebi, and Pragya P. Rajauria

Session 2: Multimedia Indexing

A New Scheme of Automatic Semantic Propagation in the Image Data Base Using a Hierarchical
Structure of Semantics .................................................................................................................. 59
  Mohammad Reza Keyvanpour, Shabnam Asbaghi, and Mahmoud Fathy

An Index Structure to Retrieve Documents with Geographic Information .............................. 64
  Miguel R. Luaces, Jose R. Paramá, Oscar Pedreira, Diego Seco, and José R.R. Viqueira

A New Approach for Document Indexing Using Wavelet Trees ................................................ 69
  Nieves R. Brisaboa, Yolanda Cillero, Antonio Fariña, Susana Ladra, and Oscar Pedreira

Session 3: Multimedia Semantics

Towards a Definition of an Image Ontology .................................................................................. 74
  Antonio Penta, Antonio Picariello, and Letizia Tanca

Visual Surveillance Metadata Management ................................................................................... 79
  Petr Chmelar and Jaroslav Zendulka
W03 — MIMIC ’07
1st International Workshop on Management and Interaction with Multimodal Information Content

Workshop Introduction and Organizers

Mobile Multimodal Applications on Mass-Market Devices: Experiences
Giovanni Frattini, Francesco Gaudino, and Vladimiro Scotto di Carlo

A Comparison between Decision Trees and Markov Models to Support Proactive Interfaces
Joan De Boeck, Kristof Verpoorten, Kris Luyten, and Karin Coninx

Automatic Genre Classification of TV Programmes Using Gaussian Mixture Models and Neural Networks
Maurizio Montagnuolo and Alberto Messina

Situated Multimodal Documents
Augusto Celentano and Fabio Pittarello

A System for Database Visual Querying and Query Visualization: Complementing Text and Graphics to Increase Expressiveness
Claudio Cerullo and Marco Porta

Information Extraction Based on Personalization and Contextualization Models for Multimodal Data
Maria Chiara Caschera and Arianna D’Ulizia

W04 — ETID ’07
1st International Workshop on Evolutionary Techniques in Data-Processing

Workshop Introduction and Organizers

Fusing Data and Optimizing Queries for Intelligent Search
Václav Snášel, Pavel Krömer, Suhail S.J. Owais, Dušan Húsek, Behzad Moshiri, and Amir Keyhanipour

Upgrading Web Search Queries
Suhail S.J. Owais, Pavel Krömer, Václav Snášel, S. Maleki-Dizaji, and Henry O. Nyongesa

Implicit User Modelling for Query Optimization
Pavel Krömer, Václav Snášel, Jan Platoš, and Suhail S.J. Owais

Clustering Genetic Algorithm
Petra Kudová

Self-Organizing Maps and SVD
Jiří Dvorský

Dermatology Disease Classification via Novel Evolutionary Artificial Neural Network
Antonia Azzini and Stefania Marrara

Synthesis of Artificial Neural Networks by Evolutionary Methods
Zelinka Ivan and Vaňačka Pavel

Variants of Memetic and Hybrid Learning of Perceptron Networks
Roman Neruda and Stanislav Slušný
W05 — KUPA ‘07
1st International Workshop on Knowledge Management and Discovery for Ubiquitous and Pervasive Applications

W06 — FIND ‘07
International Workshop on Dynamic Taxonomies and Faceted Search
Session: Advanced Text Analysis and Document Models

Author Identification Using Imbalanced and Limited Training Texts........................................................................ 237
Efstathios Stamatos

Classifying XML Documents by Using Genre Features .......................................................................................... 242
Malcolm Clark and Stuart Watt

Generating a Topic Hierarchy from Dialect Texts .................................................................................................. 249
Wim De Smet and Marie-Francine Moens

Session: Software Engineering and Applications

A System for Summary-Document Similarity in Notary Domain ............................................................................. 254
Carmine Cesarano, Antonio Mazzeo, and Antonio Picariello

An MDA Approach to Implement Personal IR Tools ............................................................................................. 259
Sven Meyerzu Eissen and Benno Stein

Session: Retrieval and Ranking

Regression Relevance Models for Data Fusion ....................................................................................................... 264
Shengli Wu, Yaxin Bi, and Sally McClean

Web Page Scoring Based on a Link Analysis of Web Page Sets ............................................................................ 269
Hitoshi Nakakubo, Shinsuke Nakajima, Kenji Hatano, Jun Miyazaki, and Shunsuke Uemura

Hyperlink Classification: A New Approach to Improve PageRank ...................................................................... 274
Cun-he Li and Ke-quiang Lv

Session: Semantic Web and Annotation

Automatic Annotation for Korean — Approach Based on the Contextual Exploration Method ................................. 278
Hyunzoo Chai

Aspects of Broad Folksonomies ........................................................................................................................... 283
Mathias Lux, Michael Granitzer, and Roman Kern

Apolda: A Practical Tool for Semantic Annotation ............................................................................................ 288
Christian Wartena, Rogier Brussee, Luit Gazendam, and Willem-Olaf Huijsen
W08 — DSSHM 07

1st International Workshop on Decision Support in Structural Health Monitoring and Flexible Query Processing in Information Systems

Workshop Introduction and Organizers........................................................................................................................................293

Session 1

Structural Health Monitoring of a Rotor Blade during Statical Load Test .........................................................297
Lars Schubert, Martin Küttner, Bernd Frankenstein, and Dieter Hentschel

Optimal Sensor Placement for Damage Detection: Role of Global Search.............................................................................302
Prakash Kripakaran, Sandro Saitta, Suraj Ravindran, and Ian F.C. Smith

Automatic Decision Making in SHM Using Hidden Markov Models ..............................................................307
Constanze Tschöpe and Matthias Wolff

VCDECIS — Knowledge Online, Advanced Content Management Using a Semantic Network........................................312
Ernst Forstner, Reinhard Stumptner, Bernhard Freudenthaler, and Josef Kling

Session 2

Integrating User and Group Preferences for Top-k Search from Distributed Web Resources ........................................317
Alan Eckhardt, Jaroslav Pokorný, and Peter Vojtáš

An Interval Ranking Method of Multimedia Presentation Based on Relative Query Keyword Position ...................323
Daisuke Kitayama, Youko Kitahata, Ryoko Hiramoto, and Kazutoshi Sumiya

Query Answering in Relational Inductive Databases .............................................................................................329
Kittisak Kerdprasop, Nittaya Kerdprasop, and Apichai Ritthongchailert

A Novel Approach to Fine-Grained Content-Based Access Control for Video Databases ......................................334
Nguyen Anh Thy Tran and Tran Khanh Dang

W09 — FlexDBIST ’07

2nd International Workshop on Flexible Database and Information System Technology

Workshop Introduction and Organizers........................................................................................................................................339

Session 1: Flexible Querying and Integrity Checking

On the Use of Case Based Reasoning Techniques in Flexible Querying (Invited Paper) .................................................345
Guy de Tré, Tom Matthé, Parisa Kordjamshidi, and Marysa Demoor

Flexible Querying of Multiple Data Sources through Fuzzy Summaries..............................................................350
Patrick Bosc, Allel Hadjali, Hélène Jaudoin, and Olivier Pivert

The Egloo Fuzzy Web Data Source Selection Tool ................................................................................................355
Marlene Goncalves and Leonid Tineo
Session 2: Flexibility in Intrusion Detection, Ontology Management, and Data Integration

Intensive Use of Bayesian Belief Networks for the Unified, Flexible and Adaptable Analysis of Misuses and Anomalies in Network Intrusion Detection and Prevention Systems (Invited Paper) .......................................................... 365
  Pablo García Bringas
Computing Degree of Association Based on Different Semantic Relationships ............................................................... 372
  Xuan Tian, Xiaoyong Du, and Haihua Li
User Feedback in Probabilistic Integration .................................................................................................................. 377
  Ander de Keijzer and Maurice van Keulen

Session 3: Data Mining

Mining Multidimensional Data Using Clustering Techniques .................................................................................................. 382
  Marco Pagani, Gloria Bordogna, and Massimiliano Valle
Anomaly Detection in XML Databases by Means of Association Rules ........................................................................ 387
  Giulia Bruno, Paolo Garza, Elisa Quintarelli, and Rosalba Rossato

Session 4: Flexible Querying

Machine Learning for Question Answering from Tabular Data ................................................................................................. 392
  Mahboob Alam Khalid, Valentin Jijkoun, and Maarten de Rijke
An Alternative Product Extraction Method for E-Commerce Applications ........................................................................... 397
  Murat Koyuncu

W10 — SWAE ‘07

1st International Workshop on Semantic Web Architectures for Enterprises

Session 1: Semantic Interoperability among Enterprises by Means of Ontology Mapping

An Approach to Ontology Mapping Based on the Lucene Search Engine Library ................................................................. 407
  Giuseppe Pirrò and Domenico Talia
Mapping of Heterogeneous Schemata, Business Structures, and Terminologies .............................................................. 412
  Domenico Beneventano, Sabina El Haoum, and Daniele Montanari
Session 2: Exploiting Services in a Business Environment

A P2P-Based Architecture for Semantic Web Service Automatic Composition
Federica Mandreoli, Antonio M. Perdichizzi, and Wilma Penzo

Framework for Ontology-Centered Modeling and Integration of Services in Web-Based Processes
Alexandra Galatescu, Cristian Neicu, and Taisia Greceanu

W11 — WebS '07
6th International Workshop on Web Semantics

Session 1

Interoperability for Semantic Annotations
Stefano Paolozzi and Paolo Atzeni

Sharing Data on the Grid Using Ontologies and Distributed SPARQL Queries
Andreas Langegger, Martin Blöchl, and Wolfram Wöß

SWARD: Semantic Web Abridged Relational Databases
Johan Petrini and Tore Risch

RDF and Logic: Reasoning and Extension
Jos de Bruijn and Stijn Heymans

Session 2

Ontology Exploration through Logical Views in Protégé
Alessio Bosca and Dario Bonino

Automatic Generation of Ontology from the Deep Web
Yoo Jung An, James Geller, Yi-Ta Wu, and Soon Ae Chun

KoMIS: An Ontology-Based Knowledge Management System for Industrial Safety
Amjad Abou Assali, Dominique Lenne, and Bruno Debray

Session 3

Enhancing Ontology Concept Design by Knowledge Discovery
Silvana Castano and Alfio Ferrara

Ontology-Based Retrieval of Human Speech
Javier Tejedor, Roberto García, Miriam Fernández, Fernando J. López-Colino, Ferrán Perdrix, José A. Macias, Rosa M. Gil, Marta Oliva, Diego Moya, José Colás, and Pablo Castells
Improving Email Conversation Efficiency through Semantically Enhanced Email

Simon Scerri, Brian Davis, and Siegfried Handschuh

W12 — ACKE ’07
International Workshop on Advances in Conceptual Knowledge Engineering

Workshop Introduction and Organizers

Session 1: Data Mining and Knowledge Processing

Subtree Testing and Closed Tree Mining through Natural Representations

José L. Balcázar, Albert Bifet, and Antoni Lozano

Towards a Finer Assessment of Extraction Contexts Sparseness

Tarek Hamrouni, Sadok Ben Yahia, and Englebert Mephu Nguifo

A Binary Decision Diagram to Discover Low Threshold Support Frequent Itemsets

Wassim Ayadi and Khedija Arour

Integrated Generic Association Rule Based Classifier

Ines Bouzouita and Samir Elloumi

Session 2: Ontologies and Applications

Mining Complex Hydrobiological Data with Galois Lattices

A. Bertaux, A. Braud, and F. Le Ber

A New Alignment Method for OWL-Lite Ontologies Using Propagation of Similarity over the Graph

Sami Zghal, Englebert Mephu Nguifo, Karim Kamoun, Sadok Ben Yahia, and Yahya Slimani

A Clarification of the Ontological Status of “Knowledge Roles”

Sabine Bruaux, Gilles Kassel, and Gilles Morel

Session 3: Software Engineering and Knowledge Processing

FCA for Contextual Semantic Navigation and Information Retrieval in Heterogeneous Information Systems

Géraldine Polaillon, Marie-Aude Aufaure, Bénédicte Le Grand, and Michel Soto

Exploring a Geographical Dataset with GEOLIS

Olivier Bedel, Sébastien Ferré, Olivier Ridoux, and Erwan Quesseveur

Citation Analysis Using Formal Concept Analysis: A Case Study in Software Engineering

Thomas Tilley and Peter Eklund
Session 1: Web Mining and Intelligence

Frequent XML Query Pattern Mining Based on FP-Tree
Mi Sug Gu, Jeong Hee Hwang, and Keun Ho Ryu

A Logical Model for Detecting Irregular Actions in Physical Access Environment
António Leong, Simon Fong, and Zhuang Yan

Web Services Semantic Searching Enhanced by Case Reasoning
Ling Wang and Jinli Cao

Session 2: Adaptive Web Interfaces

A Process Improvement Approach to Improve Web Form Design and Usability
Sean Thompson and Torab Torabi

The Pediaphon — Speech Interface to the Free Wikipedia Encyclopedia for Mobile Phones, PDA’s and MP3-Players
Andreas Bischoff

Consolidating Web Application Server Farms with Redundant Web-Interfaces
MinHwan Ok, Yang-Soo Lee, and Sun-Ho Hong

Session 3: Ubiquitous Context-Aware Applications

Context-Awareness of Content Delivery Service Based on Location Estimate with an Active RFID System
Tomohisa Yamashita, Daisuke Takaoka, Noriaki Izumi, Akio Sashima, Koichi Kurumatani, and Koiti Hasida

A Flexible Architecture for Context-Aware Physical Hypermedia
Cecilia Challiol, Andrés Fortier, Silvia Gordillo, and Gustavo Rossi

Session 4: E-Commerce and E-Business

Rule Component Specification for Business Process Deployment
Saqib Ali, Torab Torabi, and Ben Soh

Incorporating Knowledge into e-Commerce Automated Negotiation
Zhuang Yan, Francis Yan, and Simon Fong
W14 — WMIS ‘07
1st International Workshop on Mobile Information Systems

Workshop Introduction and Organizers ................................................................. 605

Compressed Aggregations for Mobile OLAP Dissemination ............................................................ 609
Ilias Michalarias and Arkadiy Omelchenko

A Scheme of Certificate Authority for Ad Hoc Networks .................................................. 615
Jaydip Sen, M. Girish Chandra, P. Balamuralidhar, Harihara S.G, and Harish Reddy

Using Received Signal Strength Variation for Energy Efficient Data Dissemination in Wireless Sensor Networks ................................................................. 620
Senol Zafer Erdogan and Sajid Hussain

Advances in Computing Technologies: An Insight ............................................................ 625
Y. Mohamadi Begum and M.A. Maluk Mohamed

W15 — ELSys ‘07
1st International Workshop on E-Learning Systems

Workshop Introduction and Organizers ........................................................................ 629

Session: New Improvements to E-Learning

Integrating Intelligent Tutoring Systems and Health Information Systems ....................... 633
Carolina González, Juan C. Burguillo, and Martín Llamas

An e-Learning Collaborative RIA Environment for Web Application Modeling and Code Generation............................................................. 638
Sara Comai, Juan Carlos Preciado, Marino Linaje, Rober Morales, and Fernando Sánchez

Enhancing the Knowledge Management Support within the E-Learning Platforms .......... 643
Mihaela Brut

Session: E-Learning New Applications

A Proposal for Interactive-Constructivistic Teaching Methods Supported by Web 2.0 Technologies and Environments ................................................................. 648
Francesco Di Cerbo and Giancarlo Succi

The Institutional Effect on e-Learning in Hong Kong ............................................................ 653
Eric K.W. Lau

E-studium: An Italian Experience of Blended e-Learning for University Education Support ................................................................. 658
Emanuela Falcinelli, Candida Gori, Judit Jasso, Alfredo Milani, and Simonetta Pallottelli

Experience of Blended e-Learning in Post-Graduate Training for High School Teaching Qualification ................................................................. 663
Emanuela Falcinelli, Flavia Pelizzoni, Chiara Laici, and Alfredo Milani

An e-Learning System Supporting the Problem-Based-Learning Approach: The Case of “Virtual eBMS” ......................................................... 668
G. Secundo, G. Elia, and C. Taurino
W16 — WICS ‘07
5th International Workshop on Internet Communications Security

Workshop Introduction and Organizers

A New Certified Email Protocol
Hao Wang, Yuyi Ou, Jie Ling, Xiang Xu, and Heqing Guo

An Anonymous Account-Based Mobile Payment Protocol for a Restricted Connectivity Scenario
Jesús Augusto Téllez Isaac and José María Sierra Cámara

The Design and Verification of RFID Authentication Protocol for Ubiquitous Computing
Hyun-Seok Kim and Jin-Young Choi

Security Analysis of a New Multi-Party Payment Protocol with Intermediary Service
Mildrey Carbonell, José María Sierra, Joaquín Torres, and Antonio Izquierdo

Distributed and Local Security Policies for Grid Web-Based Resources
Serena Pastore

Interpretation of Binary Strings as Security Protocols for their Evolution by Means of Genetic Algorithms
Luis Zarza, Josep Pegueroles, and Miguel Soriano

A New Domain-Based Payment Model for Emerging Mobile Commerce Scenarios
Diego Suarez, Joaquin Torres, Mildrey Carbonell, and Jesus Tellez

Using Description Logic and Rules to Determine XML Access Control
Brian Shields and Owen Molloy

W17 — SPattern ‘07
1st International Workshop on Secure Systems Methodologies Using Patterns

Session 1: Security Management with Patterns

Extensible Security Patterns
Philip Robinson

A Security Engineering Process Based on Patterns
Denis Hatebur, Maritta Heisel, and Holger Schmidt

Patterns for Automated Management of Security and Dependability Solutions
Francisco Sanchez-Cid and Antonio Maña

Patterns in Security Enforcement Policy Development
Dan Thomsen
Session 2: Pattern Applications and Systems

Extending a Secure System Development Methodology to SOA................................................................. 749
  Eduardo B. Fernandez, Preethi Cholmondeley, and Olaf Zimmermann
Patterns for Authentication and Authorisation Infrastructures ...................................................................... 755
  Roland Erber, Christian Schläger, and Günther Pernul
Using Patterns Paradigm to Refine Workflow Policies .................................................................................. 760
  Taufiq Rochaeli and Claudia Eckert

Session 3: Forensics and Trusted Platforms

Facilitating the Use of TPM Technologies through S&D Patterns........................................................................ 765
  Sigrid Gürgens, Carsten Rudolph, Antonio Maña, and Antonio Muñoz
Patlet for Digital Forensics First Responders ..................................................................................................... 770
  Dirk Kotze and Martin S. Olivier

W18 - PDMST ‘07 & GRep ‘07

4th International Workshop on P2P Data Management, Security and Trust

3rd International Workshop on Data Management in Global Data Repositories

Workshop Introduction and Organizers ................................................................................................................ 775

Session I: Trust and Security in M-P2P

Dealing with Sporadic Strangers, or the (Un)Suitability of Trust for Mobile P2P Security................................ 779
  Esther Palomar, Juan M. Estevez-Tapiador, Julio C. Hernandez-Castro, and Arturo Ribagorda
Trustworthiness of Acquaintance Peers on Access Control Models ...................................................................... 784
  Yoshio Nakajima, Kenichi Watanabe, Alireza Goudarzi Nemati, Tomoya Enokido, and Makoto Takizawa
An Effective and Secure Search of Office Documents ...................................................................................... 789
  Somchai Chatvichienchai and Katsumi Tanaka

Session II: Data Integration

Data Caching in Data Integration Systems Based on AXML Technology ............................................................ 794
  Marcin Marczewski and Tadeusz Pankowski
OntoAPI: An Ontology-Based Data Integration Approach by an a Priori Articulation of Ontologies ................... 799
  Ladjel Bellatreche and Guy Pierra
Dimensionality Reduction in a P2P System ............................................................................................................. 804
  Mouna Kacimi and Kokou Yé tongnon
Session III: M-P2P Overview

Research Issues and Overview of Economic Models for Mobile-P2P Networks ................................................................. 809
   Anirban Mondal, Sanjay Kumar Madria, and Masuru Kitsuregawa

P2P over Manet: A Comparison of Cross-Layer Approaches ........................................................................................................ 814
   Mario Bisignano, Giuseppe Di Modica, Orazio Tomarchio, and Lorenzo Vita

Selection of Redundant and non Redundant Optimization Structure in VLDBs ................................................................. 819
   Ladjel Bellatreche

W19 — WEISE '07

1st International Workshop on Enterprise Information Systems Engineering

Workshop Introduction and Organizers ........................................................................................................................................... 825

A UML Profile for Variability Models and their Dependency to Business Processes ................................................................. 829
   Birgit Korherr and Beate List

Identifying Domain Context for the Intentional Modelling Technique MAP .................................................................................. 835
   Abdul Babar, Karl Cox, Vladimir Tosic, Steven Bleistein, and June Verner

Adding a Human Perspective to Enterprise Architectures ........................................................................................................... 840
   Marielba Zacarias, Artur Caetano, Rodrigo Magalhães, Helena S. Pinto, and José Tríbolet

Collaborative Workflow Management for eGovernment ................................................................................................................ 845
   Christian Wolter, Henrik Plate, and Cédric Hebert

Understanding Enterprise Integration Project Risks: A Focus Group Study ...................................................................................... 850
   Sandeep Purao, Sharoda Paul, and Steven Smith

Coordination in Service Oriented Architectures Using Transaction Processing Concepts .............................................................. 855
   Peter Hrastnik and Werner Winiwarter

Author Index ....................................................................................................................................................................................... 861

xviii