# 22nd International Workshop on Database and Expert Systems Applications

**DEXA 2011**

## Table of Contents

- **Message from DEXA 2011 Program Chairs** .............................................................. xvi
- **DEXA 2011 Organizing Committee** ........................................................................... xvii
- **Workshop ITSMS 2011 Preface** ................................................................................ xviii
- **Workshop ITSMS 2011 Organizing Committee** ......................................................... xix
- **Workshop DBLM 2011 Preface** .................................................................................. xx
- **Workshop DBLM 2011 Organizing Committee** .......................................................... xxi
- **Workshop FlexDBIST 2011 Preface** .......................................................................... xxi
- **Workshop FlexDBIST 2011 Organizing Committee** .................................................. xxii
- **Workshop TIR 2011 Preface** ...................................................................................... xxiv
- **Workshop TIR 2011 Organizing Committee** ............................................................... xxv
- **Workshop WebS 2011 Message from Workshop Chairs** ........................................... xxvi
- **Workshop WebS 2011 Organizing Committee** ............................................................ xxvii
- **Workshop ISSASiM 2011 Message from Program Committee Chairs** ................... xxix
- **Workshop ISSASiM 2011 Organizing Committee** ...................................................... xxx
- **Workshop DALI 2011 Preface** .................................................................................... xxxi
- **Workshop DALI 2011 Organizing Committee** ............................................................. xxxii
- **Workshop IMPRESS 2011 Preface** .......................................................................... xxxiii
- **Workshop IMPRESS 2011 Organizing Committee** .................................................... xxxiv
- **Workshop BIOKDD 2011 Preface** ............................................................................. xxxv
First International Workshop on IT Service Management and Its Support (ITSM 2011)

Keynote Abstract
Management of Large-Scale e-Infrastructures at LRZ .........................................................5

Dieter Kranzlmüller

Mission Critical IT
On the Design of IT Key Performance Indicators .................................................................9

Dirk Draheim

Going Paperless - On the Evaluation of Electronic Form Technologies ..................................14

Christof Lutteroth and Gerald Weber

ITSM Implementation
Understanding the ITIL Implementation Project: Conceptualization and Measurements ...21

Jon Iden and Tom Roar Eikebrokk

Improving Incident Management Processes in Two IT Service Provider Companies ..........26

Marko Jäntti

Software versus IT Service: A Comparative Study from Requirements Engineering Perspective ....31

Didar Zowghi and Ava Bargi
Trends in Cloud Computing
A Software Assurance Evidence Approach to Cloud Security .......................................................... 39
   Marcus Spies

Transactional Support in the Cloud: Taking Advantage of Classic Approaches .................................. 44
   José Enrique Armendáriz-Iñigo, Itziar Arrieta-Salinas, Joan Navarro, and August Climent

Service Oriented-Architecture and ITSM
Extending Feature Models with Deep Instantiation to Manage Complexity and Dynamism of Services .................................................................................................................. 51
   Siniša Neškovic and Radovan Cvetkovic

A Proposal for Anarchy in SOA Governance: Make Services, Not Rules ........................................ 56
   Thomas Ziebermayr and Bernhard Freudenthaler

Third International Workshop on Database Technology for Data Management in Life Sciences and Medicine (DBLM 2011)

Biological Applications
Integrating Human Genome Variation Data: An Information System Approach.................................. 65
   Ainoha Martin and Matilde Celma

Novel Application of Query-Based Qualitative Predictors for Characterization of Solvent Accessible Residues in Conjunction with Protein Sequence Homology ............................................................................................................................... 70
   Daniel A. Rose, Reecha Nepal, Radhika Mishra, Robert Lau, Shabnam Gholizadeh, and Brooke Lustig

Flexible Specification of Data Models for Neuroscience Databases .................................................... 75
   Philipp L. Rautenberg and Thomas Wachtler

Medical Applications
JGrid/FCC: A Tool for Efficient Knowledge Extraction from MRI Scans ............................................. 81
   Christian Böhm, Annahita Oswald, and Felix Sappelt

Analysing Stillbirth Data Using Dynamic Self Organizing Maps .......................................................... 86
Sixth International Workshop on Flexible Database and Information System Technology (FlexDBIST 2011)

Security and Privacy
Challenges and Limitations in Current Botnet Detection .................................................................95
  Felix Brezo, Igor Santos, Pablo G. Bringas, and José Luis del Val
Security and Privacy in Smart Grid Infrastructures .............................................................................102
  Alessandro Barenghi and Gerardo Pelosi

Opinion Mining, Data Mining and OLAP
Twitter for Sentiment Analysis: When Language Resources are Not Available .....................................111
  Alexander Pak and Patrick Paroubek
Mining Context-Aware Preferences on Relational and Sensor Data ....................................................116
  Davide Beretta, Elisa Quintarelli, and Emanuele Rabosio
Record Linkage in Data Warehousing: State-of-the-Art Analysis and Research Perspectives ..................121
  Alfredo Cuzzocrea and Laura Puglisi

Query Processing and Database Integrity
XQConverter: A System for XML Query Analysis ................................................................................129
  Jirí Schejbal, Jakub Stárka, and Irena Mýnková
Mapping Physical Objects to Digital Functions: A Tangible Interface for Querying and Navigating a Multimedia Database .................................................................134
  Fabio Pittarello and Riccardo Stecca
On the Performance of Database Query Processing Algorithms on Flash Solid State Disks ........................139
  Daniel Bausch, Ilia Petrov, and Alejandro Buchmann
Flexible Repairs for Improving the Integrity of Databases ..................................................................145
  Hendrik Decker

Eighth International Workshop on Text-Based Information Retrieval (TIR 2011)

Information Quality and Evolution
Model Selection Strategies for Author Disambiguation ........................................................................155
  Roman Kern, Mario Zechner, and Michael Granitzer
An Evaluation Model for Systems and Resources Employed in the Correction of Errors in Textual Documents  .................................................................160
Arnaud Renard, Sylvie Calabretto, and Béatrice Rumpler

WWW and Semantic Web
A Fast and Accurate Approach for Main Content Extraction Based on Character Encoding ..........................................................................................167
Hadi Mohammadzadeh, Thomas Gottron, Franz Schweiggert, and Gholamreza Nakhaieizadeh

Studying the Impact of Text Summarization on Contextual Advertising ..........................................................172
Giuliano Armano, Alessandro Giuliani, and Eloisa Vargiu

Named Entity Recognition for User-Generated Tags ...............................................................................................177
Nadine Ludwig and Harald Sack

Information Retrieval and Web Search
Robust Models in Information Retrieval ..............................................................................................................185
Nedim Lipka and Benno Stein

Effective Keyword Search over Relational Databases Considering Keywords Proximity and Keywords N-grams .............................................................................190
Sina Fakhraee and Farshad Fotouhi

Fusing Blog Opinion Retrieval Results for Better Effectiveness ........................................................................195
Shengli Wu

Clustering and Classification
Enhancing Accuracy of Multilabel Classification by Extracting Hierarchies ......................................................203
Alexander Ulanov, German Sapozhnikov, Nickolay Lyubomishchenko, Vladimir Polutin, and Georgy Shevlyakov

Classifying Words: A Syllables-Based Model ......................................................................................................208
P. Warintarawej, A. Laurent, P. Pompidor, A. Cassanas, and B. Laurent

10th International Workshop on Web Semantics (WebS 2011)

Session I
Text Mining-Supported Information Extraction: An Extended Methodology for Developing Information Extraction Systems .........................................................................................217
Christina Feilmayr
Semi-automated Methods for the Annotation and Design of a Semantic Network Designed for Sentiment Analysis of Social Web Content

Donato Barbagallo, Leonardo Bruni, Chiara Francalanci, Paolo Giacomazzi, Francesco Merlo, and Alessandro Poli

Session II

OWLDiff: A Practical Tool for Comparison and Merge of OWL Ontologies

Petr Kremen, Marek Šmíd, and Zdeněk Kouba

Exploring Web Semantic Knowledge and User Feedback to Improve Ontology Matching

Thiago Pachêco Andrade Pereira, Carlos Eduardo Pires, and Ana Carolina Salgado

Generating Arguments for Ontology Matching

Paulo Maio, Nuno Silva, and José Cardoso

Session III

A Semantics-Enabled Web API Registry

Devis Bianchini, Valeria de Antonellis, and Michele Melchiori

Performance Evaluation of Oracle Semantic Technologies with Respect to User Defined Rules

Ashraf Yaseen, Kurt J. Maly, Steven J. Zeil, and Mohammad Zubair

3rdf: Storing and Querying RDF Data on Top of the 3nuts Overlay Network

Liaquat Ali, Thomas Janson, and Georg Lausen

First International Workshop on Information Systems for Situation Awareness and Situation Management (ISSASiM 2011)

Sensor Data Management for Situation Management

Proactive Situation Management in the Future Internet: The Case of the Smart Power Grid

Babis Magoutas, Gregoris Mentzas, and Dimitris Apostolou

Improving Situation Recognition via Commonsense Sensor Fusion

Nicola Bicocchi, Gabriella Castelli, Marco Mamei, and Franco Zambonelli
Process and Workflow Management for Situation Awareness
Towards Exploiting Social Software for Business Continuity Management .................................................279
Dirk Draheim and Rauno Pirinen

A Proposal for the Application of Dynamic Workflows in Disaster Management:
A Process Model Language Customized for Disaster Management .................................................................284
Thomas Ziebermayr, Johannes Huber, Stefan Kollarits, and Martin Ortner

Application of Complex Event Processing Paradigm in Situation Awareness
and Management ..................................................................................................................................................289
Sanja Vranes, Mladen Stanojevic, Valentina Janev, Vuk Mijovic,
Nikola Tomasevic, Lydia Kraus, and Zoran Ilic

Knowledge Management in Structural Health Monitoring
The Application of Data Mining in Bridge Monitoring Projects: Exploiting Time
Series Data of Structural Health Monitoring ....................................................................................................297
Ernst Forstner and Helmut Wenzel

ODCA - Ontology-Based Document and Content Annotation in Structural
Health Monitoring .............................................................................................................................................302
Kamil Matoušek and Zdeněk Kouba

Using R, WEKA and RapidMiner in Time Series Analysis of Sensor Data
for Structural Health Monitoring .....................................................................................................................306
Hilda Kosorus, Jürgen Hönigl, and Josef Küng

First International Workshop on Data, Logic
and Inconsistency (DALI 2011)

Paraconsistent Logics
Paraconsistent Inference from Data Using Existential Omega-Entailment .........................................................315
Michael Kassoff and Michael R. Genesereth

Some Observations on the Systems LFI1 and LFI1 ............................................................................................320
Hitoshi Omori and Toshiharu Waragai

Probabilistic and Argumentation-Based Logics
Handling Various Forms of Inconsistency in Possibilistic Logic .........................................................................327
Didier Dubois and Henri Prade

A First Attempt to Allow Enthymemes in Persuasion Dialogs ........................................................................332
Florence Dupin de Saint-Cyr
Applications

Measuring Inconsistency in Network Intrusion Rules ...........................................................................339  
  Kevin McAreavey, Weiru Liu, and Paul Miller

Intuitionistic Description Logic and Legal Reasoning ..............................................................................345  
  Edward Hermann Haeusler, Valeria de Paiva, and Alexandre Rademaker

Bounded Rationality for Data Reasoning Based on Formal Concept Analysis ........................................350  
  Gonzalo A. Aranda-Corral, Joaquin Borrego-Diaz, and Juan Galán-Páez

Second International Workshop on Interactive Multimodal Pattern Recognition in Embedded Systems (IMPRESS 2011)

Embedded Applications

Improvement of Embedded Human-Machine Interfaces Combining Language, Hypothesis and Error Models ...........................................................................................................................359  
  Juan-Carlos Perez-Cortes, Rafael Llobet, J. Ramon Navarro-Cerdan, and Joaquim Arlandis

Computer Vision Applications: Home, Office and Industry ....................................................................364  
  Ismael Salvador, Javier Cano, José Luis Guardiola, Marc Albero, Diego Carrión, and Juan-Carlos Perez-Cortes

Visual and Audio-Visual Systems

Behavior Analysis and Dynamic Crowd Management in Video Surveillance System .......................................371  
  Maciej Szczodrak, Jozef Kotus, Krzysztof Kopaczewski, Kuba Lopatka, Andrzej Czyzewski, and Henryk Krawczyk

Multimodal Audio-Visual Recognition of Traffic Events ............................................................................376  

3D Systems

Quality Evaluation in a 3D Inspection System .........................................................................................383  
  Ismael Salvador, Diego Carrión, François Signol, Juan Carlos Pérez-Cortés, and Sergio Sáez

Retrieving Textures for 3D Scanning System Based on Grid Pattern Method ........................................387  
  Thibault Yohan, Kawasaki Hiroshi, Sagawa Ryusuke, and Furukawa Ryo
Second International Workshop on Biological Knowledge Discovery and Data Mining (BIOKDD 2011)

Session I
Circular Rank Distance: A New Approach for Genomic Applications .......................................................... 397
   Liviu P. Dinu and Florin Ghetu

Knowledge Discovery in Gene Expression Data via Evolutionary Algorithms ........................................... 402
   Laura Maria Cannas, Nicoletta Dessi, and Barbara Pes

Improving Algorithms for Knowledge Discovery in Genetics Databases .................................................. 407
   Heni Bouhamed, Thierry Lecroq, Ahmed Rebai, and Maher Jaoua

Session II
Improving the Biological Relevance of Biclustering for Microarray Data in Using Ensemble Methods ......................................................................................................................................................................................... 413
   Blaise Hanczar and Mohamed Nadif

Different Variants of Normalized EM Algorithm for Gene Expression Data .................................................. 418
   W. Parr Bouberima, Y. Khemal Bencheikh, and Mohamed Nadif

Block Mixture Model for the Biclustering of Microarray Data .................................................................... 423
   Haifa Ben Saber, Mourad Elloumi, and Mohamed Nadif

Ontologies for Dynamic Modeling of Genetics Regulatory Networks .......................................................... 428
   Inès Hamdi and Mohamed Ben Ahmed

Session III
Alternative Splicing in the Fly and the Worm: Splicing Databases for Drosophila melanogaster and Caenorhabditis elegans .......................................................................................................................................................................................... 435
   Bahar Taneri, Ben Snyder, Alexey Novoradovsky, and Terry Gaasterland

Crossing Isoorthology and Microsynteny to Resolve Multigenic Families .................................................. 440
   Virginie Calderon, Roland Barriot, Yves Quentin, and Gwennaele Fichant

DM-pred Method: A New Method to Predict Secondary Structures Based on Data Mining Techniques ........................................................................................................................................................................................................ 445
   Sondés Fayech, Nadia Essoussi, and Mohamed Limam
First International Workshop on Exploiting Large Knowledge Repositories (E-LKR 2011)

Life Science Scenerios
Exploitation of Cross-References between Terminological Resources within the CALBC Context .................................................................455
Ernesto Jiménez-Ruiz, Dietrich Rebholz-Schuhmann, and Ian Lewin
Preliminary Results for Biomedical Word Sense Disambiguation Based on Semantic Clustering .................................................................................460
Tamara Martín-Wanton, Rafael Berlanga-Llavori, and Antonio Jimeno-Yepes
Towards the Discovery of Semantic Relations in Large Biomedical Annotated Corpora ......................................................................................465
Victoria Nebot Romero, Shahad Kudama, and Rafael Berlanga Llavori

Business Intelligence Scenerios
Mining Text Patterns for Synonyms Extraction .................................................................473
Andrey Simanovsky and Alexander Ulanov
Towards Tailored Semantic Annotation Systems from Wikipedia ........................................478
Shahad Kudama, Rafael Berlanga Llavori, Lisette Garcia-Moya, Victoria Nebot, and María José Aramburu Cabo
Reduce, You Say: What NoSQL Can Do for Data Aggregation and BI in Large Repositories ..............................................................................483
Laurent Bonnet, Anne Laurent, Michel Sala, Bénédicte Laurent, and Nicolas Sicard

First International Workshop on Ontologies Meeting Workflow for Enhancing Collaborative Process Management (OntoFlow 2011)

Session I
An Ontology-Based Assistant for Collaborative Processes ................................................493
Nikos Papageorgiou, Yiannis Verginadis, Dimitris Apostolou, and Gregoris Mentzas
Paper Ontology-Driven Customization of Home-Care Workflows ........................................498
Sabrina Zefouni, Elyes Lamine, Rémi Bastide, and Hervé Pingaud
Collaborative Process Deduction through a Knowledge-Based System ..................................503
Frederick Benaben, Herve Pingaud, Vatcharaphun Rajsiri, and Jean-Pierre Lorre
Session II

Adaptive E-Learning System Using Ontology .................................................................511
Maryam Yarandi, Abdel-Rahman Tawil, and Hossein Jahankhani

Workflow Hierarchical Adaptation Method Using Ontologies ...............................517
Alvaro E. Prieto and Adolfo Lozano-Tello

An Ontology-Based Approach to Adaptive Home Careflows ..............................522
Abdel-Rahman Hani Tawil, Anousak Lihnhoungs, Quentin Chevalier,
and Adel Taweel

International Workshop on Recommender Systems Meet Databases (RSmeetDB 2011)

A File-Based Approach for Recommender Systems in High-Performance
Computing Environments ..................................................................................................529
Simon Dooms, Toon de Pessemier, and Luc Martens

DDB Expert: A Recommender for Distributed Databases Design ..............................534
Rim Moussa

Extended Triple Store Structure Used in Recommender System .........................539
Ago Luberg, Tanel Tammet, and Priit Järv

Combining Semantic and Multilingual Search to Databases
with Recommender Systems ............................................................................................544
Luchiana Cezara Brodeala, Maria J. Martin-Bautista, and Richard J. Gil

TupleRecommender: A Recommender System for Relational Databases ..............549
Sina Fakhraee and Farshad Fotouhi

Recommender System Augmentation of HR Databases for Team
Recommendation ............................................................................................................554
Michele Brocco, Claudius Hauptmann, and Evi Andergassen-Soelva

Author Index .......................................................................................................................559