15th International Conference on Information Integration and Web-based Applications & Services (iiWAS2013)

Editors:
Edgar Weippl, Maria Indrawan-Santiago, Matthias Steinbauer, Gabriele Kotsis, Ismail Khalil (eds.)
PREFACE

We are proud to present the proceedings of iiWAS2013 in Vienna, Austria. In these proceedings, you will find 113 papers accepted at the 15th International Conference on Information Integration and Web-based Applications & Services. The acceptance rate for full papers was around 30%.

For this preface, we chose five papers that exemplify the wide range of topics addressed at the conference. From the Semantic Web to object-oriented frameworks for web Services, from social media and opinion-mining to e-commerce, these papers touch upon only a few of the many topics discussed at iiWAS2013.

In the paper “Formal Linked Data Visualization Model”, Brunetti et al. contribute to the growing field of data visualization, which allows non-expert users to explore the Semantic Web. Their model makes dynamic connections between different data using a library of generic visualizations. Like so many recent developments, it is useful both for users and for data analysts, as it can also be used to make detailed analyses of Linked Data.

Another area where the boundaries between users and researchers become blurred is that of social media. In “Two Phase Extraction Method for Multi-label Classification of Real Life Tweets”, Yamamoto & Satoh describe how they developed a system for classifying tweets of real-life relevance (such as train delays or locations of food and water during an earthquake) into multiple categories so as to increase their usefulness for other users. Due to the typically short sentences used in Tweets, the usual mining approaches cannot be applied, so their method derives the associations and labeling rules from a smaller set of manually labeled tweets.

The extraction of meaning is also the topic of Dinsoreanu et al. “A scalable approach for Contradiction Detection driven by Opinion mining”; however, their focus is on detecting contradicting opinions. Their method extracts opinions from natural language documents, such as news, reviews, etc., and detects inconsistencies – i.e., contradictory opinions expressed by one or several people. They also identify communities based on matching opinions and social data, and can track changes in opinion over time.

In “Good&Service Bundles and B2B E-Commerce by Global Narrow-Specialized Companies”, Fauska et al. address the question of how e-commerce can be used profitably by highly specialized companies, which often dominate their niche markets. In contrast to large multinationals, which have a broad customer base and a worldwide reputation, niche companies have a limited customer share and are hardly known outside their field of specialization. While many of these companies recognized the value of e-commerce very early in the 2000s and have a good reputation, their solutions are often so highly specialized that it is hard to acquire customers without direct customer contacts. The paper discusses these issues on the example of a case study and formulates some interesting questions for future research.

Moving from e-commerce to Web services, “The Substitution Principle in an Object-Oriented Framework for Web Services: From Failure to Success” by Allam et al. discusses issues in the specification of object-oriented frameworks and suggests that solutions used in other areas should be applied there as well: A loose coupling of the service and object layers would allow changes in the service layer with only a minimal impact on the object layer, while introducing interoperability induced by the substitution principle would make it possible to convert subtype values into supertype values. They find that the cxf framework has some coupling and interoperability issues caused by the failure of the substitution principle and propose a new specification for the framework.

While these five papers represent only a few of the many topics addressed in this volume, we hope that this introduction has given you a glimpse of the wide range of papers and whet your appetite for more.

Edgar Weippl and Maria Indrawan-Santiago
iiWAS2013 Program Committee Chairs
Advisory Chair
Gabriele Kotsis, Johannes Kepler University Linz, Austria

Steering Committee Co-chairs
Ismail Khalil, Johannes Kepler University Linz, Austria
David Taniar, Monash University, Australia
Eric Pardede, La Trobe University, Australia
Syopiansyah Jaya Putra, Universitas Islam Negeri, Indonesia

Organizing Chair
Matthias Steinbauer, Johannes Kepler University Linz, Austria

Program Committee Co-chairs
Edgar Weippl, SBA Research & Vienna University of Technology, Austria
Maria Indrawan-Santiago, Monash University, Australia

Publicity Chair
Matthias Steinbauer, Johannes Kepler University Linz, Austria

ERPAS Chair
Nguyen Hong Quang, International University (VNU-HCMC), Vietnam

MDC Chair
Maria Indrawan, Monash University, Australia

Proceedings Chair
Matthias Steinbauer, Johannes Kepler University Linz, Austria

General Secretary
Hesti Sudjana, @WAS Organization

Program Committee
A Min Tjoa, Vienna University of Technology, Austria
Abdulkader Haneurain, Paul Sabatier University, France
Adel Al-Jumaily, University Technology Sydney, Australia
Akiyo Nadamoto, Konan University, Japan
Alessandro Soro, Queensland University of Technology, Australia
Alfredo Cuzzocrea, University of Calabria, Italy
Angela Carrillo Ramos, Pontificia Universidad Javeriana, Colombia
Anselmo Cardoso de Paiva, Universidade Federal do Maranhão, Brazil
Ashraf Elnagar, University of Sharjah, United Arab Emirates
Barbara Catania, University of Genoa, Italy
Beniamino Di Martino, Seconda Universita' di Napoli, Italy
Bernd Freisleben, University of Marburg, Germany
Colette Rolland, Université Paris Panthéon Sorbonne, France
Daniel Hughes, KU Leuven, Belgium
David Taniar, Monash University, Australia
Devis Bianchini, Brescia University, Italy
Dimitris Karagiannis, University of Vienna, Austria
Dion Goh, Nanyang Technological University, Singapore
Eduardo Blanco, Universidad Simon Bolivar, Venezuela
Eric Pardede, La Trobe University, Australia
Erich Schikuta, University of Vienna, Austria
Farookh Khadeer Hussain, University of Technology Sydney, Australia
Hamidah Ibrahim, University Putra Malaysia, Malaysia
Haruo Yokota, Tokyo Institute of Technology, Japan
Hend S. Al-Khalifa, King Saud University, Saudi Arabia
Hong-Linh Truong, Vienna University of Technology, Austria
Hui Ma, Victoria University of Wellington, New Zealand
I Wayan Simri Wicaksana, Universitas Gunadarma, Indonesia
Ilia Petrov, Technische Universitaet Darmstadt, Germany
Jason J. Jung, Yeungnam University, Korea
Jinli Cao, La Trobe University, Australia
Joan Arnedo, Universitat Oberta de Catalunya, Spain
Johannes Sametinger, Johannes Kepler University Linz, Austria
José Francisco Aldana Montes, Universidad de Málaga, Spain
Juha Puustjärvi, Aalto University, Finland
Jun Miyazaki, Nara Institute of Science and Technology, Japan
Junhu Wang, Griffith University, Brisbane, Australia
Kenji Hatano, Doshisha University, Japan
Kin Fun Li, The University of Victoria, Canada
Leon S. L. Wang, National University of Kaoshiung, Taiwan
Ling Feng, Tsinghua University, China
Longbing Cao, University of Technology Sydney, Australia
Lorna Uden, Staffordshire University, UK
Manolis Gergatsoulis, Ionian University, Greece
Masayoshi Aritsugi, Kumamoto University, Japan
Maytham Safar, Kuwait University, Kuwait
Mengchi Liu, Carleton University, Canada
Michael Sheng, The University of Adelaide, Australia
Mong Li Lee, National University of Singapore, Singapore
Muhammad Younas, Oxford Brookes University, UK
Nalinpat Porrawatpreyakorn, King Mongkut's University of Technology North Bangkok
Norwati Mustapha, University Putra Malaysia, Malaysia
Osamu Yoshie, Waseda University, Japan
Raymond Kosala, Universitas Bina Nusantara, Indonesia
Riccardo Torlone, Università Roma Tre, Italy
Richard Chbeir, Pau University, France
Rodolfo F. Resende, UFMG, Brazil
Roland Wagner, Johannes Kepler University Linz, Austria
Sami Habib, Kuwait University, Kuwait
Shyan-Ming Yuan, National Chiao Tung University, Taiwan
Steven Prestwich, Cork Constraint Computation Centre, Ireland
Sucha Smanchat, King Mongkut's University of Technology North Bangkok
Takahiro Hara, Osaka University, Japan
Tore Risch, Uppsala University, Japan
Toshiyuki Amagasa, Tsukuba University, Sweden
Tsunenori Ishioka, The National Center for University Entrance Examinations, Japan
Valeria De Antonellis, Universita' degli Studi di Brescia, Italy
Werner Rettschitzegger, Johannes Kepler University, Austria
Werner Winiwarter, University of Vienna, Austria
Witold Abramowicz, The Poznan University of Economics, Poland
Wookey Lee, Inha University, Korea
Yacine Sam, Université François Rabelais - Tours, France
Yanggon Kim, Towson University, USA
Yoshihisa Udagawa, Tokyo Polytechnic University, Japan
Yousuke Watanabe, Tokyo Institute of Technology, Japan
Zaher Al Aghbari, University of Sharjah, UAE
Proceedings of iiWAS2013
Table of Contents

Proceedings of iiWAS2013

Keynote Talks

Interoperability and Semantics - a reoccurring Issue?
Erich J. Neuhold (University of Vienna, Austria) 1

New Technologies: We have seen nothing yet
Hermann Maurer (Graz University of Technology, Austria) 2

Recent Studies in Privacy Preservation
Leon S.L. Wang (National University of Kaohsiung, Taiwan) 3

NoSQL databases - no panacea for Big Data processing
Jaroslav Pokorny (Charles University in Prague, Czech Republic) 4

iiWAS2013 Papers

Social Networks and Analysis

A scalable approach for Contradiction Detection driven by Opinion Mining
Mihaela Dinsoreanu, Rodica Potolea (Technical University of Cluj-Napoca, Romania) 7

Two Phase Extraction Method for Multi-label Classification of Real Life Tweets
Shuhei Yamamoto, Tetsuji Satoh (University of Tsukuba, Japan) 16

Conversation Analysis Based on Interpersonal Relationship in Consensus Building
Ning He, Osamu Yoshie (Research Center for Information, Production and Systems, Waseda University, Japan) 26

Context Oriented Analysis of Interest Reflection of Tweeted Webpages based on Browsing Behavior
Hao Han, Hidekazu Nakawatase, Keizo Oyama (Kanagawa University, National Institute of Informatics, National Institute of Informatics and The Graduate University for Advanced Studies (SOKENDAI), Japan) 34

Analysis of Microblog Rumors and Correction Texts for Disaster Situations
Akiyo Nadamoto, Mai Miyabe, Eiji Aramaki (Kyoto University, Japan) 44

Automatic Domain-Specific Sentiment Lexicon Generation with Label Propagation
Yen-Jen Tai, Hung-Yu Kao (National Cheng Kung University, Taiwan) 53

Behavior Analysis of Microblog Users Based on Transitions in Posting Activities
Yutaro Yamaguchi, Shuhei Yamamoto, Tetsuji Satoh (Graduate School of Library, Information and Media Studies, University of Tsukuba, Japan) 63

Personalized Photo Recommendation By Leveraging User Modeling On Social Network
Najeeb Elahi, Randi Karlsen, Einar J. Holsbø (University of Tromso, Norway) 68
A System for Social Reading based on EPUB3  
Eri Kataoka, Toshiyuki Amagasa, Hiroyuki Kitagawa (University of Tsukuba, Japan)  
72

Maximum Complex Task Assignment: Towards Tasks Correlation in Spatial Crowdsourcing  
Hung Dang, Tuan Nguyen, Hien To (University of Information Technology, Vietnam, University of Southern California, USA)  
77

SADINA: Adaptive System for Academic News Dissemination  
Andrea Barraza-Urbina, Ricardo Rugeles, Angela Carrillo-Ramos (Pontificia Universidad Javeriana, Colombia)  
82

A Local Method for ObjectRank Estimation  
Yuta Sakakura, Yuto Yamaguchi, Toshiyuki Amagasa, Hiroyuki Kitagawa (University of Tsukuba, Japan)  
92

Up or Down? Click-Through Rate Prediction from Social Intention for Search Advertising  
Yi-Ting Chen, Hung-Yu Kao (National Cheng Kung University, Taiwan)  
102

A User-Centric Feature Identification and Modeling Approach to Infer Social Ties in OSNs  
Mudasir Wani, Majed Alrubaian, Muhammad Abulaish (King Saud University, Saudi Arabia)  
107

NOSQL DATABASES

Experimental Comparison of Graph Databases  
Vojtech Kolomicenko, Martin Svoboda, Irena Holubova (Charles University, Prague, Czech Republic)  
115

On Providing DDL Support for a Relational Layer over a Document NoSQL Database  
Gabriel Dos Santos Ferreira, Andre Calil, Ronaldo Dos Santos Mello (Universidade Federal de Santa Catarina, Brazil)  
125

Design and Evaluation of Lifelog Mashup Platform with NoSQL Database  
Kohei Takahashi, Shinsuke Matsumoto, Sachio Saiki, Masahide Nakamura (Kobe University, Japan)  
133

MODELING AND METHODOLOGY

A Knowledge Transfer Framework for Supporting the Transition to Agile Development of Web Application in the Thai Telecommunications Industry  
Nalinpat Porrawatpreyakorn, Gerald Quirchmayr, Wichian Chutimaskul, Maleerat Sodanil (King Mongkut’s University of Technology Thonburi, University of Vienna, King Mongkut’s University of Technology North Bangkok, Thailand)  
140

A Study of Knowledge Transfer in the Context of Information Systems Integration in Thailand  
Sakchai Tangprasert, Nalinpat Porrawatpreyakorn, Sucha Smanchat (King Mongkut’s University of Technology Thonburi, University of Vienna, King Mongkut’s University of Technology North Bangkok, Thailand)  
149

Toward a Time-centric modeling of Business Processes in BPMN 2.0  
Saoussen Cheikhrouhou, Slim Kallel, Naval Guermouche, Mohamed Jmaiel (REDCAD ENIS, University of Sfax, INSA/LAAS-CNRS, Tunisia, France)  
154
# TABLE OF CONTENTS

## SMART MODELS AND SYSTEMS

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-model Framework for modeling Holistic Climate and Air quality Strategies</td>
<td>Thanh Binh Nguyen, Fabian Wagner, Wolfgang Schoepp (IIASA, Austria)</td>
<td>164</td>
</tr>
<tr>
<td>Avatar-based Innovation Processes - Are Virtual Worlds a breeding ground for Innovations?</td>
<td>Niina Maarit Novak, Andreas Mladenow, Christine Strauss (University of Vienna, Austria)</td>
<td>174</td>
</tr>
</tbody>
</table>

## WEB APPLICATIONS

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastering Japanese through Augmented Browsing</td>
<td>Werner Winiwarter (University of Vienna, Austria)</td>
<td>179</td>
</tr>
<tr>
<td>Factors Influencing Hybrid Self-Regulated and Collaborative Learning for End-User Training: A Systematic Literature Review</td>
<td>Sirikorn Krompho, Nalimpat Porrawatpreyakorn, Sucha Smanchat, Montean Rattanasiriwongwut (King Mongkut’s University of Technology North Bangkok, Thailand)</td>
<td>189</td>
</tr>
<tr>
<td>Good&amp;Service Bundles and B2B E-Commerce by Global Narrow-Specialized Companies</td>
<td>Polina Fauska, Natalia Krywinska, Christine Strauss (University of Vienna, Austria)</td>
<td>194</td>
</tr>
<tr>
<td>Multi-Criteria Recommender Systems based on Multi-Attribute Decision Making</td>
<td>Hdioud Ferdaous, Bouchra Frkh, Brahim Ouhbi (Ecole Supérieure de Technologie, LM2I Lab ENSAM, Moulay Ismail University, Morocco)</td>
<td>203</td>
</tr>
<tr>
<td>Advanced Web API search patterns adding collective knowledge to public repository facets</td>
<td>Devis Bianchini, Valeria De Antonellis, Michele Melchiori (University of Brescia - Dept. of Information Engineering, Italy)</td>
<td>211</td>
</tr>
</tbody>
</table>

## WEB SERVICES

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Management as a Service</td>
<td>Marina Stoshikj, Natalia Krywinska, Christine Strauss (University of Vienna, Austria)</td>
<td>220</td>
</tr>
<tr>
<td>A Business Rules driven Framework for Consumer-Provider Contracting of Web Services</td>
<td>Werner Mach, Benedikt Pittl, Erich Schikuta (University of Vienna, Austria)</td>
<td>229</td>
</tr>
<tr>
<td>An Industrial Experience on using Models to Test Web Service-Oriented Applications</td>
<td>André Takeshi Endo, Maicon Bernardino Da Silveira, Elder Rodrigues, Adenilso Simao, Flavio Oliveira, Avelino F. Zorno, Rodrigo Saad (ICMC/USP, Pontifical Catholic University of Rio Grande do Sul (PUCRS), FACIN-PUCRS, DELL, Brazil)</td>
<td>240</td>
</tr>
<tr>
<td>The Substitution Principle in an Object-Oriented Framework for Web Services: From Failure to Success</td>
<td>Diana Allam, Herve Grall, Jean-Claude Royer (Ecole des Mines de Nantes, France)</td>
<td>250</td>
</tr>
<tr>
<td>Capturing and Analysis of Service Network Models</td>
<td>Aneta Kabzeva, Joachim Goetze, Paul Mueller (University of Kaiserslautern, TU Kaiserslautern, Germany)</td>
<td>260</td>
</tr>
<tr>
<td>A Novel Matchmaking Approach for Automated Semantic Web Service Discovery</td>
<td>Asma Adala, Tabbane Nabil, Sami Tabbane (MEDIATRON, SUP’COM, Tunisia)</td>
<td>265</td>
</tr>
</tbody>
</table>
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compose Presence for Composite Web Services by Timed AND-OR Tree</td>
<td>Li Li, Tao Cai, Zhe Wang, Wu Chou (Huawei, China, Rutgers University, USA)</td>
<td>270</td>
</tr>
<tr>
<td>Social Web Services Discovery: A Community-Based Approach</td>
<td>Abdelmalek Metrouh, Farid Mokhati (University of Tebessa, Université of Oum El Bouaghi, Algeria)</td>
<td>275</td>
</tr>
<tr>
<td>Automatic Recognition of Design Patterns from UML-based Software Documentation</td>
<td>Beniamino Di Martino, Antonio Esposito (Second University of Naples, Italy)</td>
<td>280</td>
</tr>
<tr>
<td>A Model Driven Approach for the Development of Semantic RESTful Web Services</td>
<td>Nirondes Tavares, Samyr Vale (Federal University of Maranhão, Brazil)</td>
<td>290</td>
</tr>
<tr>
<td>Enabling Linked Data access to the Internet of Things</td>
<td>Timofey Ermilov, Sören Auer (University of Leipzig, Germany)</td>
<td>300</td>
</tr>
<tr>
<td>Formal Linked Data Visualization Model</td>
<td>Josep Maria Brunetti, Sören Auer, Roberto Garcia, Jakub Klimek, Martin Necaský (Universitat de Lleida, Spain, Universität Leipzig, Germany, Charles University, Czech Republic)</td>
<td>309</td>
</tr>
<tr>
<td>SPARQL Endpoint Metrics for Quality-Aware Linked Data Consumption</td>
<td>Johannes Lorey (Hasso Plattner Institute, Potsdam, Germany)</td>
<td>319</td>
</tr>
<tr>
<td>Optimizing SPARQL-to-SQL Rewriting</td>
<td>Joerg Unbehauen, Claus Stadler, Sören Auer (University of Leipzig, University of Bonn, Fraunhofer IAIS, Germany)</td>
<td>324</td>
</tr>
<tr>
<td>Toward Recipes for Arabic DBpedia</td>
<td>Alia Bahanshal, Hend Al-Khalifa (King Saud University, Saudi Arabia)</td>
<td>331</td>
</tr>
<tr>
<td>RDFreduce: Customized Aggregations with Provenance for RDF Data based on an Industrial Use Case</td>
<td>Christian Lettner, Mario Pichler, Wilhelm Kirchnmayr, Friedrich Kokert, Martin Habringer (Software Competence Center Hagenberg GmbH, voestalpine Stahl GmbH, Austria)</td>
<td>336</td>
</tr>
<tr>
<td>A Domain-based Approach to Publish Data on the Web</td>
<td>Ayrton Silva, Luiz Carlos Chaves, Damires Souza (Federal Institute of Education, Science and Technology of Paraiba, Brazil)</td>
<td>341</td>
</tr>
<tr>
<td>Accounting and Management Information Systems: A Semantic Integration</td>
<td>Walter Schwaiger, Michael Abmayer (Vienna University of Technology, Austria)</td>
<td>346</td>
</tr>
<tr>
<td>Ontology-based Data Integration for Corporate Sustainability Information Systems</td>
<td>Lisa Madlberger, Andreas Thöni, Peter Wetz (Vienna University of Technology, Austria)</td>
<td>353</td>
</tr>
<tr>
<td>An Ontology-Based Query Expansion for an Agricultural Expert Retrieval System</td>
<td>Maleerat Sodanil, Pilapan Phonarin, Nalinpat Porrawatprejakorn (King Mongkut’s University of Technology North Bangkok, Rajamangala University of Technology Krungthep, Thailand)</td>
<td>358</td>
</tr>
</tbody>
</table>
## TABLE OF CONTENTS

### Proceedings of iiWAS2013

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ontology-based Annotation and Indexing for Vietnamese Text Document</td>
<td>Tuyen Thi-Thanh Do (University of Information Technology, VNU-HCM, Vietnam)</td>
<td>363</td>
</tr>
<tr>
<td>Improving Semantic Interoperability with Ontology Alignment Negotiation</td>
<td>Virgínia Nascimento, Maria João Viamonte, Alda Canito, Nuno Silva (GECAD–Polytechnic of Porto (ISEP/IPP), Portugal)</td>
<td>368</td>
</tr>
<tr>
<td>CLOUD AND GRID SYSTEMS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>An Adaptive Grid Workflow Scheduling Based on Bottleneck Detection and Execution Context</td>
<td>Sucha Smanchat, Suchon Sritawathon, Thavatchai Ngamsantivong (King Mongkut’s University of Technology North Bangkok, Thailand)</td>
<td>375</td>
</tr>
<tr>
<td>Semantic and Matchmaking Technologies for Discovering, Mapping and Aligning cloud providers’s services</td>
<td>Giuseppina Cretella, Beniamino Di Martino (Second University of Naples, Italy)</td>
<td>380</td>
</tr>
<tr>
<td>Towards a Common Semantic Representation of Design and Cloud Patterns</td>
<td>Beniamino Di Martino, Antonio Esposito (Second University of Naples, Italy)</td>
<td>385</td>
</tr>
<tr>
<td>HEALTH INFORMATICS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implementing a Data Infrastructure for a Pharmaceutical Community</td>
<td>Juha Puustjärvi, Leena Puustjärvi (University of Helsinki, Pharmacy of Kaivopuisto, Finland)</td>
<td>390</td>
</tr>
<tr>
<td>iCare: Intelligent Medical Information Logistics</td>
<td>Bernd Michelberger, Armin Reisch, Bela Mutscher, Jörg Wurzer, Markus Hipp, Manfred Reichert (University of Applied Sciences Ravensburg-Weingarten, Germany, iQser AG, University of Ulm, Switzerland)</td>
<td>396</td>
</tr>
<tr>
<td>Linked Open Data for Healthcare Professionals</td>
<td>Jakub Kozak, Martin Necasky, Jan Dedek, Jakub Klimek, Jaroslav Pokorny (Charles University of Prague, Collite Systems, Czech Republic)</td>
<td>400</td>
</tr>
<tr>
<td>SYSTEMS PERFORMANCE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>An extensive study of Web robots traffic</td>
<td>Maria Carla Calzarossa, Luisa Massari, Daniele Tessera (University of Pavia, Italy)</td>
<td>410</td>
</tr>
<tr>
<td>Improved Server Architecture for Highly Efficient Message Mediation</td>
<td>Hiranya Jayathilaka, Pradeep Fernando, Dushan Abeyruwan, Kasun Indrasiri, Supun Kamburugamuwa, Sadeep Jayasumana, Paul Fremantle, Sanjiva Weerawarana (UCSB, WSO2, Indiana University, ANU, USA, Sri Lanka, Australia)</td>
<td>418</td>
</tr>
<tr>
<td>DATA INFRASTRUCTURE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Big Data in Large Scale Intelligent Smart City Installations</td>
<td>Sylva Girtelschmid, Matthias Steinbauer, Vikash Kumar, Anna Fensel, Gabriele Kotsis (Institute of Telecooperation Johannes Kepler University Linz, The Telecommunications Research Center Vienna, Austria)</td>
<td>428</td>
</tr>
</tbody>
</table>
DASISH – An Initiative for a European Data Humanities Infrastructure
Bartholomäus Wloka, Werner Winiwarter, Gerhard Budin (University of Vienna, Austria) 433

Linked Widgets - An Approach to Exploit Open Government Data
Dat Trinh Tuan, Lam Do Ba, Peter Wetz, Amin Anjomshoaa, A Min Tjoa (Vienna University of Technology, Austria, Hanoi University of Technology, Vietnam) 438

ONTOMETRY

Ontology Mapping and Reasoning in Semantic Time Series Processing
Bojan Bozic, Werner Winiwarter (Austrian Institute of Technology, University of Vienna, Austria) 443

Strigil: A Framework for Data Extraction
Jakub Starka, Irena Holubova (Charles University in Prague, Czech Republic) 453

Ontology-based Activity Recognition Framework and Services
Liming Luke Chen, Chris Nugent, Joseph Rafferty (University of Ulster, United Kingdom) 463

Introducing inference-driven OWL ABox enrichment
Alda Canito, Paulo Maio, Nuno Silva (ISEP – IPP, Portugal) 470

Improved Relaxation-based Ontology Matching Negotiation
Alda Canito, Paulo Maio, Nuno Silva (DEI & GECAD - ISEP - IPP, Portugal) 479

XML

DaemonX: Design, Adaptation, Evolution, and Management of Native XML (and More Other) Formats
Marek Polak, Martin Necasky, Irena Holubova (Charles University, Prague, Czech Republic) 484

Spelling Suggestion for XML Keyword Search Based on XSketch Synopsis
Sheng Li, Junhu Wang (Griffith University, Australia) 494

An XML Algebra For Online Processing of XML Documents
Handoko Handoko, Janusz Getta (University of Wollongong, Australia) 503

Methodology for Design and Evolution of XML Schemas using Conceptual Modeling
Martin Necasky (Charles University, Prague, Czech Republic) 508

An Evaluation of Similarity Search Methods Blending Structures and Keywords in XML Documents
Apichaya Auvattanasombat, Yousuke Watanabe, Haruo Yokota (Tokyo Institute of Technology, Japan) 518

SECURITY

Mirror Presence: Secure Web Identity Resolution and Call Control for WebRTC
Li Li, Wu Chou, Tao Cai, Zhe Wang, Zhihong Qiu (Huawei, China, Rutgers University, USA) 523

Towards a Context-Aware WebID Certificate Creation Taking Individual Conditions and Trust Needs into Account
Stefan Wild, Markus Ast, Martin Gaedke (Technische Universität Chemnitz, Germany) 532
# TABLE OF CONTENTS

## Account Reachability: A Measure of Privacy Risk for Exposure the User’s Multiple SNS Accounts
*Ayano Yoshikuni, Chiemi Watanabe (Ochanomizu University, Tsukuba University, Japan)*

## A User-friendly Image-Text Fusion CAPTCHA for Secure Web Services
*Yeonchan Ahn, Namsoo Kim, Yoo-Sung Kim (Seoul National University, Inha University, Korea)*

## Sensitive and Neighborhood Privacy on Shortest Paths in the Cloud
*Leon Wang, Jia-Wei Chen, I-Hsien Ting, Tzung-Pei Hong (National University of Kaohsiung, Taiwan)*

## Classification of Security Issues and Solutions in Cloud Environments
*Chraibi Mhammed, Hamid Harroud, Abdelilah Maach (Al Akhawayn University, Ecole Mohammadia des Ingenieurs, Morocco)*

## DATA INTEGRATION

### Identifying the Truth - Aggregation of Named Entity Extraction Results
*Katja Pfeifer, Johannes Meinecke (SAP AG, Germany)*

### Aspects of Information Integration in a Wiki
*Rizwan Mehmood, Herman Maurer (TU Graz, Austria)*

### Towards integration of images on Web
*Rizwan Mehmood, Herman Maurer (TU Graz, Austria)*

### Integration of legal datasets: from meta-model to implementation
*Gioele Barabucci, Angelo Di Iorio, Francesco Poggi, Fabio Vitali (Università di Bologna)*

## TEXT ANALYSIS AND ITS APPLICATIONS

### Plagiarism Detection For Indonesian Texts
*Lucia Dwi Krisnawati, Klaus Schulz (Data Wacana Christian University, CIS, Ludwig Maximilians University, Indonesia, Germany)*

### Text Document Clustering with Hybrid Feature Selection
*Asmaa Benghabrit, Brahim Oubb, Bouchra Frikh, El Moukhtar Zemmouri, Hicham Behja (Moulay Ismail University, Morocco)*

### A Semantic Similarity Measure between Nouns based on the Structure of Wordnet
*Thi Thuy Anh Nguyen, Stefan Conrad (Heinrich-Heine-Universität Düsseldorf, Germany)*

### Personalized Query Expansion for Web Search Using Social Keywords
*Sheikh Muhammad Sarwar, Md. Anowarul Abedin, A. H. M. Sofi Ullah, Abdullah-Al-Mamun X (University of Lieberal Arts Bangladesh, University of Asia Pacific, Bangladesh)*

### Metadata Extraction from Books with Facts about Austria
*Petra Korica-Pehserl (Graz University of Technology, Austria)*

### Building an Vietnamese Lexicon Ontology for Syntactic Parsing and Document Annotation
*Tuyen Thi-Thanh Do (University of Information Technology, VNU-HCM, Vietnam)*

## WEB DEVELOPMENT AND TOOLS
TABLE OF CONTENTS

Accelerating Structured Web Crawling without Losing Data
Boutros R. El-Gamil, Werner Winiwarter (Vienna University of Technology, University of Vienna, Austria) 624

A Framework for supporting the development of Multi-Screen Web Applications
Maiko Imoto, Yasuhiko Miyazaki, Tetsuro Tokunaga, Kiyoshi Tanaka, Shinji Miyahara (NTT Service Evolution Laboratories, NTT Corporation, Japan) 629

Proxy Service to Contextualize Web Browsing for the Visually Impaired
Najd Al-Mouh, Hend Al-Khalifa, Abdulmalik Al-Salman (King Abdulaziz City for Science and Technology, King Saud University) 634

Rapid Authoring of Web-based Multiplayer Online Games
Shusuke Okamoto, Masaki Kohana, Masaru Kamada, Tatsuhiro Yonekura (Seikei University, Ibaraki University, Japan) 639

SERVICE ORIENTED SYSTEMS

Systematic Approach for QoS Estimation of Web Services
Dessislava Petrova-Antonova, Olga Georgieva (SU "St. Kliment Ohridski", Bulgaria) 644

A Semantic Service-Oriented Platform for Integrated and Personalised Access to Sustainable Projects
Felipe Costa, Carlos Dantas, Tatiana Sorrentino, Claudia Ribeiro (UERN, Brazil) 649

Process Decomposition Based on Semantics and Privacy-Aware Requirements-Driven Approach
Mohamed-Anis Zemni, Nejib Ben-Hadj Alouane, Amal Mammar (Ecole Nationale des Sciences de l'Informatique, Manouba, Ecole Nationale d'Ingénieurs de Tunis, Tunis, Telecom SudParis, Evry, Tunisia, France) 654

MOBILE AND REMOTE SYSTEMS

A Case Study of Application Development for Mobile and Location-Based Services
Daniel Granlund, Dan Johansson, Karl Andersson, Robert Brännström (Luleå University of Technology, Sweden) 658

The Design and Implementation of a Mobile Massive Open Online Courses Platform
Meng Yu, Jiajun Wang (Department of Computer Technology Shanghai Jiao Tong University, Continuing Education College Shanghai Jiao Tong University, China) 663

Debugging Mobile Agent Systems
Masayuki Higashino, Shin Osaki, Shinya Otagaki, Kenichi Takahashi, Takao Kawamura, Kazunori Sugahara (Tottori University, Japan) 667

A Prototype System of Remote Music Therapy Using the Latest Communication Technology in Japan
Naoko Kosugi, Naoki Kodama, Sachiko Shimizu, Shunsuke Saruwatari, Tsutomu Terada, Hiroyuki Kazui, M.D., Koichi Yamashita, M.D, Hideyuki Kawashima, Masayuki Hata (NTT Communication and Science Labs, Takasaki University of Health and Welfare, Shizuoka University, Kobe University, Osaka University, Aichi Medical University, University of Tsukuba, Tripod Works Co., Ltd. Japan) 671

DEVELOPMENT METHODOLOGY
<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-Automated Software Composition Through Generated Components</td>
<td>Felix Mohr, Hans Kleine Bünning (University of Paderborn, Germany)</td>
<td>676</td>
</tr>
<tr>
<td>Design and Implementation of a Private RESTful API to Leverage the</td>
<td>Franclin Foping, Jerry Walsh, Donogh Roche (Nitrosell LTD, Ireland)</td>
<td>681</td>
</tr>
<tr>
<td>Power of an eCommerce Platform</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efficient, Unified, and Intelligent User Requirement Collection and</td>
<td>Ilyès Boukhari, Ladjel Bellatreche, Selma Khouri (LIAS/ISAE-ENSMA,</td>
<td>686</td>
</tr>
<tr>
<td>Analysis in Global Enterprises</td>
<td>France)</td>
<td></td>
</tr>
<tr>
<td>An Approach to Evaluate the Performance of Web Application Systems</td>
<td>Tahani Hussain (Kuwait Institute for Scientific Research, Kuwait)</td>
<td>692</td>
</tr>
</tbody>
</table>

**ENTERPRISE SYSTEMS**

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Unified Messaging-Based Architectural Pattern for Building Scalable</td>
<td>Karim Mahmoud (IBM, Egypt)</td>
<td>697</td>
</tr>
<tr>
<td>Enterprise Service Bus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A Lightweight Approach to Flexible Form Generation</td>
<td>Markus Aleksy, Subudhi Roshan, Thomas Scholl (Industrial Software and</td>
<td>702</td>
</tr>
<tr>
<td></td>
<td>Applications, ABB Corporate Research Center, University of South</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Carolina)</td>
<td></td>
</tr>
<tr>
<td>Co-Simulation for Performance Evaluation of an Enterprise’s Web</td>
<td>Tahani Hussain, Paulvanna Marimuthu, Sami Habib (Kuwait Institute for</td>
<td>706</td>
</tr>
<tr>
<td>Storage Systems</td>
<td>Scientific Research, Kuwait University, Kuwait)</td>
<td></td>
</tr>
<tr>
<td>Routing Cost and Latency in the Village Telco Wireless Mesh Network</td>
<td>Michael Adeyeye, Antoine Van Gelder, Sunday Ojo (Cape Peninsula</td>
<td>710</td>
</tr>
<tr>
<td></td>
<td>University of Technology, South Africa)</td>
<td></td>
</tr>
</tbody>
</table>

**INTELLIGENT SYSTEMS**

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>How Semantic Knowledge can Enhance the Access to PA Online Services</td>
<td>Anna Goy, Diego Magro, Matteo Casu, Vittorio Di Tomaso (University of</td>
<td>714</td>
</tr>
<tr>
<td></td>
<td>Torino, CELI srl, Italy)</td>
<td></td>
</tr>
<tr>
<td>Context Based Adaptation of Semantic Rules in Smart Buildings</td>
<td>Vikash Kumar, Anna Fensel, Peter Froehlich (The Telecommunications</td>
<td>719</td>
</tr>
<tr>
<td></td>
<td>Research Center Vienna, Austria)</td>
<td></td>
</tr>
<tr>
<td>Towards a Generic Data Model for the Integrated Intelligent</td>
<td>Harald Wahl, Werner Winiwarter (University of Applied Sciences</td>
<td>729</td>
</tr>
<tr>
<td>Computer-Assisted Language</td>
<td>Technikum Wien, University of Vienna, Austria)</td>
<td></td>
</tr>
<tr>
<td>Learning (iCALL) Environment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>