Editorial Board

David Hutchison  
Lancaster University, UK

Takeo Kanade  
Carnegie Mellon University, Pittsburgh, PA, USA

Josef Kittler  
University of Surrey, Guildford, UK

Jon M. Kleinberg  
Cornell University, Ithaca, NY, USA

Alfred Kobsa  
University of California, Irvine, CA, USA

Friedemann Mattern  
ETH Zurich, Switzerland

John C. Mitchell  
Stanford University, CA, USA

Moni Naor  
Weizmann Institute of Science, Rehovot, Israel

Oscar Nierstrasz  
University of Bern, Switzerland

C. Pandu Rangan  
Indian Institute of Technology, Madras, India

Bernhard Steffen  
TU Dortmund University, Germany

Madhu Sudan  
Microsoft Research, Cambridge, MA, USA

Demetri Terzopoulos  
University of California, Los Angeles, CA, USA

Doug Tygar  
University of California, Berkeley, CA, USA

Gerhard Weikum  
Max Planck Institute for Informatics, Saarbruecken, Germany
Preface

Welcome to the proceedings of the Web Information Systems Engineering - Combined WISE 2011 and WISE 2012 Workshops. The international conference series on Web Information Systems Engineering (WISE) aims to provide an international forum for researchers, professionals, and industrial practitioners to share their knowledge in the rapidly growing area of Web technologies, methodologies and applications. The 13th WISE (WISE 2012) was held in Paphos, Cyprus, in November 2012. Previous WISE conferences were held in Hong Kong, China (2000), Kyoto, Japan (2001), Singapore (2002), Rome, Italy (2003), Brisbane, Australia (2004), New York, USA (2005), Wuhan, China (2006), Nancy, France (2007), Auckland, New Zealand (2008), Poznan, Poland (2009), Hong Kong, China (2010), and Sydney, Australia (2011).

The seven workshops of WISE 2011-2012 have reported the recent developments and advances in the related fields of: Advanced Reasoning Technology for e-Science (ART 2012), Cloud-Enabled Business Process Management (CeBPM 2012), Engineering the Semantic Enterprise (ESE 2012), Social Web Analytics for Trend Detection (SoWeTrend 2012), Big Data and Cloud (BDC 2012), Personalization in Cloud and Service Computing (PCS 2011), and User-Focused Service Engineering, Consumption and Aggregation (USECA 2011).

Many colleagues helped toward the success of the above mentioned workshops. We would especially like to thank the Program Committee members and reviewers for a conscientious reviewing process. We are also grateful to the WISE Society for generously supporting our workshops. We greatly appreciate Springer for publishing the WISE workshop proceedings in their LNCS series.

December 2012

Armin Haller
Guangyan Huang
Zhisheng Huang
Hye-young Paik
Quan Z. Sheng
Organization

Executive Committee

Workshops Co-chairs
Armin Haller CSIRO, Australia
Zhisheng Huang Vrije University of Amsterdam, The Netherlands
Quan Z. Sheng University of Adelaide, Australia

Publication Co-chairs
Guangyan Huang Victoria University, Australia
Hye-young Paik University of New South Wales, Australia

Advanced Reasoning Technology for e-Science (ART 2012)

Workshop Co-chairs
Alexey Cheptsov University of Stuttgart, Germany
Jeff Z. Pan University of Aberdeen, UK
Zhisheng Huang Vrije University Amsterdam, The Netherlands

Workshop on Cloud-enabled Business Process Management (CeBPM 2012)

Workshop Co-chairs
Dana Petcu West University of Timisoara, Romania
Vlado Stankovski University of Ljubljana, Slovenia

Program Chair
András Micsik MTA SZTAKI, Hungary

Engineering the Semantic Enterprise (ESE 2012)

Workshop Co-chairs
Maciej Dabrowski DERI Galway, Ireland
John Breslin DERI Galway, Ireland
Alexandre Passant Seevl.net
Eric Gordon Prud’hommeaux W3C
Social Web Analytics for Trend Detection (SoWeTrend 2012)

Workshop Co-chair
Athena Vakali Aristotle University of Thessaloniki, Greece
Hakim Hacid Bell Labs, France

International Workshop on Big Data and Cloud (BDC 2012)

Workshop Co-chair
Surya Nepal CSIRO, Australia
Athman Bouguettaya RMIT University, Australia

The 5th International Workshop on Personalization in Cloud and Service Computing (PCS 2011)

Workshop Co-chairs
Chengfei Liu Swinburne University of Technology, Australia
Yanbo Han Institute of Computing Technology, CAS, China
Bernhard Holtkamp Fraunhofer ISST, Germany
Bing Li Wuhan University, China

Program Co-chairs
Jian Yu Swinburne University of Technology, Australia
Hong-Linh Truong Vienna University of Technology, Austria

User-Focused Service Engineering, Consumption and Aggregation (USECA 2011)

Workshop Co-chairs
Hye-young Paik University of New South Wales, Australia
Ingo Weber University of New South Wales, Australia
Marek Kowalkiewicz SAP Research Brisbane, Australia

Program Committees

ART 2012 PC Members
Stefan Wesner High Performance Computing Center Stuttgart, Germany
Marko Grobelnik Jozef Stefan Institute in Ljubljana, Slovenia
Volker Tresp
Michael Witbrock
Dongmo Zhang
Frank van Harmelen
Kewen Wang
Guilin Qi
Grigoris Antoniou
Jianfeng Du

Ludwig Maximilian University of Munich, Germany
Cycorp, USA
University of Western Sydney, Australia
Vrije University Amsterdam, The Netherlands
Griffith University, Australia
Southeast University, China
University of Huddersfield, Greece
Guangdong University of Foreign Studies, China

CeBPM 2012 PC Members
Ciprian Dobre
Enn Öunapuu
Georgina Gallizo
Huy Tran
Jānis Grabis
Jorge Ejarque
José Luis Vázquez-Poletti
László Kovács
Matjaž Branko Jurič
Matthias Book
Parastoo Mohagheghi
Pawel Czarnul
Ricardo Jardim Goncalves
Tomáš Pitner

Politehnica University of Bucharest, Romania
Tallinn University of Technology, Estonia
High Performance Computing Center Stuttgart, Germany
University of Vienna, Austria
Institute of Information Technology, Riga Technical University, Latvia
Barcelona Supercomputing Center, Spain
Universidad Complutense de Madrid, Spain
MTA SZTAKI, Hungary
University of Ljubljana, Slovenia
University of Duisburg-Essen, Germany
NTNU-IDI, Norway
Gdansk University of Technology, Poland
UniNova, Portugal
Masaryk University, Brno, Czech Republic

ESE 2012 PC Members
Soren Auer
John Breslin
Maciej Dabrowski
Renaud Delbru
Keith Griffin
Conor Hayes
Bart van Leeuwen
Vincenzo Loia
Fabrizio Orlandi
Adrian Paschke
Alexandre Passant
Eric Gordon Prud’hommeaux
Yves Raimond
Shawn Simister

Universität Leipzig, Germany
NUI Galway, Ireland
DERI Galway, Ireland
Sindice Tech
Cisco Systems
DERI Galway, Ireland
Netage.nl, The Netherlands
University of Salerno, Italy
DERI Galway, Ireland
Freie Universität Berlin, Germany
Seevl.net
W3C, USA
BBC, UK
Google, USA
**SoWeTrend 2012 PC Members**

Ludovic Denoyer  
University of Paris 6, France

Arne Barre  
Sintef, Norway

Ernestina Menasalvas  
Universidad Politecnica de Madrid, Spain

George Pallis  
University of Cyprus, Cyprus

Hye-young Paik  
University of New South Wales, Australia

John Garofalakis  
University of Patras, Greece

Shengbo Guo  
Xerox Research Centre Europe, France

Grigoris Tsoumakas  
Aristotle University, Greece

Julien Velcin  
ERIC Lab, University of Lyon, France

Tetsuya Yoshida  
Hokkaido University, Japan

**BDC 2012 PC Members**

Xumin Liu  
Rochester Institute of Technology, USA

Qi Yu  
Rochester Institute of Technology, USA

Suraj Pandey  
IBM Research Australia

Xuyun Zhang  
University of Technology Sydney, Australia

Wanita Sherchan  
IBM Research Australia

Julian Jang  
CSIRO Australia

Zaki Malik  
Wayne State University, USA

Shipping Chen  
CSIRO Australia

Dongxi Liu  
CSIRO Australia

**PCS 2011 PC Members**

Mahammad Ali Babar  
IT University of Denmark, Denmark

Jinjun Chen  
University of Technology Sydney, Sydney

Marco Comerio  
University of Milano-Bicocca, Italy

Paolo Falcarin  
University of East London, UK

Hans-Georg Fill  
Stanford University, USA

G.R Gangadharan  
IBM India, India

Ligang He  
University of Warwick, UK

Martin Hirsch  
Dortmund University of Applied Sciences and Arts, Germany

Hien Le  
Norwegian University of Science and Technology, Norway

Xitong Li  
MIT, USA

Jiangang Ma  
University of Adelaide, Australia

Fulvio Mastrogiavanni  
University of Genoa, Italy

Maurizio Morisio  
Politecnico di Torino, Italy

Tran-Vu Pham  
Ho Chi Minh City University of Technology, Vietnam

Fangzhong Qi  
Zhejiang University, China

Stephan Reiff-Marganiec  
University of Leicester, UK

Kurt Sandkuhl  
University of Rostock, Germany
<table>
<thead>
<tr>
<th>Name</th>
<th>Institution and Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aviv Segev</td>
<td>KAIST, Republic of Korea</td>
</tr>
<tr>
<td>Jun Shen</td>
<td>University of Wollongong, Australia</td>
</tr>
<tr>
<td>Michael Sheng</td>
<td>The University of Adelaide, Australia</td>
</tr>
<tr>
<td>Philippe Thiran</td>
<td>University of Namur, Belgium</td>
</tr>
<tr>
<td>Guiling Wang</td>
<td>Institute of Computing Technology, CAS, China</td>
</tr>
<tr>
<td>Manfred Wojciechowski</td>
<td>Fraunhofer ISST, Germany</td>
</tr>
<tr>
<td>Jinhua Xion</td>
<td>Institute of Computing Technology, CAS, China</td>
</tr>
<tr>
<td>Jian Yang</td>
<td>Macquarie University, Australia</td>
</tr>
<tr>
<td>Muhammad Younas</td>
<td>Oxford Brooks University, UK</td>
</tr>
<tr>
<td>Xiaohui Zhao</td>
<td>Unitec Institute of Technology, New Zealand</td>
</tr>
<tr>
<td>Boualem Benatallah</td>
<td>University of New South Wales, Australia</td>
</tr>
<tr>
<td>Fabio Casati</td>
<td>University of Trento, Italy</td>
</tr>
<tr>
<td>Jinjun Chen</td>
<td>University of Technology Sydney, Australia</td>
</tr>
<tr>
<td>Alan Colman</td>
<td>Swinburne University of Technology, Australia</td>
</tr>
<tr>
<td>Florian Daniel</td>
<td>University of Trento, Italy</td>
</tr>
<tr>
<td>Keith Duddy</td>
<td>Queensland University of Technology, Australia</td>
</tr>
<tr>
<td>Alexander Dreiling</td>
<td>SAP Research, Australia</td>
</tr>
<tr>
<td>Karl M. Goeschka</td>
<td>Vienna University of Technology, Austria</td>
</tr>
<tr>
<td>Hakim Hacid</td>
<td>Alcatel-Lucent Bell Labs, France</td>
</tr>
<tr>
<td>Christian Janiesch</td>
<td>Karlsruhe Institute of Technology, Germany</td>
</tr>
<tr>
<td>Tomasz Kaczmarek</td>
<td>Poznan University of Economics, Poland</td>
</tr>
<tr>
<td>Dimka Karastoyanova</td>
<td>University of Stuttgart, Germany</td>
</tr>
<tr>
<td>Ryszard Kowalczyk</td>
<td>Swinburne University of Technology, Australia</td>
</tr>
<tr>
<td>Hamid Motahari</td>
<td>HP Labs, USA</td>
</tr>
<tr>
<td>Surya Nepal</td>
<td>CSIRO, Australia</td>
</tr>
<tr>
<td>Anne Ngu</td>
<td>Texas State University, San Marcos, USA</td>
</tr>
<tr>
<td>Fethi Rabhi</td>
<td>University of New South Wales, Australia</td>
</tr>
<tr>
<td>Chris Smith</td>
<td>University of New Castle, UK</td>
</tr>
<tr>
<td>Vladimir Tosic</td>
<td>NICTA, Australia</td>
</tr>
<tr>
<td>Jian Yu</td>
<td>Swinburne University of Technology, Australia</td>
</tr>
<tr>
<td>Julien Vayssiere</td>
<td>Germany</td>
</tr>
</tbody>
</table>
Table of Contents

Advanced Reasoning Technology for e-Science (ART 2012)

Preface to the Advance Reasoning Technology for eScience (ART-2012) ..................................................... 1
Zhisheng Huang, Alexey Cheptsov, and Jeff Z. Pan

Real-Time and Self-Adaptive Stream Data Analysis (Invited Talk) ........................................ 2
Yanchun Zhang

An Approach for Distributed Parallelization of Large-Scale Semantic Web Reasoners Based on MPI ............................................. 4
Alexey Cheptsov

Making Web-Scale Semantic Reasoning More Service-Oriented:
The Large Knowledge Collider .................................................. 13
Alexey Cheptsov and Zhisheng Huang

Towards Integrating Emotion into Intelligent Context .................................................. 27
Philip Moore, Cain Evans, and Hai V. Pham

Contextual Modelling in Context-Aware Recommender Systems:
A Generic Approach .................................................................. 41
Christos Mettouris and George A. Papadopoulos

Workshop on Cloud-enabled Business Process Management (CeBPM 2012)

Introduction to the Proceedings of the Workshop on Cloud-enabled Business Process Management (CeBPM) 2012 .................................. 53
Dana Petcu and Vlado Stankovski

Collaborative Process Design in Cloud Environment .................................................. 55
Jiří Kolář and Tomáš Pitner

Towards a Trust-Manager Service for Hybrid Clouds ........................................ 70
Fatma Ghachem, Nadia Bennani, Chirine Ghedira, and Parisa Ghoddous

Challenges for Migrating to the Service Cloud Paradigm: An Agile Perspective ............................................ 77
Stavros Stavru, Iva Krasteva, and Sylvia Ilieva
Cloud Storage of Artifact Annotations to Support Case Managers in Knowledge-Intensive Business Processes ................................................................. 92  
*Marian Benner-Wickner, Matthias Book, Tobias Brückmann, and Volker Gruhn*

Designing an SLA Protocol with Renegotiation to Maximize Revenues for the CMAC Platform ................................................................. 105  
*Adriano Galati, Karim Djemame, Martyn Fletcher, Mark Jessop, Michael Weeks, Simon Hickinbotham, and John McAvoy*

Levi – A Workflow Engine Using BPMN 2.0 ........................................ 118  
*Keheliya Gallaba, Umashanthi Pavalanathan, Ishan Jayawardena, Eranda Sooriyabandara, and Vishaka Nanayakkara*

**Engineering the Semantic Enterprise (ESE 2012)**

*Maciej Dabrowski, John Breslin, Alexandre Passant, and Eric Gordon Prud’hommeaux*

A Semantic-Based Architecture for Managing Knowledge-Intensive Organizations: The ARISTOTELE Platform ........................................ 133  
*Pierluigi Del Nostro, Francesco Orciuoli, Stefano Paolozzi, Pierluigi Ritrovato, and Daniele Toti*

ICOM: A Framework for Integrated Collaborative Work Environments ................................................................. 147  
*Kenneth Baclawski, Eric Chan, Laura Drăgan, Patrick Durusau, Deirdre Lee, Peter Yim, and Yuwang Yin*

Knowledge-Based Semantification of Business Communications in ERP Environments ................................................................. 159  
*Marios Meimaris and Michalis Vafopoulos*

Ubiquitous Service Capability Modeling and Similarity Based Searching ................................................................. 173  
*Feng Gao and Wassim Derguech*

**Social Web Analytics for Trend Detection (SoWeTrend 2012)**

Introduction to the Proceedings of the Workshop on Social Web Analytics for Trend Detection (SoWeTrend) 2012 ................................................................. 185  
*Athena Vakali and Hakim Hacid*

Associating Items with Scenes Identified in Social Q&A Data .................. 187  
*Shin-ya Sato, Masami Takahashi, and Masato Matsuo*
## An Epistemic Equivalence for Predictive Social Networks Analysis

*Christophe Thovex and Francky Trichet*

Page 201

## Dynamic Clustering Process to Calculate Affinity Degree of Users as Basis of a Social Network Recommender

*Andrea Zanda, Ernestina Menasalvas, and Santiago Eibe*

Page 215

## Data Leak Aware Crowdsourcing in Social Network

*Iheb Ben Amor, Salima Benbernou, Mourad Ouziri, Mohamed Nadif, and Athman Bouguettaya*

Page 226

## International Workshop on Big Data and Cloud (BDC 2012)

### Big Data and Cloud

*Surya Nepal and Athman Bouguettaya*

Page 237

### A Service Oriented Framework for Animating Big Spatiotemporal Datasets

*Ahmet Sayar*

Page 238

### Searching Frequent Itemsets by Clustering Data: Towards a Parallel Approach Using MapReduce

*Maria Malek and Hubert Kadima*

Page 251

## The 5th International Workshop on Personalization in Cloud and Service Computing (PCS 2011)

### Introduction to the Proceedings of the 5th International Workshop on Personalization in Cloud and Service Computing (PCS) 2011

*Jian Yu, Hong-Linh Truong, and Yanbo Han*

Page 259

### Towards a Taxonomy Framework of Evolution for SOA Solution: From a Practical Point of View

*Zaiwen Feng, Patrick C.K. Hung, Keqing He, Yutao Ma, Matthias Farwick, Bing Li, and Rong Peng*

Page 261

### A Hierarchical Representation for Indexing Data Condensed Semantically from Physically Massive Data Out of Sensor Networks on the Rove

*MinHwan Ok*

Page 275

### An Auxiliary Storage Subsystem of Storage Space Hidden for User Data to Distributed Computing Systems

*MinHwan Ok*

Page 281
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>User-Focused Service Engineering, Consumption and Aggregation (USECA 2011)</td>
<td>292</td>
</tr>
<tr>
<td>Introduction to the Proceedings of the Workshop on User-Focused Service Engineering, Consumption and Aggregation (USECA) 2011</td>
<td>292</td>
</tr>
<tr>
<td>Hye-Young Paik, Ingo Weber, and Marek Kowalkiewicz</td>
<td></td>
</tr>
<tr>
<td>Data Visualisation Techniques for Exploratory Analysis Processes</td>
<td>295</td>
</tr>
<tr>
<td>Riley Perry and Fethi Rabhi</td>
<td></td>
</tr>
<tr>
<td>Form Annotation Framework for Form-Based Process Automation</td>
<td>307</td>
</tr>
<tr>
<td>Sung Wook Kim</td>
<td></td>
</tr>
<tr>
<td>A Web Services Variability Description Language (WSVL) for Business Users Oriented Service Customization</td>
<td>321</td>
</tr>
<tr>
<td>Tuan Nguyen, Alan Colman, and Jun Han</td>
<td></td>
</tr>
<tr>
<td>Towards a Service Framework for Remote Sales Support via Augmented Reality</td>
<td>335</td>
</tr>
<tr>
<td>Ross Brown and Alistair Barros</td>
<td></td>
</tr>
<tr>
<td>Author Index</td>
<td>349</td>
</tr>
</tbody>
</table>