Lecture Notes
in Business Information Processing

Series Editors
Wil van der Aalst
  Eindhoven Technical University, The Netherlands
John Mylopoulos
  University of Trento, Italy
Norman M. Sadeh
  Carnegie Mellon University, Pittsburgh, PA, USA
Michael J. Shaw
  University of Illinois, Urbana-Champaign, IL, USA
Clemens Szyperski
  Microsoft Research, Redmond, WA, USA
Preface

This book contains a selection of the best papers from WEBIST 2008 (the Fourth International Conference on Web Information Systems and Technologies), held in Funchal, Madeira, in 2008, organized by the Institute for Systems and Technologies of Information, Control and Communication (INSTICC), and co-sponsored by the Workflow Management Coalition (WFMC).

The purpose of the WEBIST series of conferences is to bring together researchers, engineers and practitioners interested in the technological advances and business applications of web-based information systems. The series focuses on four main topic areas, covering different aspects of web information systems, including internet technology; web interfaces and applications; society, e-business, and e-government; and e-learning.

WEBIST 2008 received 238 paper submissions from more than 40 countries on all continents. A double-blind review process was enforced, with the help of more than 200 experts from the international Program Committee, each of them specialized in one of the main conference topic areas. After reviewing, 32 papers were selected to be published and presented as full papers and 64 additional papers, describing work-in-progress, as short papers for oral presentation only. Furthermore, 58 papers were presented as posters. The full-paper acceptance ratio was 13%, and the total oral paper acceptance ratio was 40%.

Therefore, we hope that you find the papers included in this book interesting, and we trust they may represent a helpful reference in the future for all those who need to address any of the research areas mentioned above.

March 2009

José Cordeiro
Slimane Hammoudi
Joaquim Filipe
Organization

Conference Chair

Joaquim Filipe  
Polytechnic Institute of Setúbal/INSTICC, Portugal

Program Co-chairs

José Cordeiro  
Polytechnic Institute of Setúbal/INSTICC, Portugal
Slimane Hammoudi  
E.S.E.O., France

Organizing Committee

Paulo Brito  
INSTICC, Portugal
Marina Carvalho  
INSTICC, Portugal
Helder Coelhas  
INSTICC, Portugal
Vera Coelho  
INSTICC, Portugal
Andreia Costa  
INSTICC, Portugal
Bruno Encarnação  
INSTICC, Portugal
Vitor Pedrosa  
INSTICC, Portugal
Vera Rosário  
INSTICC, Portugal

Program Committee

A.Y. Al-Zoubi, Jordan  
Stefan Böttcher, Germany
Ajith Abraham, Norway  
Paolo Bouquet, Italy
Jacky Akoka, France  
Christos Bouras, Greece
Abdullah Alghamdi, Saudi Arabia  
Stephane Bressan, Singapore
Rachid Anane, UK  
Amy Bruckman, USA
Margherita Antonia, Greece  
Maria Claudia Buzzi, Italy
Grigoris Antoniou, Greece  
Elena Calude, New Zealand
Elarbi Badidi, UAE  
Nunzio Casalino, Italy
Matteo Baldoni, Italy  
Maiga Chang, Canada
Denilson Barbosa, Canada  
Evangelos Christou, Greece
Cristina Baroglio, Italy  
Christophe Claramunt, France
Bernhard Bauer, Germany  
Isabelle Comyn-Wattiau, France
David Bell, UK  
Michel Crampes, France
Orlando Belo, Portugal  
Alexandra Cristea, UK
Bharat Bhargava, USA  
Daniel Cunliffe, UK
Alfredo Cuzzocrea, Italy
Vasili Darlagiannis, Switzerland
Alessandro D’Atri, Italy
Valeria de Antonellis, Italy
Sergio de Cesare, UK
Steven Demurjian, USA
Darina Dicheva, USA
Y. Ding, Austria
Juergen Dix, Germany
Josep Domingo-Ferrer, Spain
Chyi-Ren Dow, Taiwan
Schahram Dustdar, Austria
Barry Eaglestone, UK
Atilla Elci, Turkey
Opher Etzion, Israel
Luis Ferreira Pires, The Netherlands
Josep-Lluis Ferrer-Gomila, Spain
Filomena Ferrucci, Italy
Stefan Fischer, Germany
Akira Fukuda, Japan
Giovanni Fulantelli, Italy
Martin Gaedke, Germany
Erich Gams, Austria
Daniel Garcia, Spain
Franca Garzotto, Italy
Dragan Gasevic, Canada
Jose A. Gil Salinas, Spain
Karl Goeschka, Austria
Anna Grabowska, Poland
Begoña Gros, Spain
Vic Grout, UK
Francesco Guerra, Italy
Aaron Gulliver, Canada
Pål Halvorsen, Norway
Ioannis Hatzilygeroudis, Greece
Stylianos Hatzipanagos, UK
Dominikus Heckmann, Germany
Nicola Henze, Germany
Dominic Heutelbeck, Germany
Pascal Hitzler, Germany
Wen Shyong Hsieh, Taiwan
Brian Hudson, Sweden
Tanko Ishaya, UK
Kai Jakobs, Germany
Anne James, UK
Ivan Jelinek, Czech Republic
Jingwen Jin, USA

Qun Jin, Japan
Carlos Juiz, Spain
Michail Kalogiannakis, France
Jussi Kangasharju, Finland
Vassilis Kapsalis, Greece
George Karabatis, USA
Frank Kargl, Germany
Roland Kaschek, New Zealand
Sokratis Katsikas, Greece
Hamamache Kheddouci, France
Ralf Klamma, Germany
Tsai Kuflik, Israel
Axel Küpper, Germany
Daniel Lemire, Canada
Tayeb Lemloma, France
Kin Fun Li, Canada
Weigang Li, Brazil
Leszek Lilien, USA
Claudia Linnhoff-Popien, Germany
Hui Liu, USA
Ying Liu, China
Pascal Lorenz, France
Heiko Ludwig, USA
Vicente Luque-Centeno, Spain
Anna Maddalena, Italy
George Magoulas, UK
Johannes Mayer, Germany
Ingo Melzer, Germany
Elisabeth Metais, France
Panagiotis Metaxas, USA
Alessandro Micarelli, Italy
Debajyoti Mukhopadhyay, India
Kia Ng, UK
David Nichols, New Zealand
Andreas Ninck, Switzerland
Dusica Novakovic, UK
Vladimir Oleshchuk, Norway
Andrea Omicini, Italy
Kok-Leong Ong, Australia
Jose A. Onieva, Spain
Vasile Palade, UK
Jun Pang, Germany
Kalpdrum Passi, Canada
Viviana Patti, Italy
Guenther Pernul, Germany
Rajesh Pillania, India
Carsten Pils, Ireland
Pierluigi Plebani, Italy
Bhanu Prasad, USA
Joshua C.C. Pun, Hong Kong
Mimi Recker, USA
Frank Reichert, Norway
Werner Retzschtegger, Austria
Yacine Rezgui, UK
Thomas Risse, Germany
Marco Roccetti, Italy
Dumitru Roman, Austria
Danguole Rutkauskiene, Lithuania
Sourav S. Bhowmick, Singapore
Maytham Safar, Kuwait
Eduardo Sanchez, Spain
Abdolhossein Sarrafzadeh, New Zealand
Anthony Savidis, Greece
Vittorio Scarano, Italy
Alexander Schatten, Austria
Alexander Schill, Germany
Jochen Seitz, Germany
Tony Shan, USA
Jamshid Shanbehzadeh, Iran
Quan Z. Sheng, Australia
Keng Siau, USA
Miguel-Angel Sicilia, Spain
Mariana Sigala, Greece
Eva Söderström, Sweden
Pedro Soto-Acosta, Spain
J. Michael Spector, USA

Martin Sperka, Slovakia
Kathleen Stewart Hornsby, USA
Frank Stowell, UK
Carlo Strapparava, Italy
Eleni Stroulia, Canada
Hussein Suleman, South Africa
Aixin Sun, Singapore
Junichi Suzuki, USA
Ramayah T., Malaysia
Taro Tezuka, Japan
Dirk Thissen, Germany
Ivan Tomek, Canada
Bettina Törpel, Denmark
Arun Kumar Tripathi, Germany
Thrasyvoulos Tsiatsos, Greece
Klaus Turowski, Germany
Michail Vaitis, Greece
Christelle Vangenot, Switzerland
Athanasios Vasilakos, Greece
Jari Veijalainen, Finland
Juan D. Velasquez, Chile
María Esther Vidal, Venezuela
Maurizio Vincini, Italy
Viacheslav Wolfengagen, Russian Federation
Martin Wolpers, Belgium
Huahui Wu, USA
Lu Yan, UK
Sung-Ming Yen, Taiwan
Janette Young, UK
Weihua Zhuang, Canada

Auxiliary Reviewers

Solomon Behre, USA
Stephan Bloehdorn, Germany
Sebastian Blohm, Germany
Duygu Çelik, Turkey
Frank Fitzek, Norway
Andrea Forte, USA
Vittorio Fuccella, Italy
Carmine Gravino, Italy
Carlos Guerrero, Spain
Larisa Ismailova, Russia
Jan Kolter, Germany
Sergey Kosikov, Russia
Riccardo Martoglia, Italy

Jaime A. Pavlich-Mariscal, USA
Mir Mohsen Pedram, Iran
Octavian Popescu, Italy
Andreas Prinz, Norway
Claudio Schifanella, Italy
Rolf Schillinger, Germany
Francesc Sebé, Spain
Daniel Serrano, Spain
Mikael Snaprud, Norway
Agustí Solanas, Spain
George Spathoulusa, Greece
Sarita Yardi, USA
Jose Zagal, USA
## Invited Speakers

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution and Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tony Shan</td>
<td>Bank of America, USA</td>
</tr>
<tr>
<td>Leszek Maciaszek</td>
<td>Macquarie University, Australia</td>
</tr>
<tr>
<td>Claudia Medeiros</td>
<td>UNICAMP, Brazil</td>
</tr>
<tr>
<td>Marcin Paprzycki</td>
<td>Systems Research Institute of the Polish Academy of Science, Poland</td>
</tr>
<tr>
<td>Rainer Unland</td>
<td>University of Duisburg-Essen, Germany</td>
</tr>
<tr>
<td>Klaus Pohl</td>
<td>University Duisburg-Essen, Germany</td>
</tr>
</tbody>
</table>
# Table of Contents

## Invited Papers

- **The Tao of SOA** .................................................. 3  
  *Tony C. Shan*

- **Architecture-Centric Software Quality Management** .............. 11  
  *Leszek A. Maciaszek*

- **Adaptability in an Agent-Based Virtual Organization – Towards Implementation** ........................................ 27  
  *G. Frąckowiak, M. Ganzha, M. Paprzycki, M. Szymczak, Y.-S. Han, and M.-W. Park*

- **S-Cube: Enabling the Next Generation of Software Services** ........ 40  
  *Andreas Metzger and Klaus Pohl*

## Part I: Internet Technology

- **Web 2.0 OLAP: From Data Cubes to Tag Clouds** .................... 51  
  *Kamel Aouiche, Daniel Lemire, and Robert Godin*

- **Compressing XML Data Streams with DAG+BSBC** .................. 65  
  *Stefan Böttcher, Rita Hartel, and Christian Heinzemann*

- **Shortest Remaining Response Time Scheduling for Improved Web Server Performance** ................................. 80  
  *Ahmad AlSa’deh and Adnan H. Yahya*

- **Combining Grid, SOA and Web Services for Smaller Computing Environments** ........................................... 93  
  *Arne Koschel and Carsten Kleiner*

- **Towards Dynamic Service Level Agreement Negotiation: An Approach Based on WS-Agreement** ........................................ 107  
  *Antoine Pichot, Oliver Wäldrich, Wolfgang Ziegler, and Philipp Wieder*

- **Performance Monitoring Enterprise Applications with the BlackBird System** ............................................. 120  
  *João P. Germano, Alberto Rodrigues da Silva, and Fernando M. Silva*

- **Developing and Utilizing Ontology of Golf Based on the Open Travel Alliance Golf Messages** ............................... 133  
  *Agnieszka Cieślik, Maria Ganzha, and Marcin Paprzycki*
Part II: Web Interfaces and Applications

Comparing and Merging Versioned Wiki Pages ......................... 159
  Stephan Lukosch and Andrea Leisen

Are Wikipedia Resources Useful for Discovering Answers to List
Questions within Web Snippets? ........................................... 174
  Alejandro Figueroa

Personalized Web Search Using Correlation Matrix for Query
Expansion ................................................................. 186
  Claudio Biancalana, Antonello Lapolla, and Alessandro Micarelli

Social Semantic Web at Work: Annotating and Grouping Social Media
Content ........................................................................ 199
  Fabian Abel, Nicola Henze, and Daniel Krause

State-Transition Diagram for Visual Programming Tool GUEST .... 214
  Yuka Obu, Kazuhiro Maruo, Tatsuiro Yonekura,
  Masaru Kamada, and Shusuke Okamoto

Mashups over the Deep Web .............................................. 228
  Thomas Hornung, Kai Simon, and Georg Lausen

A Web-Based Version of a Trivial Game to Promote Galician
Culture ....................................................................... 242
  Miguel R. Luaces, Oscar Pedreira, Ángeles S. Places, and Diego Seco

Feeling Expression Using Avatars and Its Consistency for Subjective
Annotation .................................................................... 253
  Fuyuko Ito, Yasunari Sasaki, Tomoyuki Hiroyasu, and
  Mitsunori Miki

Improving Web Service Discovery with Personalized Goal .......... 266
  Sanaullah Nazir, Brahmananda Sapkota, and Tomas Vitvar

New Quality Metrics for Web Search Results ........................ 278
  Panagiotis Takis Metaxas, Lilia Ivanova, and Eni Mustafaraj

Part III: Society, e-Business and e-Government

User Acceptance of Internet Banking Service in Malaysia ........ 295
  Yee YenYuen and P.H.P. Yeow

Convergence of Internet and TV: The Commercial Viability of P2P
Content Delivery ............................................................ 307
  Jorn De Boever

Website Service Quality in Ireland: An Empirical Study .......... 321
  Regina Connolly
### Comparison of Social Classification Systems in a Heterogeneous Environment

**Steffen Oldenburg**

- Page 333

### Part IV: e-Learning

**Web-Based 3D and Haptic Interactive Environments for e-Learning, Simulation, and Training**

**Felix G. Hamza-Lup and Ivan Sopin**

- Page 349

**A Parameterizable Framework for Replicated Experiments in Virtual 3D Environments**

**Daniel Biella and Wolfram Luther**

- Page 361

**Web-Based Case Studies for Continuous Professional Development via the ViCoCITY Case Study Support Tool**

**James A. Redmond, Audrey Stenson, and Alan Mullally**

- Page 375

**Transforming a Competency Model to Parameterised Questions in Assessment**

**Onjira Sitthisak, Lester Gilbert, and Hugh C. Davis**

- Page 390

**A New Concept Map Model for E-Learning Environments**

**Antonina Dattolo and Flaminia L. Luccio**

- Page 404

### Author Index

- Page 419