

Editors

The editors of the volume are in this order: Christoph Bussler, Suk-ki Hong, Woochun Jun, Roland Kaschek, Kinshuk, Shonali Krishnaswamy, Seng Wai Loke, Daniel Oberle, Debbie Richards, Amit Sharma, York Sure, Bernhard Thalheim

Christoph Bussler

Affiliation: Digital Enterprise Research Institute (DERI)
Address: National University of Ireland, Galway, University Road,
Galway, Ireland
Email: chris.bussler@deri.org

Suk-ki Hong

Affiliation: Dankook University, College of Business and Economics
Address: 147, Hannam-ro, Yongsan-gu, Seoul, Korea 140-714
Email: skhong017@dankook.ac.kr, skhong017@naver.com

Woochun Jun

Affiliation: Dept. of Computer Education, Seoul National University
of Education
Address: Seocho Dong 1650, Seocho Gu, Seoul, Korea
Email: wocjun@snu.ac.kr

Roland Kaschek

Affiliation: Massey University
Address: Dept. of Information Systems, Massey University
5301 Palmerston North, Private Bag 11 222
Email: R.H.Kaschek@massey.ac.nz

Kinshuk

Affiliation: Massey University
Address: Information Systems Department, Massey University,
Private Bag 11-222, Palmerston North, New Zealand
Email: kinshuk@ieee.org

Shonali Krishnaswamy

Affiliation: Monash University
Address: School of Computer Science and Software Engineering
900 Dandenong Rd, Caulfield East, Victoria 3145
Email: Shonali.Krishnaswamy@infotech.monash.edu.au

Seng Wai Loke

Affiliation: Monash University
Address: School of Computer Science and Software Engineering
900 Dandenong Rd, Caulfield East, Victoria 3145
Australia
Email: Seng.Loke@infotech.monash.edu.au

Daniel Oberle

Affiliation: University of Karlsruhe, Institute AIFB
Address: D-76128 Karlsruhe, Germany
Email: oberle@aifb.uni-karlsruhe.de

Debbie Richards

Affiliation: Macquarie University
Address: Dept of Computing, Macquarie University, NSW 2109,
Australia
Email: richards@ics.mq.edu.au

Amit Sharma

Affiliation: Software Engineering Technology Labs, Infosys Technologies
Address: Electronics City, Hosur Road, Bangalore, India-560100
Email: amitdce@yahoo.com

York Sure

Affiliation: University of Karlsruhe, Institute AIFB
Address: D-76128 Karlsruhe
Email: sure@aifb.uni-karlsruhe.de

Bernhard Thalheim

Affiliation: Kiel University, Computer Science Institute
Address: Olshausenstr. 40, 24098 Kiel, Germany
Email: thalheim@is.informatik.uni-kiel.de

WISE 2004

Workshop Chair's Message

I would like to welcome you to the Workshop Proceedings of the 5th International Conference on Web Information Systems Engineering (WISE 2004), which took place in Brisbane, Australia. As in previous years, workshop proposals were invited continuing the tradition of workshops in conjunction with the WISE conference.

Originally four workshop proposals were accepted. During the workshop organization it became apparent that WISE 2004 would be served best by combining these four workshops into two, allowing a better and wider coverage of topics while avoiding a too segmented workshop program.

The workshop titled 'Intelligent Networked and Mobile Systems' organized by Woonchun Jun, Suk-ki Hong, Daniel Oberle, Debbie Richards, and York Sure covered the areas 'Ontologies for Networked Systems' and 'Advances in Mobile Learning.' The workshop with the title 'Web Information Systems' organized by Roland Kaschek, Kinshuk, Shonali Krishnaswamy, Seng Wai Loke, Amit Sharma, and Bernhard Thalheim addressed Web applications and Web services.

I would like to thank all authors who submitted and presented papers at the workshops for their hard work. Also, I would like to thank all attendees of the workshops for their engagement at the workshops as well as at the conference, as they together with the authors represent the WISE community. The workshop organizers did a great job in organizing the workshops, including the paper selection and proceedings preparation. It was a pleasure cooperating with them putting together the workshop program; thank you for that. Last, but not least, I'd like to thank the WISE conference organizers for their efficient support of the WISE 2004 workshop program.

September 2004

Christoph Bussler

Intelligent Networked and Mobile Systems

Workshop Chairs' Message

The international workshop “Intelligent Networked and Mobile Systems” consisted of two main tracks:

- **Ontologies for Networked Systems (ONS)**, and
- **Advances in Mobile Learning (AML)**

Track ONS: Ontologies provide a shared understanding of a domain of interest to support communication among human and computer agents, typically being represented in a machine-processable representation language. Thus, ontologies are seen as key enablers for the Semantic Web. Recently the convergence of paradigms such as those currently being monitored in the areas of the Semantic Web, Web Services, Agents, Peer-to-Peer networks and Grid Computing requires multidisciplinary approaches and cooperation. This workshop was designed to bring together researchers and practitioners from the mentioned areas and to act as a platform for discussions on experiences and visions.

Track AML: Mobile Learning is the use of mobile or wireless devices for learning on the move. Mobile learning aims to improve levels of literacy and participation in education amongst young adults across all nations. It makes use of young people's interest in their mobile phones and other handheld communications/entertainment devices to deliver exciting and unusual learning experiences and related messages. The aim of this workshop was to invite researchers from various fields to present and discuss their ideas on mobile learning.

The workshop was held in cooperation with two prominent networks of excellence and was meant to act as a focal point for joint interests and future collaborations:

- **Knowledge Web:Realizing the Semantic Web**, European-funded network of excellence, see <http://knowledgeweb.semanticweb.org/> for further details
- **ARC Research Network for Next Generation Web Technologies**, Australian research network – Intelligent Applications Through the Semantic Web, see <http://www.comp.mq.edu.au/research/semantic/> for further details

Your organization committee,

Track ONS

Daniel Oberle
Debbie Richards
York Sure (contact)

Track AML

Prof. Woonchun Jun
Prof. Suk-ki Hong

Acknowledgements: The workshop was supported by the EU funded projects Knowledge Web (IST-2004-507482) and SEKT (IST-2003-506826).

Web Information Systems Workshop Chairs' Message

Engineering Web information systems (WIS), apart from meeting functional requirements, in particular needs to focus on the quality of the systems to be provided. This quality in the end will be crucial regarding acceptance of new technologies such as Web services. Putting a stronger emphasis on system quality also is a consequence of the increased awareness of this issue among those who care for systems development.

WIS comprises both general Web applications and Web services in particular. Considering WIS from a holistic perspective may help to account for this diversity. Such a perspective should encompass both quality at the engineering and development level and quality at the operational level. It thus is essential for quality to pervade through the development, the management and the use of Web information systems. The desired quality aspects need to be considered and interrelated for a systematic technology-based approach to the construction of high-quality Web information systems. In addition, quality at the operational level becomes significant for service-oriented systems. At this level, the focus is on the levels of service quality that the Web application provides for quality aspects such as performance, scalability, availability, and reliability. It becomes a benchmark to differentiate services and providers. Quality of service forms the underpinning for a broad spectrum of Web service activities such as selection, scheduling, pricing and specifying service level agreements. If economic feasibility is a major development goal then quality-related decisions in design and implementation need to focus on system usage. This involves taking note of a number of different system characteristics and methods, techniques, and tools for dealing with these characteristics. Fruitfully applying the mentioned holistic view requires integrating into a reasonably coherent conceptual framework the knowledge already obtained regarding WIS. This is the task that was set out by the FIPWIS workshop: to look at competing and complementary approaches to WIS issues. To tie things together, to identify and stick to what is good and fruitful and to improve what is not satisfactory. The focus of the WQW workshop was on the operational quality levels of Web services in particular. The responses to the calls for papers of WQW and FIPWIS were not so numerous as to justify running both workshops as separate events on one-day duration bases. Furthermore, given the holistic perspective that needs to be taken when dealing with the quality of Web information systems, it became evident that the two workshops could meaningfully be integrated. The same went for the other WISE 2004 workshops.

All WISE workshops were supposed to add to the benefit of attending WISE 2004 by broadening the spectrum of the papers provided. It thus was decided to merge the four intended WISE workshops into two. WQW and FIPWIS immediately found that idea attractive and merged into WOWIS (Workshop on Web Information Systems). The present volume contains the papers that were independently peer-reviewed and selected by the FIPWIS and the WQW program committees. In both cases 50% of the paper submissions were accepted.

Roland Kaschek and Shonali Krishnaswamy

Organization Committee

Christoph Bussler

Digital Enterprise Research Institute (DERI)

Suk-Ki Hong

Dankook University, College of Business and Economics

Woochun Jun

Dept. of Computer Education, Seoul National University of Education

Roland Kaschek

Dept. of Information Systems, Massey University

Kinshuk

Advanced Learning Technologies Research Centre,

Information System Department, Massey University

Shonali Krishnaswamy

Monash University

Seng Wai Loke

Monash University

Daniel Oberle

University of Karlsruhe, Institute AIFB

Debbie Richards

Dept of Computing, Macquarie University

Amit Sharma

Software Engineering Technology Labs, Infosys Technologies

York Sure

University of Karlsruhe, Institute AIFB

Bernhard Thalheim

Kiel University, Computer Science Institute

Program Committees

Workshop on Intelligent Networked and Mobile Systems (INMS)

Ontologies for Networked Systems (ONS) Track

Andreas Abecker, Research Center for Information Technologies (FZI), Karlsruhe

Andreas Eberhart, University of Karlsruhe

Boualem Benatallah, University of New South Wales, Sydney

Jos de Bruin, University of Innsbruck

Jürgen Angele, Ontoprise GmbH

Heiner Stuckenschmidt, Vrije Universiteit Amsterdam

Lawrence Cavedon, Stanford University

Leon Sterling, University of Melbourne

Michael Sintek, DFKI Kaiserslautern

Oscar Corcho, iSOCO

Philippe Cudre-Mauroux, EPFL Lausanne

Valentina Tamma, University of Liverpool

Jian Yang, Macquarie University, Sydney

Ryszard Kowalczyk, Swinburne University of Technology, Australia

Advances in Mobile Learning (AML) Track

Christos J. Bouras, University of Patras, Research Academic,

Computer Technology Institute, Greece

Jo Coldwell, Deakin University, Australia

Le Gruenwald, University of Oklahoma, USA

Zhigeng Pan, Zhejiang University, China

Youngbum Park, Dankook University, Korea

Ilkyeun Ra, University of Colorado at Denver, USA

Daeyoung Seo, Korea Polytechnic University, Korea

Timothy K. Shih, Tamkang University, Taiwan

Sean Siqueira, Catholic University of Rio de Janeiro, Brazil

Li Yang, Western Michigan University, USA

Workshop on Web Information Systems

Fragmentation Versus Integration – Perspectives of the Web Information Systems Discipline – (FIPWIS) Track

Vladan Devedzic, University of Belgrade, Yugoslavia
Klaus Jantke, DFKI Saarbruecken, Germany
Roland Kaschek, Massey University, New Zealand
Kinshuk, Massey University, New Zealand
Stephen Liddle, Brigham Young University, USA
Heinrich C. Mayr, University of Klagenfurt, Austria
Gustavo Rossi, La Plata National University, Argentina
Demetrios Sampson, University of Piraeus, Greece
Yuzuru Tanaka, Hokkaido University, Japan
Bernhard Thalheim, University of Kiel, Germany
Alexei Tretiakov, Massey University, New Zealand

Web Services Quality (WQW) Track

Gustavo Alonso, ETH Zentrum, Zürich, Switzerland
Rashid Al-Ali, University of Cardiff, United Kingdom
Boualem Benatallah, University of New South Wales, Australia
Luigi Buglione, GUFPI-ISMA, Italy
Rajkumar Buyya, University of Melbourne, Australia
Jorge Cardoso, University of Madeira, Portugal
Fabio Casati, HP Labs, USA
Lawrence Cavedon, CSLI, Stanford University, USA
Coral Calero, University of Castilla-La Mancha, Spain
Oscar Diaz, University of the Basque Country, Spain
Heiko Ludwig, IBM, USA
Massimo Meccella, University of Rome, Italy
Michael Maximilien, IBM and NCSU, USA
Aad van Moorsel, HP, USA
Barbara Pernici, Politecnico di Milano, Italy
Mario Piattini, University of Castilla-La Mancha, Spain
Andry Rakotinarainy, CARRS-Q, Australia
Shubhashis Sengupta, Infosys Technologies Ltd., India
Leon Sterling, University of Melbourne, Australia
Bala Srinivasan, Monash University, Australia
Jian Yang, Swinburne University of Technology, Australia
Arkady Zaslavsky, Monash University, Australia
Liangzhao Zeng, IBM, USA

Web Information Systems -- WISE 2004 Workshops

WISE 2004 International Workshops, Brisbane,

Australia, November 22-24, 2004, Proceedings

Bussler, C.; Hong, S.-k.; Jun, W.; Kaschek, R.; Kinshuk;

Krishnaswamy, S.; Loke, S.W.; Oberle, D.; Richards, D.;

Sharma, A.; Sure, Y.; Thalheim, B. (Eds.)

2004, XVIII, 282 p., Softcover

ISBN: 978-3-540-23892-8