

Commenced Publication in 1973

Founding and Former Series Editors:

Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

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

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

University of Dortmund, Germany

Madhu Sudan

Massachusetts Institute of Technology, MA, USA

Demetri Terzopoulos

University of California, Los Angeles, CA, USA

Doug Tygar

University of California, Berkeley, CA, USA

Moshe Y. Vardi

Rice University, Houston, TX, USA

Gerhard Weikum

Max-Planck Institute of Computer Science, Saarbruecken, Germany

Kurt Bauknecht Birgit Pröll
Hannes Werthner (Eds.)

E-Commerce and Web Technologies

7th International Conference, EC-Web 2006
Krakow, Poland, September 5-7, 2006
Proceedings

Volume Editors

Kurt Bauknecht
University of Zurich, Department of Informatics (IFI)
Winterthurer Strasse 190, 8057 Zurich, Switzerland
E-mail: baukn@ifi.unizh.ch

Birgit Pröll
Johannes Kepler University Linz, Institute for Applied Knowledge Processing (FAW)
Softwarepark Hagenberg, 4232 Hagenberg, Austria
E-mail: bproell@faw.uni-linz.ac.at

Hannes Werthner
Vienna University of Technology
Institute of Software Technology and Interactive Systems, EC-Group
Favoritenstr. 9-11, 1040 Vienna, Austria
E-mail: hannes.werthner@ec.tuwien.ac.at

Library of Congress Control Number: 2006931012

CR Subject Classification (1998): H.4, K.4.4, J.1, K.5, H.3, H.2, K.6.5

LNCS Sublibrary: SL 3 – Information Systems and Application, incl. Internet/Web and HCI

ISSN 0302-9743
ISBN-10 3-540-37743-3 Springer Berlin Heidelberg New York
ISBN-13 978-3-540-37743-6 Springer Berlin Heidelberg New York

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.

Springer is a part of Springer Science+Business Media
springer.com

© Springer-Verlag Berlin Heidelberg 2006
Printed in Germany

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India
Printed on acid-free paper SPIN: 11823865 06/3142 5 4 3 2 1 0

Preface

We welcome you to the 7th International Conference on E-commerce and Web Technologies (EC-Web 2006) held in Krakow, Poland, in conjunction with DEXA 2006. This conference was organized for the first time in Greenwich, UK, in 2000, and it has been able to attract an increasing number of participants and interest, reflecting the progress made in the field. As in the previous years, EC-Web 2006 served as a forum bringing together researchers from academia and practitioners from industry to discuss the current state of the art in e-commerce and Web technologies. Inspiration and new ideas emerged from intensive discussions that took place during the keynote address, the formal sessions and the social events.

The conference attracted 88 paper submissions and each paper was reviewed by three Program Committee members. The Program Committee selected 24 papers for presentation and publication (an acceptance and publication rate of 27%). We have to confess that this task was not that easy due to the high quality of the submitted papers.

We would like to express our thanks to our colleagues who helped put together the technical program: the Program Committee members and external reviewers for their timely and rigorous reviews of the papers, and the Organizing Committee for their help in the administrative work and support. We owe special thanks to Gabriela Wagner for her helping hand concerning the administrative and organizational tasks of this conference.

Finally, we would like to thank all the authors who have submitted papers, authors who presented papers, and the participants who made this conference an intellectually stimulating event.

We hope that all attendees enjoyed the hospitality of Krakow and the conference.

August 2006

Birgit Pröll (Johannes Kepler University of Linz, Austria)
Hannes Werthner (Vienna University of Technology, Austria)
Program Chairs EC-Web 2006

Organization

Program Committee

Marco Aiello, University of Trento, Italy
Sourav S. Bhowmick, Nanyang Technological University, Singapore
Martin Bichler, Technical University Munich, Germany
Susanne Boll, University of Oldenburg, Germany
Stephane Bressan, National University of Singapore, Singapore
Tanya Castleman, Deakin University, Australia
Wojciech Cellary, The Poznan University of Economics, Poland
Jen-Yao Chung, IBM T.J. Watson Research Center, USA
Alfredo Cuzzocrea, University of Calabria, Italy
Eduardo Fernandez, Florida Atlantic University, USA
Elena Ferrari, University of Insubria at Como, Italy
Farshad Fotouhi, Wayne State University, USA
Karl A. Fröschl, Electronic Commerce Competence Center, Austria
Yongjian Fu, Cleveland State University, USA
Stephane Gagnon, New Jersey Institute of Technology, USA
Fausto Giunchiglia, University of Trento, Italy
Chanan Glezer, Ben Gurion University, Israel
Thomas Hess, LMU Munich, Germany
Yigal Hoffner, Switzerland
Christian Huemer, University of Vienna, Austria
Gregory E. Kersten, Concordia University Montreal, Canada
Hiroyuki Kitagawa, University of Tsukuba, Japan
Gabriele Kotsis, Johannes Kepler University Linz, Austria
Alberto Laender, Federal University of Minas Gerais, Brazil
Juhnyoung Lee, IBM T. J. Watson Research Center, USA
Leszek Lilien, Western Michigan University, USA
Ee-Peng Lim, Nanyang Technological University, Singapore
Huan Liu, Arizona State University, USA
Heiko Ludwig, IBM T. J. Watson Research Center, USA
Sanjay Kumar Madria, University of Missouri-Rolla, USA
Bamshad Mobasher, DePaul University, USA
Natwar Modani, IBM India Research Lab, India
Mukesh Mohania, IBM India Research Lab, India
Guenter Mueller, University of Freiburg, Germany
Dirk Neumann, University of Karlsruhe, Germany
Gustaf Neumann, Vienna University of Economics and BA, Austria
Wee Keong Ng, Nanyang Technological University, Singapore
Rolf Oppliger, eSECURITY Technologies, Switzerland
Oscar Pastor, Valencia University of Technology, Spain
Guenther Pernul, University of Regensburg, Germany

Evangelia Pitoura, University of Ioannina, Greece
Ivana Podnar, EPFL, Switzerland
Giuseppe Psaila, University of Bergamo, Italy
Gerald Quirchmayr, University of Vienna, Austria
Indrakshi Ray, Colorado State University, USA
Werner Retschitzegger, Johannes Kepler University Linz, Austria
Tomas Sabol, Technical University of Kosice, Slovakia
Nandlal L. Sarda, Indian Institute of Technology Bombay, India
Steffen Staab, University of Koblenz, Germany
Michael Stroebel, BMW Group, Germany
Roger M. Tagg, University of South Australia, Australia
Kian-Lee Tan, National University of Singapore, Singapore
Stephanie Teufel, University of Fribourg, Switzerland
Bruce H. Thomas, University of South Australia, Australia
A Min Tjoa, Technical University of Vienna, Austria
Aphrodite Tsalgatidou, University of Athens, Greece
Krishnamurthy Vidyasankar, Memorial University of Newfoundland, Canada
Hans Weigand, Tilburg University, The Netherlands
Christof Weinhardt, University of Karlsruhe, Germany
Janusz Wielki, Technical University of Opole, Poland

External Reviewers

Nitin Agarwal, Arizona State University, USA
George Athanasopoulos, University of Athens, Greece
Michael Borovicka, University of Innsbruck, Austria
Peter Butka, Technical University of Kosice, Slovakia
Karol Furdik, Intersoft, a.s., Slovakia
Wojciech Galuba, EPFL, Switzerland
Jörg Gilberg, University of Regensburg, Germany
Christoph Grün, Vienna University of Technology, Austria
Fabius Klemm, EPFL, Switzerland
Jan Kolter, University of Regensburg, Germany
Marian Mach, Technical University of Kosice, Slovakia
Patrick Sinclair Merten, University of Fribourg, Switzerland
Sai Moturu, Arizona State University, USA
Björn Muschall, University of Regensburg, Germany
Michael Pantazoglou, University of Athens, Greece
Marek Paralic, Technical University of Kosice, Slovakia
Lance Parsons, Arizona State University, USA
Vicente Pelechano, Valencia University of Technology, Spain
Gonzalo Rojas, Valencia University of Technology, Spain
Marta Ruiz, Valencia University of Technology, Spain
Jarogniew Rykowski, Poznan University of Economics, Poland
Ali Salehi, EPFL, Switzerland
Martin Steinert, University of Fribourg, Switzerland

Sergiusz Strykowski, Poznan University of Economics, Poland

Lei Tang, Arizona State University, USA

Victoria Torres, Valencia University of Technology, Spain

Pedro Valderas, Valencia University of Technology, Spain

Le-Hung Vu, EPFL, Switzerland

Daniela Wanner, University of Fribourg, Switzerland

Marco Zapletal, Vienna University of Technology, Austria

Zheng Zhao, Arizona State University, USA

Table of Contents

Recommender System 1

Map-Based Recommendation of Hyperlinked Document Collections	1
<i>Mieczysław A. Kłopotek, Sławomir T. Wierzchoń, Krzysztof Ciesielski, Michał Dramiński, Dariusz Czerski</i>	
Web User Segmentation Based on a Mixture of Factor Analyzers	11
<i>Yanzan Kevin Zhou, Bamshad Mobasher</i>	
A Hybrid Similarity Concept for Browsing Semi-structured Product Items	21
<i>Markus Zanker, Sergiu Gordea, Markus Jessenitschnig, Michael Schnabl</i>	

Recommender Systems 2

A Preference-Based Recommender System	31
<i>Benjamin Satzger, Markus Endres, Werner Kiefling</i>	
Enhanced Prediction Algorithm for Item-Based Collaborative Filtering Recommendation	41
<i>Heung-Nam Kim, Ae-Ttie Ji, Geun-Sik Jo</i>	
Persuasive Online-Selling in Quality and Taste Domains	51
<i>Markus Zanker, Marcel Bricman, Sergiu Gordea, Dietmar Jannach, Markus Jessenitschnig</i>	

Business Process / Design Aspects

Proviado – Personalized and Configurable Visualizations of Business Processes	61
<i>Ralph Bobrik, Thomas Bauer, Manfred Reichert</i>	
Service-Oriented Data and Process Models for Personalization and Collaboration in e-Business	72
<i>Chien-Chih Yu</i>	
A Framework for Raising Collaboration Levels on the Internet	82
<i>Igor Hawryszkiewicz</i>	

Designing Volatile Functionality in E-Commerce Web Applications 92
*Gustavo Rossi, Andres Nieto, Luciano Mengoni,
Liliana Nuño Silva*

Mobile Commerce

Design of Ubiquitous Referral Marketing: A Business Model
and Method 102
Kyoung Jun Lee, Jong Chul Lee

Pre-service and Post-transcoding Schema for an Adaptive PC to Mobile
Web Contents Transcoding System 112
Euisun Kang, Daehyuck Park, Younghwan Lim

Context-Aware Recommendation Service Using Multi-leveled
Information in Mobile Commerce 122
Joonhee Kwon, Sungrim Kim

Security and E-Payment

Attribute-Based Authentication and Authorisation Infrastructures for
E-Commerce Providers 132
*Christian Schläger, Manuel Sojer, Björn Muschall,
Günther Pernul*

Seamlessness and Privacy Enhanced Ubiquitous Payment 142
Kyoung Jun Lee, Mu Jeong Jeong, Jeong-In Ju

CerTicket Solution: Safe Home-Ticketing Through Internet 152
Francisco Rico, Jordi Forga, Emilio Sanvicente, Luis de la Cruz

Web Services Computing / Semantic Web

Efficient Invocation of Web Services Using Intensional Results 162
Chang-Sup Park, Soyeon Park

On Distributed Service Selection for QoS Driven Service
Composition 173
Fei Li, Fangchun Yang, Sen Su

RLinda: A Petri Net Based Implementation of the Linda Coordination
Paradigm for Web Services Interactions 183
J. Fabra, P. Álvarez, J.A. Bañares, J. Ezpeleta

E-Negotiation and Agent Mediated Systems

Making Informed Automated Trading a Reality	193
<i>John Debenham, Simeon Simoff</i>	
An Analysis of Service Trading Architectures	203
<i>Manuel Resinas, Pablo Fernandez, Rafael Corchuelo</i>	
An Ontological Approach for Translating Messages in E-Negotiation Systems	213
<i>Víctor J. Sosa, Maricela Bravo, Joaquín Pérez, Arturo Díaz</i>	

Issues in Web Advertising

Detecting Frauds in Online Advertising Systems	222
<i>Sanjay Mittal, Rahul Gupta, Mukesh Mohania, Shyam K. Gupta, Mizuho Iwaihara, Tharam Dillon</i>	
An Improved Web System for Pixel Advertising	232
<i>Adam Wojciechowski</i>	
Author Index	243