Lecture Notes in Computer Science 5367

Commenced Publication in 1973
Founding and Former Series Editors:
Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

John Domingue   Chutiporn Anutariya (Eds.)

The Semantic Web

3rd Asian Semantic Web Conference, ASWC 2008
Bangkok, Thailand, December 8-11, 2008
Proceedings.

Springer

Volume Editors

John Domingue
The Open University Knowledge Media Institute
Walton Hall, Milton Keynes, MK6 7AA, United Kingdom
E-mail: j.b.domingue@open.ac.uk

Chutiporn Anutariya
Shinawatra University
99 Moo 10 Bangtoey, Samkok
Pathum Thani, 12160, Thailand
E-mail: chutiporn@shinawatra.ac.th

Preface

This volume contains the main proceedings of the 3rd Annual Asian Semantic Web Conference (ASWC 2008) held in Bangkok, Thailand, during December 8–11, 2008. As such, ASWC 2008 showcased the latest results in the research and application of Semantic Web technologies—applying semantics at a planetary scale.

Over the last few years we have been witnessing a trend in which the Semantic Web has been transforming from a niche research area to the mainstream in academia and industry. The European Semantic Web Conference, held earlier this year in Tenerife, saw a growth in the participation and engagement from semantic start-up companies. This conference, showcasing an Asian perspective and now having established itself, is also a sign that the Semantic Web is moving to the mainstream.

In addition to the emergence in the mainstream, the Semantic Web continues to generate a significant volume of scientifically interesting research articles. Research submissions to ASWC 2008 were scrutinized and filtered via a three-phase reviewing process. First, each submission was evaluated by three members from the Program Committee. Second, papers and the associated reviews were meta-reviewed by members of the Senior Program Committee. In this second phase the meta-reviewers led discussions between reviewers and produced an acceptance recommendation. In the last phase, on the basis of the reviews and associated meta-review recommendations, the final selections were made jointly by the Programme Chairs. Although this process required substantial efforts from the members of the Program Committee, it ensured that only papers of the highest quality were accepted. The final acceptance of 37 papers for publication and presentation at the conference out of the 118 submissions resulted in an acceptance rate of 31%. Of the papers we accepted these are split between Asia (18) and Europe (17), with an additional 2 from the USA. The accepted papers cover topics including: scalable reasoning and logic, ontology mapping, ontology modelling and management, ontologies and tags, human language technologies and machine learning, querying, Semantic Web services and Semantic Web applications.

We would like to thank all members of the Program Committee and Senior Program Committee and the additional reviewers for their considerable and timely efforts in reviewing the submissions, particularly during a period when holidays are traditionally taken in many parts of the globe.

ASWC this year was fortunate to have three very compelling keynotes. Fabio Ciravegna, Professor of Language and Knowledge Technologies at the University of Sheffield, gave a talk entitled "Supporting Knowledge Management in Large Distributed Organizations Using Semantic Web Technologies." In his talk he covered the challenges and requirements for Semantic Web technologies when

confronted with the task of knowledge acquisition and sharing in large complex distributed environments giving examples from industrially focused projects.

Amit Sheth, Director of Kno.e.sis Center, at Wright State University, gave the talk "Computing for Human Experience: Sensors, Perception, Semantics, Web N.0, and Beyond." Amit outlined an era of "computing for human experience" incorporating seamless interaction between the physical and virtual worlds facilitated by advances in sensor technology and "edge computing" and linked to emerging areas such as Internet of Things, Intelligence@Interfaces, Humanist Computing, Relationship Web, PeopleWeb, EventWeb, and Experiential Computing. In his presentation Amit highlighted the role that semantics would play in this new era.

In his talk "Common Web Language for Humans and Computers," Hiroshi Uchida, Director of the UNDL Foundation, outlined the Universal Networking Language and discussed its applications in a number of diverse areas of human activity.

Six workshops were accepted at this year's conference covering areas ranging from new forms of reasoning to health care, life sciences, and human factors.

All members of the Organizing Committee were very dedicated to their tasks and deserve our special gratitude. In particular we wish to thank the Conference Chairs, Jerome Euzenat and R.K. Shyamasundar, the Steering Committee Chair, Riichiro Mizoguchi, and all members of the Steering Committee for their valuable advice and constant support to make this conference a success.

We would also like to thank Marco Ronchetti for his organization of the ASWC workshops, Michal Zaremba and Elena Simperl for their work on the Demos and Posters, respectively, and Huajun Chen for his efforts as Metadata Chair at ASWC 2008. Huajun now joins the elite group of "Dogfood Czars" who promote the use of Semantic Web technologies by the Semantic Web community.

On the business side we would like to thank the Industrial Track Chairs, Roberta Cuel, Lyndon Nixon, and Laurentiu Vasiliu, for their innovation in creating a "Software Solutions Track" with commercially inspired criteria and an associated cash prize.

One of the main aspects which made this conference special was its particular location in Bangkok, Thailand. We were three only because of the efforts of our Local Organization Chairs, Asanee Kawtrakul and Rachanee Ungrangsi; our Local Organizing Committee, Photchanan Ratanajaipan and Krissada Maleewong; and our Local Organizing staff.

We thank Alessio Gugliotta for his unswerving support to the Program Chairs in organizing the refereed paper program. We are also grateful to Springer for agreeing to publish the proceedings in its *Lecture Notes in Computer Science* series. Our gratitude also goes to all of our sponsors and STI International for their continued organizational support. Finally, we would like to thank all the colleaques who submitted their papers to the conference, and all the participants who contributed to the interesting presentations and fruitful discussions.

We are happy that ASWC 2008 was a thrilling event and once again showed the high levels of motivation, dedication, creativity, and performance of the Semantic Web community.

December 2008   John Domingue
                                                          Chutiporn Anutariya

Organization

ASWC 2008 was organized by the Asian Institute of Technology, National Electronics and Computer Technology Center, and Shinawatra University, Thailand.

Steering Committee

Steering Committee Chair

Riichiro Mizoguchi   Osaka Univesity, Japan

Steering Committee

Witold Abramowicz   The Poznan University of Economics, Poland
Dieter Fensel   University of Innsbruck, Austria
Fausto Giunchiglia   University of Trento, Italy
Sung-Kook Han   Wonkwang University, Korea
Hong-Gee Kim   Seoul National University, Korea
Juanzi Li   Tsinghua University, China
Daniel Schwabe   PUC Rio, Brazil
Rudi Studer   Universität Karlsruhe, Germany
R.K. Shyamasundar   Tata Institute of Fundamental Research, India
Vilas Wuwongse   Asian Institute of Technology, Thailand
Ning Zhong   Maebashi Institute of Technology, Japan

Organizing Committee

Conference Chairs

Jerome Euzenat   INRIA Rhône-Alpes, France
R.K. Shyamasundar   Tata Institute of Fundamental Research, India

Program Chairs

John Domingue   Open University, UK
Chutiporn Anutariya   Shinawatra University, Thailand

Workshop Chair

Marco Ronchetti   Trento University, Italy

Industrial Track Chairs

Roberta Cuel   Trento University, Italy
Lyndon J.B. Nixon   Free University of Berlin, Germany
Laurentiu Vasiliu   DERI Galway, Ireland

Demo Chair

Michal Zaremba   STI International, Austria

Poster Chair

Elena Simperl   STI International, Austria

Metadata Chair

Huajun Chen   Zhejiang University, China

Local Organizing Chairs

Asanee Kawtrakul   NECTEC, Thailand
Rachanee Ungrangsi   Shinawatra University, Thailand

Local Organizing Committee

Photchanan Ratanajaipan   Shinawatra University, Thailand
Krissada Maleewong   Shinawatra University, Thailand

Program Committee

Senior Program Committee

Sean Bechhofer   University of Manchester, UK
Dieter Fensel   University of Innsbruck and STI International,
                            Austria
Aldo Gangemi   CNR, Italy
Asun Gomez-Perez   Universidad Politecnica de Madrid, Spain
Guus Schreiber   Vrije Universiteit Amsterdam, The Netherlands
Daniel Schwabe   PUC Rio, Brazil
Amit Sheth   University of Georgia and Semagix, USA
Katia Sycara   Carnegie Mellon University, USA

Program Committee

Harith Alani   University of Southampton, UK
Yuan An   Drexel University, USA
Jurgen Angele   Ontoprise, Germany
Grigoris Antoniou   FORTH, Greece
Lora Aroyo   Free University of Amsterdam, The Netherlands
Budak Arpinar   University of Georgia, USA
Walter Binder   EPFL, Switzerland
Paolo Bouquet   University of Trento, Italy
John Breslin   University of Ireland, Ireland
Francois Bry   University of Munich, Germany
Paul Buitelaar   DFKI Saarbruecken, Germany
Christoph Bussler   Cisco Systems, Inc., USA
Liliana Cabral   Open University, UK

Enhong Chen	University of Science and Technology of China, China
Harry Chen	Image Matters, USA
Oscar Corcho	University of Manchester, UK
Isabel Cruz	University Illinois at Chicago, USA
Bernardo Cuenca Grau	Oxford University, UK
Mike Dean	BBN Technologies, USA
Thierry Declerck	DFKI Kaiserslautern, Germany
Paola Di Maio	MFU, Thailand
Ian Dickinson	Hewlett-Packard Labs, USA
Stefan Dietze	Open University, UK
Ying Ding	Indiana University, USA
Martin Dzbor	Open University, UK
Achille Fokoue	IBM Research, USA
Stefania Galizia	Open University, UK
Fabien Gandon	INRIA Sophia-Antipolis, France
Fausto Giunchiglia	University of Trento, Italy
Marko Grobelnik	J. Stefan Institute, Slovenia
Alessio Gugliotta	Open University, UK
Volker Haarslev	Concordia University, CA
Peter Haase	University of Karlsruhe, Germany
Axel Hahn	University of Oldenburg, Germany
Harry Halpin	University of Edinburgh, UK
Siegfried Handschuh	FZI Karlsruhe, Germany
Maruf Hasan	Shinawatra University, Thailand
Manfred Hauswirth	DERI Galway, Ireland
Martin Hepp	University of Innsbruck and DERI, Austria
Masahiro Hori	Kansai University, Japan
Andreas Hotho	University of Kassel, Germany
Eero Hyvnen	University of Helsinki, Finland
Giovambattista Ianni	University of Calabria, Italy
Ryutaro Ichise	National Institute of Informatics, Japan
Jason Jung	Yeungnam University, Korea
Lalana Kagal	MIT, USA
Bo-Young Kang	Seoul National University, Korea
Vangelis Karkaletsis	NCSR Demokritos, Greece
Vipul Kashyap	Clinical informatics R&D, USA
Takahiro Kawamura	Toshiba, Japan
Yoshinobu Kitamura	Osaka University, Japan
Michel Klein	Vrije Universiteit Amsterdam, The Netherlands
Matthias Klusch	DFKI Saarbruecken, Germany
Manolis Koubarakis	Technical University of Crete, Greece
Georgia Koutrika	Stanford University, USA
Kouji Kozaki	Osaka University, Japan
Ruben Lara	Tecnologia, Informacion y Finanzas, Spain
Alain Leger	France Telecom, France

Juanzi Li	Tsinghua University, China
Alexander Loeser	TU Berlin, Germany
Mihhail Matskin	KTH Stockholm, SE
Yutaka Matsuo	The University of Tokyo, Japan
Diana Maynard	University of Sheffield, UK
Brian McBride	Hewlett Packard, UK
Dennis McLeod	University of Southern California, USA
Riichiro Mizoguchi	Osaka University, Japan
Dunja Mladenic	J. Stefan Institute, Slovenia
Ralf Moeller	Hamburg University of Technology, Germany
Wolfgang Nejdl	University of Hannover and L3S, Germany
Barry Norton	Open University, UK
Ekawit Nantajeewarawat	SIIT, Thailand
Daniel Oberle	SAP AG, Germany
Leo Obrst	MITRE, USA
Daniel Olmedilla	L3S Hannover, Germany
Jeff Z. Pan	University of Aberdeen, UK
Yue Pan	IBM Research Lab, China
Massimo Paolucci	DoCoMo, Germany
Terry Payne	University of Southampton, UK
Carlos Pedrinaci	Open University, UK
Paulo Pinheiro da Silva	Stanford University, USA
Ruzica Piskac	EPFL, Switzerland
Dimitris Plexousakis	University of Crete, Greece
Axel Polleres	DERI, NUI Galway, Ireland
Yuzhong Qu	SouthEast University, China
Sudha Ram	University of Arizona, USA
Ulrich Reimer	University of Konstanz and FHS St. Gallen, Switzerland
Marta Sabou	The Open University, UK
Stefan Schlobach	Vrije Universiteit Amsterdam, The Netherlands
Twittie Senivongse	Chulalongkorn University, Thailand
Elena Simperl	University of Innsbruck, Austria
Michael Stollberg	STI International, Austria
Umberto Straccia	ISTI-CNR, Italy
York Sure	University of Karlsruhe, Germany
Vojtech Svatek	University of Economics, Czech Republic
Valentina Tamma	University of Liverpool, UK
Jie Tang	Tsinghua University, China
Sergio Tessaris	Free University Bozen, Italy
Robert Tolksdorf	Free University Berlin, Germany
Paolo Traverso	ITC/IRST, Italy
Raphael Troncy	CWI Amsterdam, The Netherlands
Victoria Uren	KMi The Open University, UK
Tomas Vitvar	STI Innsbruck, Austria

Holger Wache	Vrije Universiteit Amsterdam, The Netherlands
Krzysztof Wecel	Poznan University of Economics, Poland
Takahira Yamaguchi	Keio University, Japan
Yong Yu	Shanghai Jiao Tong University, China
Hai Zhuge	Institute of Computing Technology, China

Additional Reviewers

Krissada Maleewong	Shinawatra University, Thailand
Photchanan Ratanajaipan	Shinawatra University, Thailand
Rachanee Ungrangsi	Shinawatra University, Thailand

Local Organizing Committee

Local Organizing Committee

Photchanan Ratanajaipan	Shinawatra University, Thailand
Krissada Maleewong	Shinawatra University, Thailand

Local Organizing Staff

Kornschnok Dittawit	Shinawatra University, Thailand
Nopachat Kalayanapan	Shinawatra University, Thailand
Pawadee Keratichewanun	Shinawatra University, Thailand
Panida Kijrattana	Shinawatra University, Thailand

Sponsoring Institutions

Platinum Sponsors

EastWeb-AsiaLink project through Asian Institute of Technology, Thailand
National Electronics and Computer Technology Center, Thailand
Super project and Swing project through DERI-Galway, Ireland

Gold Sponsor

NeOn project through the Open University, UK
Shinawatra University, Thailand

Silver Sponsor

LarKC project through STI-Innsbruck, Austria

Platinum Sponsor

Gold Sponsor

Silver Sponsor

Table of Contents

Scalable Reasoning and Logic

Ontology Mapping

Ontology Modeling and Management

Ontologies and Tags

Human Language Technologies and Machine Learning

Querying

Semantic Web Services and Semantic Web Applications