

Commenced Publication in 1973

Founding and Former Series Editors:

Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board:

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

Oscar Nierstrasz

University of Berne, Switzerland

C. Pandu Rangan

Indian Institute of Technology, Madras, India

Bernhard Steffen

Dortmund University, Germany

Demetri Terzopoulos

New York University, NY, USA

Doug Tygar

University of California at Berkeley, CA, USA

Moshe Y. Vardi

Rice University, Houston, TX, USA

Christoph Bussler John Davies
Dieter Fensel Rudi Studer (Eds.)

The Semantic Web: Research and Applications

First European Semantic Web Symposium, ESWS 2004
Heraklion, Crete, Greece, May 10-12, 2004
Proceedings



Springer

Volume Editors

Christoph Bussler
Digital Enterprise Research Institute (DERI)
National University of Ireland
Galway, Ireland
E-mail: Chris.Bussler@DERI.ie

John Davies
British Telecommunications plc
Orion 5/12, Adastral Park
Ipswich IP5 3RE, UK
E-mail: john.nj.davies@bt.com

Dieter Fensel
Digital Enterprise Research Institute (DERI)
National University of Ireland
Galway, Ireland
University of Innsbruck, Austria
E-mail: dieter.fensel@deri.org

Rudi Studer
University of Karlsruhe
76128 Karlsruhe, Germany
E-mail: studer@aifb.uni-karlsruhe.de

Library of Congress Control Number: Applied for

CR Subject Classification (1998): H.4, H.3, C.2, H.5, I.2, K.4, D.2

ISSN 0302-9743

ISBN 3-540-21999-4 Springer-Verlag 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-Verlag. Violations are liable to prosecution under the German Copyright Law.

Springer-Verlag is a part of Springer Science+Business Media

springeronline.com

© Springer-Verlag Berlin Heidelberg 2004
Printed in Germany

Typesetting: Camera-ready by author, data conversion by Boller Mediendesign
Printed on acid-free paper SPIN: 11007722 06/3142 5 4 3 2 1 0

Preface

These proceedings contain the papers accepted for presentation at the First European Semantic Web Symposium (ESWS 2004) held on Crete, Greece, May 10–12, 2004.

Given its status as an inaugural event, the organizers were delighted to receive 79 high-quality submissions. Most papers were reviewed by at least three referees, with the review results coordinated by the academic and industrial track chairs. In total, 27 papers were accepted for the academic track and 6 papers were accepted for the industrial track. The papers span a wide range of topics from the Semantic Web area, from infrastructure and ontology engineering to applications.

The high quality of this symposium is due to the efforts of many people. Jos de Bruijn in particular worked hard in a number of areas, including submissions management, publicity and the poster program. We would also like to thank Martin Doerr for local arrangements, Johannes Breitfuss for the WWW site, the Program Committee and additional reviewers for their invaluable support and the sponsors for their financial support.

March 2004

Christoph Bussler
John Davies
Dieter Fensel
Rudi Studer

Organization

Organizing Committee

Academic Track:	Dieter Fensel (DERI, Austria) Rudi Studer (University of Karlsruhe, Germany)
Tutorial Program and Proceedings:	John Davies (BT, UK)
Industrial Track and Demo Chair:	Christoph Bussler (DERI, Ireland)
Local Arrangements and Posters:	Jos de Bruijn (DERI, Austria) Martin Doerr (ICS-FORTH, Greece)

Scientific Program Committee

Andreas Eberhart	University of Karlsruhe, Germany
Asun Gomez-Perez	Universidad Politécnica de Madrid, Spain
Carole Goble	University of Manchester, UK
Christine Golbreich	University of Rennes, France
Daniel Schwabe	PUC-Rio, Brazil
Deborah McGuinness	Stanford University, USA
Dunja Mladenec	J. Stefan Institute, Slovenia
Enrico Franconi	Free Univ. Bozen, Italy
Enrico Motta	The Open University, UK
Frank van Harmelen	Vrije Universiteit Amsterdam, The Netherlands
Guus Schreiber	Vrije Universiteit Amsterdam, The Netherlands
Hamish Cunningham	University of Sheffield, UK
Heiner Stuckenschmidt	Vrije Universiteit Amsterdam, The Netherlands
Ian Horrocks	University of Manchester, UK
Jerome Euzenat	INRIA, Rhône-Alpes, France
John Davies	BT, UK
Mark Musen	Stanford University, USA
Martin Doerr	ICS-FORTH, Greece
Michael Kifer	University at Stony Brook, USA
Nigel Shadbolt	University of Southampton, UK
Norman Sadeh	Carnegie Mellon University, USA
Raphael Volz	University of Karlsruhe, Germany
Richard Benjamins	iSOCO, Spain
Riichiro Mizoguchi	Osaka University, Japan
Robert Meersman	Vrije Universiteit Brussels, Belgium
Stefan Decker	DERI, Ireland
Stefanos Kollias	National Technical University of Athens, Greece
Steffen Staab	University of Karlsruhe, Germany
Wolfgang Nejdl	University of Hannover, Germany
Ying Ding	DERI, Austria
Yolanda Gil	ISI USC, USA
York Sure	University of Karlsruhe, Germany

Industrial Program Committee

Alain Leger	France Telecom, France
Alistair Duke	BT, UK
Arian Zwegers	European Commission, Brussels
David Trastour	HP, UK
Dean Allemang	Boston University, USA
Frank Leymann	IBM, Germany
Jürgen Angele	Ontoprise, Germany
Kim Elms	SAP, Australia
Leo Obrst	MITRE, USA
Mari Georges	ILOG, France
Mike Dean	BBN, USA
Naso Kiryakov	Sirma AI, Bulgaria
Peter Smolle	NetDynamics, Austria
Ralph Traphoener	Empolis, Germany
Satish Thatte	Microsoft, USA
Stuart Williams	HP, UK
Vipul Kashyap	National Library of Medicine, USA

Additional Reviewers

Arthur Stutt	The Open University, UK
Atanas Kiryakov	Sirma AI, Bulgaria
Bo Hu	University of Southampton, UK
Daniel Oberle	University of Karlsruhe, Germany
Daniele Turi	University of Manchester, UK
Dmitry Tsarkov	University of Manchester, UK
Donovan Artz	ISI – USC, USA
Dumitru Roman	DERI, Ireland
Erik van Mulligen	Vrije Universiteit Amsterdam, The Netherlands
Farshad Hakimpor	The Open University, UK
Francis Kwong	University of Manchester, UK
Gary Wills	University of Southampton, UK
Holger Wache	Vrije Universiteit Amsterdam, The Netherlands
Hongsuda Tangmunarunkit	University of Manchester, UK
Janez Brank	J. Stefan Institute, Slovenia
Jeen Broekstra	Vrije Universiteit Amsterdam, The Netherlands
Jeff Z Pan	University of Manchester, UK
Jesús Barrasa Rodríguez	Universidad Politécnica de Madrid, Spain
Jos de Bruijn	DERI, Austria
Lei Li	University of Manchester, UK
Marc Spraragen	ISI – USC, USA
Maria Vargas-Vera	The Open University, UK
Mariano Fernandez Lopez	Universidad Politécnica de Madrid, Spain
Martin Dzbtor	The Open University, UK
Matthew Horridge	University of Manchester, UK

Michael Stollberg	DERI, Austria
Mithun Sheshagiri	Carnegie Mellon University, USA
Mitsuru Ikeda	Osaka University, Japan
Nicholas Gibbins	University of Southampton, UK
Ning Zhang	University of Manchester, UK
Olivier Brunet	INRIA Rhône-Alpes, France
Oscar Corcho	Universidad Politécnica de Madrid, Spain
Peter Spyns	Vrije Universiteit Brussel, Belgium
Philip Cimiano	University of Karlsruhe, Germany
Raphaël Troncy	INRIA Rhône-Alpes, France
Ronald Ashri	University of Southampton, UK
Ronny Siebes	Vrije Universiteit Amsterdam, The Netherlands
Rubén Lara	DERI, Austria
Sudhir Agarwal	University of Karlsruhe, Germany
Terry Payne	University of Southampton, Germany
Uwe Keller	DERI, Austria
Y. Kitamura	Osaka University, Japan
Yannis Kalfoglou	University of Southampton, UK

Table of Contents

Ontology Engineering

Towards On-the-Fly Ontology Construction - Focusing on Ontology Quality Improvement	1
<i>N. Sugiura, Y. Shigeta, N. Fukuta, N. Izumi, and T. Yamaguchi</i>	
OntoEdit Empowering SWAP: a Case Study in Supporting Distributed, Loosely-Controlled and evolvInG Engineering of oNTologies (DILIGENT)	16
<i>S. Pinto, S. Staab, Y. Sure, and C. Tempich</i>	
A Protégé Plug-In for Ontology Extraction from Text Based on Linguistic Analysis	31
<i>P. Buitelaar, D. Olejnik, and M. Sintek</i>	

Ontology Matching and Mapping

Formal Support for Representing and Automating Semantic Interoperability	45
<i>Y. Kalfoglou and M. Schorlemmer</i>	
S-Match: an Algorithm and an Implementation of Semantic Matching ...	61
<i>F. Giunchiglia, P. Shvaiko, and M. Yatskevich</i>	
Ontology Mapping - An Integrated Approach	76
<i>M. Ehrig and Y. Sure</i>	

Ontology-Based Querying

Application of Ontology Techniques to View-Based Semantic Search and Browsing	92
<i>E. Hyvönen, S. Saarela, and K. Viljanen</i>	
Active Ontologies for Data Source Queries	107
<i>J. de Bruijn and H. Lausen</i>	

Ontology Merging and Population

Knowledge Discovery in an Agents Environment	121
<i>M. Patel and M. Duke</i>	
The HCONE Approach to Ontology Merging	137
<i>K. Kotis and G.A. Vouros</i>	

Question Answering Towards Automatic Augmentations of Ontology Instances	152
<i>S. Kim, P. Lewis, K. Martinez, and S. Goodall</i>	

Infrastructure

The SCAM Framework: Helping Semantic Web Applications to Store and Access Metadata	167
<i>M. Palmér, A. Naeve, and F. Paulsson</i>	
Publish/Subscribe for RDF-based P2P Networks	182
<i>P.-A. Chirita, S. Idreos, M. Koubarakis, and W. Nejdl</i>	
Streaming OWL DL	198
<i>J.J. Carroll</i>	

Semantic Web Services

Mathematics on the (Semantic) NET	213
<i>O. Caprotti, J.H. Davenport, M. Dewar, and J. Padget</i>	
Approaches to Semantic Web Services: an Overview and Comparisons ...	225
<i>L. Cabral, J. Domingue, E. Motta, T. Payne, and F. Hakimpour</i>	
OWL-S Semantics of Security Web Services: a Case Study	240
<i>G. Denker, S. Nguyen, and A. Ton</i>	

Service Discovery and Composition

Directory Services for Incremental Service Integration	254
<i>I. Constantinescu, W. Binder, and B. Faltings</i>	
A Framework for Automated Service Composition in Service-Oriented Architectures	269
<i>S. Majithia, D.W. Walker, and W.A. Gray</i>	
Reusing Petri Nets Through the Semantic Web	284
<i>D. Gašević and V. Devedžić</i>	

Data for the Semantic Web

Methods for Porting Resources to the Semantic Web	299
<i>B. Wielinga, J. Wielemaker, G. Schreiber, and M. van Assem</i>	
Learning to Harvest Information for the Semantic Web	312
<i>F. Ciravegna, S. Chapman, A. Dingli, and Y. Wilks</i>	
Reverse Engineering of Relational Databases to Ontologies	327
<i>I. Astrova</i>	

Knowledge Representation

No Registration Needed: How to Use Declarative Policies and Negotiation to Access Sensitive Resources on the Semantic Web	342
<i>R. Gavriloaie, W. Nejdl, D. Olmedilla, K.E. Seamons, and M. Winslett</i>	
Semantic Annotation Support in the Absence of Consensus	357
<i>B. Sereno, V. Uren, S. Buckingham Shum, and E. Motta</i>	
Uncertainty in Knowledge Provenance	372
<i>J. Huang and M.S. Fox</i>	

Applications

Collaborative Semantic Web Browsing with Magpie	388
<i>J. Domingue, M. Dzbor, and E. Motta</i>	
Toward a Framework for Semantic Organizational Information Portal	402
<i>E. Della Valle and M. Brioschi</i>	
CS AKTiveSpace: Building a Semantic Web Application	417
<i>H. Glaser, H. Alani, L. Carr, S. Chapman, F. Ciravegna, A. Dingli, N. Gibbins, S. Harris, M.C. Schraefel, and N. Shadbolt</i>	

Content Management

Cultural Heritage and the Semantic Web	433
<i>V.R. Benjamins, J. Contreras, M. Blázquez, J.M. Doderó, A. Garcia, E. Navas, F. Hernandez, and C. Wert</i>	
Neptuno: Semantic Web Technologies for a Digital Newspaper Archive . . .	445
<i>P. Castells, F. Perdrix, E. Pulido, M. Rico, R. Benjamins, J. Contreras, and J. Lorés</i>	

Information Management and Integration

MIKSI - A Semantic and Service Oriented Integration Platform	459
<i>A. Wahler, B. Schreder, A. Balaban, J.M. Gomez, and K. Niederacher</i>	
Semantic Web Technologies for Economic and Financial Information Management	473
<i>P. Castells, B. Foncillas, R. Lara, M. Rico, and J.L. Alonso</i>	

Author Index	489
------------------------	-----