Conference Co-Chairs’ Message

Welcome to Japan and WWW2005. This is the 14th conference in the series that was started by Robert Cailliau in Geneva in 1994. It is also worth noting that the conference has now been held in each of the three major W3C host countries (USA, France, and Japan).

This year’s conference maintains the traditional 1:3:1 format including: a day of tutorial and workshop sessions, three days of keynotes, paper tracks and poster presentations as well as the special W3C track, and finishes with Developers Day.

Once again we are delighted to have Tim Berners-Lee deliver the opening keynote and to be followed by four internationally distinguished speakers in the other plenary session slots. This year Developers Day also begins with a special keynote address.

The resources and staff of Keio University, the W3C Japan Host and the local Professional Conference Organizer have worked with a large number of volunteers and members of the International World Wide Web Conference Committee (IW3C2), the group that administer the conference series, to organise this year’s conference. This work has been supported by our much valued conference partners and sponsors.

Conferences of this nature happen for three reasons: a spirit of inquiry about the subject; the willingness of a group of authors write up and share their ideas and research findings; and, a group of organisers (mostly volunteers) who are prepared to put in the time and effort to build and manage a conference program and run a conference environment. Conferences are team efforts — our thanks to everyone who has been a part of the WWW2005 team.

Finally, we hope you find the conference stimulating and professionally rewarding and that you enjoy your stay in Japan and have a safe trip home.

Allan Ellis  
Southern Cross University

Tatsuya Hagino  
Keio University

Conference Organizers

International  
World Wide Web  
Conference Committee

Keio University
Conference Committee

Conference Co-Chairs: Allan Ellis, Southern Cross University, Australia
Tatsuya Hagino, Keio University, Japan

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Prabhakar Raghavan, Verity, Inc., USA

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Jonathan Trevor, Fujitsu, Palo Alto Laboratory, USA
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Paul Aoki, PARC, USA (Deputy Vice Chair)

Data Mining: Shinichi Morishita, University of Tokyo, Japan (Vice Chair)
Bing Liu, University of Illinois at Chicago, USA (Deputy Vice Chair)

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Lora Aroyo, Eindhoven University of Technology, Netherlands
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Junghoo Cho, University of California, Los Angeles, USA
(Deputy Vice Chair)

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Mark Manasse, Microsoft Research, USA (Deputy Vice Chair)

Semantic Web: Steffen Staab, University of Koblenz-Landau, Germany (Vice Chair)
Ramanathan V. Guha, IBM Research, USA (Deputy Vice Chair)

Web Engineering: Geert-Jan Houben, Eindhoven University of Technology, Netherlands
(Deputy Vice Chair)

XML and Web Services: Dan Suciu, University of Washington, USA (Vice Chair)
Mark Little, Arjuna, UK (Deputy Vice Chair)

Special Interest Track Chairs:
Embedded Web: Yoshito Tobe, Tokyo Denki University, Japan (Vice Chair)
Tatsuo Nakajima, Waseda University, Japan (Deputy Vice Chair)

Developers’ Day: James Hendler, University of Maryland, USA (Co-Chair)
Mark Baker, Coactus, Canada (Co-Chair)

Industrial & Practical Experience: Kazuo Iwano, IBM Japan, Japan (Chair)
Byron Dom, Yahoo! Inc., USA (Deputy Chair)
Naohiko Uramoto, IBM Japan, Japan (Deputy Chair)

Panels: Robin Chen, AT&T Labs, USA (Chair)
Ian Horrocks, University of Manchester, UK (Deputy Chair)
Irwin King, Chinese University of Hong Kong, China (Deputy Chair)

Posters: Weisong Shi, Wayne State University, USA (Chair)
Akio Kido, IBM Tokyo Research Lab., Japan (Deputy Chair)

Tutorials & Workshops: Hiroshi Hatta, Oki Electric Industry Co., Ltd., Japan (Co-Chair)
Bebo White, Stanford Linear Accelerator Center, USA (Co-Chair)

W3C: Marie-Claire Forgue, World Wide Web Consortium, France
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[Hall] Convention Hall
[ICR] International Conference Room
[8] Exhibition Hall 8
[Tsuru] Hotel New Otani, Tsuru
Keynote Speakers

Tim Berners-Lee
Director of World Wide Web Consortium

Tim Berners-Lee is a graduate of Oxford University, England, and currently holds the 3Com Founders chair at the Computer Science and Artificial Intelligence Laboratory (CSAIL) at the Massachusetts Institute of Technology (MIT). He directs the World Wide Web Consortium (W3C), an open forum of companies and organizations with the mission to lead the Web to its full potential through the development of Web technical standards, which he founded in October 1994.

With a background of system design in real-time communications and text processing software development, Tim invented the World Wide Web, an internet-based hypermedia initiative for global information sharing while working at CERN, the European Particle Physics Laboratory. He wrote the first version of HTML, as well as the first web client (browser-editor) and server in 1990.

Subsequent honors include a MacArthur Fellowship, the ACM Software Systems Award, IEEE Koji Kobayashi Computers and Communications Award, the Albert Medal of the Royal Society for the encouragement of Art, Manufactures and Commerce, the Japan Prize and the Finnish Millennium Technology Prize.

He is a Distinguished Fellow of the British Computer Society, and a Honorary Fellow of the Institution of Electrical Engineers., a member of the American Academy of Arts and Sciences, and a Fellow of the Royal Society. In 2004, Tim was made a Knight Commander of the Order of the British Empire (KBE).

Eric Brewer
Associate Professor, Computer Science Division
Alfred P. Sloan Research Fellow
University of California at Berkeley

Dr. Brewer focuses on all aspects of Internet-based systems, including technology, strategy, and government. As a researcher, he has led projects on scalable servers, search engines, network infrastructure, sensor networks, and security. His current focus is (high) technology for developing regions, with projects in India and Bangladesh (so far), and including communications, health, education, and e-government.

In 1996, he co-founded Inktomi Corporation with a Berkeley grad student based on their research prototype, and helped lead it onto the Nasdaq 100 before it was bought by Yahoo! in March 2003.

In 2000, he founded the Federal Search Foundation, a 501-3(c) organization focused on improving consumer access to government information. Working with President Clinton, Dr. Brewer helped to create FirstGov.gov, the official portal of the Federal government, which launched in September 2000.
He received an MS and Ph.D. in EECS from the Massachusetts Institute of Technology, and a BS in EECS from UC Berkeley. He was named a “Global Leader for Tomorrow” by the World Economic Forum, by the Industry Standard as the “most influential person on the architecture of the Internet”, by InfoWorld as one of their top ten innovators, by Technology Review as one of the top 100 most influential people for the 21st century (the “TR100”), and by Forbes as one of their 12 “e-mavericks”, for which he appeared on the cover.

Lorrie Cranor
Associate Research Professor
Carnegie Mellon University

Dr. Lorrie Faith Cranor is an Associate Research Professor in the School of Computer Science at Carnegie Mellon University in Pittsburgh, Pennsylvania. She is a faculty member in the Institute for Software Research, International and in the Engineering and Public Policy department. She is director of the CMU Usable Privacy and Security Laboratory (CUPS). She came to CMU in December 2003 after seven years at AT&T Labs-Research. While at AT&T she also taught in the Stern School of Business at New York University.

Dr. Cranor’s research has focused on a variety of areas where technology and policy issues interact, including online privacy, electronic voting, and spam. She is chair of the Platform for Privacy Preferences Project (P3P) Specification Working Group at the World Wide Web Consortium and author of the book Web Privacy with P3P (O’Reilly 2002). In 2003 she was named one of the top 100 innovators 35 or younger by Technology Review magazine.

Dr. Cranor received her doctorate degree in Engineering & Policy from Washington University in St. Louis in 1996. While in graduate school she helped found Crossroads, the ACM Student Magazine, and served as the publication’s editor-in-chief for two years.

Dr. Cranor was chair of the Tenth Conference on Computers Freedom and Privacy (CFP2000) and program committee chair for the 29th Research Conference on Communication, Information and Internet Policy (TPRC 2001). In the Spring of 2000 she served on the Federal Trade Commission Advisory Committee on Online Access and Security. She also serves on the editorial boards of the journals ACM Transactions on Internet Technology, The Information Society, and Journal of Privacy Technology.

Dr. Cranor has been studying electronic voting systems since 1994 and in 2000 served on the executive committee of a National Science Foundation sponsored Internet voting taskforce.

Dr. Cranor was also a member of the project team that developed the Publius censorship-resistant publishing system. In February 2001, the Publius team was honored by Index on Censorship magazine for the “Best Circumvention of Censorship.”

Dr. Cranor spends most of her free time with her husband, Chuck, her son, Shane, and her daughter Maya, but sometimes she finds time to play the tenor saxophone or design and create award-winning quilts.
Keynote Speakers

Rob Glaser
Chairman and CEO
RealNetworks, Inc.

Rob Glaser, founder and CEO of RealNetworks, Inc. (NASDAQ: RNWK) — the recognized leader in Internet media delivery, has long been intrigued with the nexus of media, computing, communication and the Internet. Since founding RealNetworks in 1995, Glaser has played an integral role in the transformation of the Internet into the next great mass medium. In 1995 under Glaser’s direction, RealNetworks introduced the groundbreaking RealAudio, RealVideo, RealPlayer and RealSystem technologies, effectively transitioning television and radio from broadcast to the Web. With the launch of RealJukebox in 1999, RealNetworks secured its leadership position in the digital distribution of music.

In 2001, RealNetworks introduced the revolutionary RealOne, an all-in-one service and technology platform, the single source for consumers to discover, play and manage the best in brand-name digital programming - music, entertainment, sports, news, and more. Since its launch, RealOne has become the fastest growing Internet paid media subscription service in history, with more than half-million subscribers in less than eighteen months.

Prior to founding RealNetworks, Mr. Glaser worked for Microsoft from 1983 to 1993 in a number of executive positions, including Vice President of Multimedia and Consumer Systems.

Mr. Glaser has served on several non-profit boards and committees, including his appointment by President Clinton to the Advisory Committee on Public Interest Obligations of Digital Television Broadcasters.

Mr. Glaser is a graduate of Yale University, with a BA and an MA in Economics and a BS in Computer Science.

Yuji Inoue
Senior Vice President
NTT

Yuji Inoue was born in Fukuoka, Japan, in 1948. He received the B.E., M.E. and Ph. D degrees from Kyushu University, Fukuoka, Japan, in 1971, 1973 and 1986, respectively. He was made an Honorary Professor of Mongolian Technical University in 1999. He joined NTT (Nippon Telegraph and Telephone Corporation) Laboratories in 1973. He was first engaged in the development of digital network equipment and systems, such as digital synchronization, digital switching and digital subscriber loop transmission, and later in the standardization of narrow and broadband ISDN (Integrated Services Digital Network), SDH (Synchronous Digital Hierarchy) and TNA (Transport Network Architecture) through the international standards organization, ITU-T. He was the Special Rapporteur of Study Group XVIII of the ITU-T, formerly CCITT, and he
Keynote Speakers

coled SDH and TNA as the first worldwide unique standards in these fields. While conducting multimedia experiments in Japan, he co-initiated the next generation software architecture called Telecommunication Information Networking Architecture, TINA, in the Consortium of which he served as the Chairperson of its Technical Forum for six years from its establishment, 1993 - 1998. In 1997, he joined the global business incubation activities of NTT as the Leader of the Global Infocommunications Service Development Project. After launching advanced Internet-based networking services in NTT’s global business area, he moved back to the Laboratories in July 1998 as the Executive Manager of NTT Multimedia Networks Laboratories, where he conducted leading-edge studies related to Information Sharing services and platforms.

He joined NTT Data Corporation as the Deputy Senior Executive Manager of Research and Development (R&D) Headquarters, as part of NTT’s re-organization in July 1999. He was also a Corporate Senior Vice-President and served as the Chief IT Partner for the IT Business Navigation Group, newly established in September 2000. In June 2001, he became the Senior Executive Manager of R&D Headquarters and of the Intellectual Property Office in R&D Headquarters. He additionally served as the Executive Manager of the Planning Department in R&D Headquarters from April 2002.

Dr. Yuji Inoue moved back to NTT in June 2002, and is now serving as a Senior Vice-President of NTT and the Executive Director of Department III (R&D Strategy Department).

He is an IEICE Fellow and also an IEEE Fellow. He has co-authored several books including “ISDN”, “Broadband ISDN and ATM Technologies”, “Network Architecture”, “The TINA Book”, “NTT’s Strategy for Global Information Sharing” and “Waves leading to Future Networks.”
Tuesday — Workshops

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<td>Tim Finin, Jim Hendler, and Lalana Kagal</td>
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<td>Johan Hjelm, Annakaisa Hayrynen, Bin Wei and Rittwik Jana</td>
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**WF01 2nd International Cross-Disciplinary Workshop on Web Accessibility**
Simon Harper, Yeliz Yesilada, and Carole Goble, *University of Manchester*
Location: 201A

Conventional workshops on accessibility tend to be single disciplinary in nature. However, we are concerned that this focus on a single participant group prevents the cross-pollination of ideas, needs, and technologies from other related but separate fields. This workshop will be decidedly cross-disciplinary and will bring together users, accessibility experts, graphic designers, and technologists from academia and industry to discuss how accessibility can be supported. We also encourage the participation of users and other interested parties as an additional balance to the discussion. Our aim is to focus on accessibility by encouraging participation from many disciplines. Views will bridge academia, commerce, and industry and we hope that arguments encompassing a range of beliefs across the design-accessibility spectrum will be presented.

Last year’s workshop outcomes suggested a number of possible themes for the 2005 edition. The theme for this second workshop, ‘Engineering Accessible Design’, was the most requested topic for further discussions by our 2004 participants. Previous engineering approaches seem to have
Tuesday — Workshops

precluded the engineering of accessible systems. This is plainly unsatisfactory. Designers, authors, and technologists are at present playing ‘catch-up’ with a continually moving target in an attempt to retrofit systems. In-fact engineering accessible interfaces is as important as their functionality’s and should be an indivisible part of the development. We should be engineering accessibility as part of the development and not as afterthought or because government restrictions and civil law requires us to. Our workshop will bringing together a cross section of the web design and engineering communities; to report on developments, discuss the issues, and suggest cross-pollinated solutions.

WF04 The Semantic Computing Initiative - From Semantic Web to Semantic World
Koiti Hasida, Information Technology Research Institute, AIST
Mitsuru Ishizuka, University of Tokyo
Location: 201B

Semantic Computing is a vision of information technology based on semantics shared between people and machines, aiming at making computers more usable and useful to everybody. All the information content including not just Web pages but also software, document, and multimodal content should have explicit semantic structure, which would make it straightforward both to tell computers what people mean and to provide information services meaningful to people. For instance, incorporation of semantic structure from the authoring stage will both reduce the cost of authoring and improve the quality of the content (clarity of document, validity of program, and so on).

Semantic Computing extends Semantic Web (in the narrow sense of ontology-based augmentation of Web pages) in terms of both breadth (Semantic Computing encompasses not just the Web but the entire IT) and depth (it addresses not only skeletal meaning of Web pages but detailed semantic structure of natural language, multimodal data, programming language, etc.), hence semantically enriching a much larger realm of the human life-world. Technologies including software engineering, user interface, natural-language processing, artificial intelligence, grid computing, and ubiquitous computing, among others, need be integrated to embody this initiative. The workshop hence invites interested experts to share their new ideas on topics including, but not limited to:

- Integration of ontology-based description and semantic annotation;
- Middleware platform for Semantic Computing;
- Applications and business models based on Semantic Computing.

WF05 Interoperability of Web-based Educational Systems
Daniel Olmedilla, L3S Research Center
Nobuo Saito, Keio University
Bernd Simon, Vienna University of Economics and Business Administration
Location: 302

Nowadays learning resources are increasingly available via web-based educational systems, such as learning (content) management systems, electronic market places for learning materials and courses, or knowledge repositories. With the dawn of various specialised e-learning tools, learning resources became more and more stored in closed environments, restricting accessibility to a closed user
community. While standardization bodies and consortia such as ADL, CEN/ISSS, IEEE, IMS, and ISO have already identified the need for interoperability of web-based educational systems, learners' choices to fill a particular knowledge gap are in many cases still limited to the offers of the system they are registered at.

Recently, researchers have started to focus in these issues in more depth. Web technologies have appeared as promising approaches where XML, RDF, Web query languages, and ontology-based data integration approaches became essential ingredients of this infrastructure.

**AIRWeb'05 — Adversarial Information Retrieval on the Web**

Brian D. Davison, *Lehigh University*

Location: 301B

Search is the single most common application used on the Web. The attraction of hundreds of millions of searches per day provide significant incentive to content providers to do whatever necessary to rank highly in search engine results. The use of techniques that push rankings higher than they belong is often called spamming a search engine. Such methods typically include textual as well as link-based techniques. Like e-mail spam, this is a form of adversarial information retrieval; the conflicting goals of accurate results of search providers and high positioning by content providers provides an interesting and real-world environment to study techniques in optimization, obfuscation, and reverse engineering, in addition to the application of information retrieval and classification.

The workshop solicits technical papers on any aspect of adversarial information retrieval on the Web. Particular areas of interest include, but are not limited to search engine spam, link-bombing, reverse engineering of ranking algorithms, advertisement blocking, and web content filtering. Papers addressing higher-level concerns (e.g., whether ‘open’ algorithms can succeed in an adversarial environment, whether permanent solutions are possible, etc.) are also welcome.

AIRWeb '05 is intended to bring together researchers and practitioners that are concerned with the on-going efforts in adversarial information retrieval on the Web. Workshop participants will hear peer-reviewed technical papers, but are also expected to contribute by helping to identify datasets and evaluation methodologies, and to provide feedback on how research in these areas can contribute to practice.

**Innovations in Web Infrastructure (IWI)**

Simon Courtenage, *University of Westminster*

Boris Galitsky, *University of London - Birkbeck*

David Lewis, *Trinity College Dublin*

Location: 204

The World-Wide Web provides us with a distributed hyperlinked document repository, but underlying the infrastructure of the web is a communications infrastructure, which is responsible for implementing much of the structure of the document repository. For example, in the current web, when a user chooses to navigate from a web page, using a hyperlink, to another page, they set in motion a request/response transaction between their web browser and a web server, acting in a client/server relationship, which implements that navigation. Recently, there has been increasing interest in innovative network topologies such as peer-to-peer (structured and unstructured) which
decentralizes network control, and communications paradigms, such as content-based networking, as well as publish/subscribe which decouples producers and consumers of information and provide asynchronous as well as synchronous information delivery. Yet there is little focus on how this research can benefit the web. At the same time, from the perspective of the web, there has been tremendous interest in extending the infrastructure of the web, for example, through the use of ontologies to structure knowledge, and through the study of web topology and its influence on web search, virtual communities, collaborations and distributed information delivery. Yet there has been little focus on how advances in communications and networking can contribute to this research. Many open research problems exist in this area, such as semantic interoperability and the scalability of ontology-based reasoning within distributed knowledge environments, which require contributions from the communications and networking community in order to advance robust solutions.

IWI will tackle this problem by providing a forum within which web infrastructure topics can be discussed in relation to communications and networking, and similarly, advances in networking can be discussed in relation to their impact on the infrastructure of the web. A possible list of workshop topics would therefore include (but not be limited to):

- Ontology-based routing by content;
- Meta-data management in P2P networks;
- Communications support for distributed reasoning;
- Web topologies and distributed agents;
- Content-based networking for distributed collaboration and virtual communities;
- Decentralized access control and trust.

WF08 Web Service Semantics: Towards Dynamic Business Integration
Christoph Bussler, National University of Ireland, Galway
Richard Goodwin, IBM T. J. Watson Research Center
Rubén Lara, Digital Enterprise Research Institute
David Martin, SRI International
Takahira Yamaguchi, Keio University
Location: 303

The description of Web services in a machine-understandable fashion is expected to have a great impact in the areas of e-Commerce and Enterprise Application Integration, as it can enable dynamic and scalable cooperation between independently developed systems and organisations. These potential benefits have led to the establishment of an important class of research activities, both in industry and academia, aimed at the practical deployment of declarative, semantically rich service and process descriptions and their use across the Web service lifecycle. This research, which draws on a variety of fields such as Knowledge Representation, Automated Software Engineering, Process Modeling, Workflow, and Software Agents, goes under the heading of Semantic Web Services (SWS). We note that here, “Semantic Web” does not denote any particular set of standards or commitment to any particular vision regarding the future of the Web. In addition many SWS efforts are aligned with rapidly developing commercial Web Service standards such as WSDL and UDDI.
Many major challenges need to be addressed in this field. This workshop aims to provide a forum in which to focus on selected core technical challenges for deployment of SWS, and reach a better understanding of the relationships between commercial Web service standards, current SWS research efforts, and the ultimate requirements for full-scale deployment of these technologies. Another major focus will be on the relationship of work on SWS to the needs of business systems, and in particular the needs having to do with publishing policies associated with Web services, such as those discussed at the recent W3C Workshop on Constraints and Capabilities for Web Services (see http://www.w3.org/2004/06/ws-cc-cfp.html). We will particularly seek submissions that demonstrate innovative application of SWS technologies to the challenges involved in automating online business transactions.

WF09 Policy Management for the World Wide Web
Tim Finin, University of Maryland
Jim Hendler, University of Maryland
Lalana Kagal, University of Maryland
Location: 205

In order to realize the full potential of the World Wide Web as an open, dynamic, and distributed “universe of network-accessible information”, it is important for web entities to behave appropriately. Policy management provides the openness, flexibility, and autonomy required to regulate this environment as entities can reason over their own policies and the policies of other entities to decide how to behave. Using policies also allows entities to specify expected behavior of entities they interact with. Entities can also adapt to increasingly complex requirements without the need for substantial changes to the structure or implementation through the use of policies.

Policy management includes policy specification, deployment, reasoning over policies, updating and maintaining policies, and enforcement. We propose that policy management is required for the web for (i) constraining different kinds of behavior including security, privacy, conversation, and collaboration, (ii) configuration management, (iii) describing business processes, and (iv) establishing trust and reputation.

WF10 2nd Annual Workshop on the Weblogging Ecosystem — Aggregation, Analysis and Dynamics
Natalie Glance, Intelliseek Applied Research Center
Matthew Hurst, Intelliseek Applied Research Center
Eytan Adar, Hewlett Packard Labs
Location: 304

The weblogging microcosm has evolved into a distinct form, into a community of publishers. The strong sense of community amongst bloggers distinguishes weblogs from the various forms of online publications such as online journals, magazines and newsletters that flourished in the early days of the web and from traditional media such as newspapers, magazines and television. The use of weblogs primarily for publishing, as opposed to discussion, differentiates blogs from other online community forums, such as Usenet newsgroups and message boards. Often referred to as the blogosphere, the network of bloggers is a thriving ecosystem, with its own internally driven dynamics.
Tuesday — Workshops

The cross-linking that takes place between blogs, through blogrolls, explicit linking, trackbacks, and referrals creates implicit and explicit networks which define the communities of the blogging world. Create a strong sense of community in the blogging world. There is work underway to understand the dynamics of the blogging network, much of which springs from bloggers themselves. The self-publishing aspect of weblogs, the time-stamped entries, the highly interlinked nature of the blogging community and the significant impact of weblog content on politics, ideas, and culture make them a fascinating subject of study.

The objective of this workshop is to provide a forum for sharing research on the blogging ecosystem. The workshop will consist of technical papers, panel discussions, and demonstrations of research prototypes.

WF11 Activities on Semantic Web Technologies in Japan
Noboru Shimizu, Keio Research Institute
Hideaki Takeda, National Institute of Informatics
Location: Hotel New Otani, Rindo (East)

The Semantic Web is a new Web technology that has potentiality of innovating the existing information society. In Japan, research institutes and industries are advancing various research projects on the Semantic Web and developing various practical applications.

In this workshop, each of presenters will speak about outlines of their research projects or practical applications on the Semantic Web in Japan, including some demonstrations of software. One of the purposes of the workshop is introducing Japanese activities in the Semantic Web field to many other country’s participants, as the host country.

WF12 MobEA III - Customer Focused Mobile Services
Johan Hjelm, Ericsson
Annakaisa Hayrynen, Elisa Communication Research Center
Bin Wei, AT&T Shannon Laboratory
Rittwik Jana, AT&T Labs — Research
Location: Hotel New Otani, Rindo (West)

We are in the midst of a mobile revolution. In order to realize the vision of pervasive mobile computing, the services provided have to be adapted to the users wants and needs. To do this, we need to go beyond technology, and understand the human-centric aspects of mobile computing. The objective of this workshop is to provide a single forum for researchers and technologists to discuss the state-of-the-art, present their contributions, and set future directions in emerging innovative applications for mobile wireless access.

Topics of interest for technical papers include, but are not limited to the following:

- Mobile web usage analysis
- Peer-to-peer mobile computing
- Security of mobile applications
- Methods for measuring mobile application usage
- Models and methods for qualitative analysis of applications usage
- User interface for mobile devices
Tuesday — Workshops

- Multimedia applications
- Enterprise applications
- Open-standards and applications
- Performance studies of mobile applications
- Context-Aware services and applications
- Mobility issues of web services
Tuesday — Full Day Tutorials

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**TF01** Network and Web Services Security concepts using Java
Raghavan “Rags” Srinivas, Technology Evangelist, Sun Microsystems
Location: Hotel New Otani, Sumire

Network and web services security concepts are fairly straightforward and simple to understand from a developer viewpoint, especially in conjunction with some working code that can be deployed on the Java platform and security tools that are generally available.

Attend this session to put into practice some of the concepts of security that you’ve heard or learnt and how to connect those dots to help in the implementation of real-life solutions. The session will walk through generating digests, signatures, generating and using keys and certificates to advanced concepts such as using Advanced Encryption Standards (AES). The newer concepts of web services security will be covered as well.

**TF03** Web Engineering: Developing Successful Web Applications In A Systematic Way
Yogesh Deshpande, University of Western Sydney
Martin Gaedke, University of Karlsruhe
Location: Hotel New Otani, Yuri

The Web environment is characterised by millions of Web sites and thousands of Web-based applications. The numbers will continue to grow as more and more countries and organizations adopt and adapt to the Web. Good Web development requires understanding of numerous issues and strategies that span many disciplines, both computing and noncomputing. However, there are very few standard methods for the Web developers to use. To add to the complexity, user expectations and needs change over time. Web technologies and standards also continue to evolve. Consequently, even the successful Web sites and applications require constant attention and modifications that are best described more as evolution than just maintenance, as understood in software development. Hence, there is a strong need to understand and undertake Web engineering. Engineering has traditionally addressed the issues of process management and product development, adapting them to the local environment or users as needed. Web development is truly global in its scope, as implied by the W3C’s Initiatives and Working Groups on personalisation, internationalisation and device independence, among others. Web Engineering reflects this global perspective in a systematic and multidisciplinary way. This tutorial will cover the issues of process management and product development in developing large Web sites and applications. It will analyse and highlight the challenges posed by the global perspective and present strategies that developers could follow for successful Web application development. There will be an extensive use of case studies throughout.
Internationalizing Web Content and Web Technology

Martin Dürrst, Aoyama Gakuin University
Richard Ishida, World Wide Web Consortium
Location: Hotel New Otani, Suisei

Internationalization of Web content and Web technology means dealing with the world-wide variation in language, script, and culture. This tutorial starts with an introduction to writing system characteristics and how they affect Web technology. Next, character encoding is discussed in detail, with a focus on Unicode/ISO 10646 and encodings used in Asia. This leads to the model for character encoding on the Web, which is common to formats such as HTML, XHTML, XML, CSS, and RDF, and practical advice for document encoding and labelling.

Besides internationalized content, we discuss International Domain Names (IDN) and International Resource Identifiers (IRI), two new technologies for making the Web experience more seamless for non-English and non-Latin users. We then continue with international markup, including language and bidirectional markup, international rendering and styling, including recent work on CSS3 focused on the needs of Asia, and international processing, including XSLT, XQuery, and Web Services.
**Tuesday — Morning Tutorials**

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**TA03 Standards-Based Design**
Eric A. Meyer, *Complex Spiral Consulting*
Location: 101B

The overall goal of this tutorial is to make attendees familiar with the current state of standards-oriented design and to improve their skills in this area. It will not spend time on ‘selling’ the benefits of such an approach, but will instead focus on how designers can more easily attain those benefits in the real world.

The tutorial will be split into four subtopics, each taking up about a quarter of the time available. The subtopics are: creating a development environment for free; the pros and cons of specific CSS design techniques; recent advances that improve standards support and counter CSS limitations; and current trends in standards-oriented design. The session will be interactive, with audience questions and observations very much encouraged.

**TA05 Introduction to RDF Query with SPARQL**
Dave Beckett, *University of Bristol*
Steve Harris, *University of Southampton*
Eric Prud’hommeaux, *World Wide Web Consortium*
Andy Seaborne, *Hewlett-Packard Laboratories, Bristol*
Location: 101A

SPARQL is the query language and protocol for RDF being designed by the W3C. Around May 2005 the plan is that the work will be in its final stages (at Last Call stage) and that several compatible implementations will be shipping products supporting it.

The purposes of this tutorial are to introduce SPARQL, to explain its benefits for querying RDF over other approaches to enable easy access to manipulating RDF data.

We will demonstrate how SPARQL can be used to significantly simplify the development of semantic web applications enabling easy reuse of existing RDF data as well as building new RDF data services.

The tutorial is divided into two sections. In the first section, we give an overview of SPARQL’s key features in accessing RDF, constraining it and producing result formats. By the end of the first section, the attendees should be able to write simple queries for extracting RDF data. In the second section, we propose to focus on applying SPARQL in the development of a small Semantic Web application, taking RDF from a number of data services, matching and transforming and using it to generate a variety of outputs including more RDF, XML and via XML transformations, HTML.

The tutorial will be delivered as slides with demonstrations of SPARQL queries done using web forms in the browser and on the command line. These will talk to servers providing SPARQL
query over example data. Some software API work may be shown in Python, Java and possibly C depending on available of implementations in May 2005.

This tutorial will be presented at a level accessible to Web programmers, advanced developers and experienced students.

**TA07 Web Content Mining**

Bing Liu, *University of Illinois at Chicago*

Location: 301A

Web mining aims to develop a new generation of tools and techniques to effectively extract and/or mine useful information or knowledge from the Web. It consists of Web usage mining, Web structure mining, and Web content mining. Web usage mining refers to the discovery of user access patterns from Web usage logs. Web structure mining tries to discover useful knowledge from the structure of hyperlinks. Web content mining aims to extract/mine useful information or knowledge from web page contents.

In this tutorial, we focus on Web content mining. In the past few years, there was a rapid expansion of activities in the Web content mining area. This tutorial will introduce the main mining tasks/problems and state-of-the-art existing techniques for solving these problems. Topics include: data/information extraction, mining the Web to build concept hierarchies or ontology, mining for Web information integration, segmenting Web pages and detecting noise, mining online opinion sources such as reviews and forums, etc. All these tasks and their associated techniques have immediate applications in the real world.

The tutorial will have many examples to help participants to better understand the concepts and techniques, and also to illustrate how they can be deployed in practice to help businesses. All parts of the tutorial will have a mix of research and industry flavor, addressing seminal research concepts and also looking at the technology from an industry point of view. Thus, apart from researchers and graduate students, we particularly encourage practitioners from industry to participate.
**Tuesday — Afternoon Tutorials**

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**TP01 Basis for Automatic Web Service Composition**
Giuseppe De Giacomo, *Università di Roma “La Sapienza”*
Daniela Berardi, *Università di Roma “La Sapienza”*
Massimo Mecella, *Università di Roma “La Sapienza”*
Location: 101A

The tutorial aims at providing a deep comprehension of Web Service Composition problem and automated techniques to tackle it. Web Service Composition is currently one the most hyped and addressed issue in the Service Oriented Computing. Starting from an analysis of current technologies and standards for Web Service composition, the tutorial will lead the attendees to consider formal models at the base of current proposals, and techniques that can be fruitfully considered to address automatic composition synthesis in each of them.

**TP06 Matching Words and Pictures: Problems, Applications and Progress**
Latifur Khan, *University of Texas at Dallas*
Location: 301A

The development of technology generates huge amounts of non-textual information, such as images. An efficient image annotation and retrieval system is highly desired. Clustering algorithms make it possible to represent visual features of images with finite symbols. Based on this, many statistical models, which analyze correspondence between visual features and words and discover hidden semantics, have been published. These models improve the annotation and retrieval of large image databases. However, image data usually have a large number of dimensions. Traditional clustering algorithms assign equal weights to these dimensions, and become confounded in the process of dealing with these dimensions.

In this tutorial, first, we will present current state of the art and their shortcomings. Second, we will present weighted feature selection algorithm as a solution to the existing problem. For a given cluster, we determine relevant features based on histogram analysis and assign greater weight to relevant features as compared to less relevant features. Third, we will exploit spatial correlation to disambiguate visual features, and spatial relationship will be constructed by spatial association rule mining. Fourth, we will demonstrate various models including current state of the art to link visual tokens with keywords based on the clustering results of K-means algorithm with weighted feature selection and without feature selection, and will evaluate performance using precision, recall and correspondence accuracy using benchmark dataset. Fifth, we will show that weighted feature
selection is better than traditional ones for automatic image annotation and retrieval. Finally, we will discuss open problems and future directions in the domain of image and video.

TP07 Location-based Services in Mobile Information Systems: Architectures, Description, and Systems
Ling Liu, Georgia Institute of Technology
Location: 101B

With the growing market of sensing and positioning technologies and the growing popularity and availability of mobile communications, location-based information management has become an important problem in mobile computing systems. Furthermore, the computational capabilities in mobile devices, ranging from navigational systems in cars to hand-held devices and cell phones, continue to rise, making mobile devices increasingly accessible. However, significant research efforts to date have been devoted to location management techniques and location-based services in centralized location monitoring systems. Very few have studied the distributed approach to real-time location monitoring. We argue that for mobile applications that need to manage a large and growing number of mobile objects, the centralized approaches do not scale well in terms of server load and network bandwidth, and are vulnerable to single point of failure.

This tutorial presents the necessary concepts, architectures, techniques, and infrastructure to understand Location-based Services in mobile information systems. The tutorial is designed to be self-contained, and gives the essential background for anyone planning to learn about and contribute to the principles and applications of location-based services in mobile commerce and geographical information systems. It guides practitioners by highlighting best practices in location based information monitoring and introduces students and advanced developers to design and engineering issues in building scalable and privacy-aware distributed location based services, including the key trade-offs, as well as the limitations of current approaches. This tutorial is presented at a senior or beginning graduate student level. It is accessible to Web programmers, advanced application developers, and graduate students.
### Wednesday

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### 9:00 – 9:30

**Opening Ceremony**

Location: Convention Hall

### 9:30 – 10:30

**Keynote Speech**

Location: Convention Hall

Session Chair: Allan Ellis, *Southern Cross University*

**WWW at 15 Years: Looking Forward**

Tim Berners-Lee, *World Wide Web Consortium*

The key property of the WWW is its universality: One must be able to access it whatever the hardware device, software platform, and network one is using, and despite the disabilities one might have, and whether one is in a “developed” or “developing” country; it must support information of any language, culture, quality, medium, and field without discrimination so that a hypertext link can go anywhere; it must support information intended for people, and that intended for machine processing. The Web architecture incorporates various choices which support these axes of universality.

Currently the architecture and the principles are being exploited in the recent Mobile Web initiative in W3C to promote content which can be accessed optimally from conventional computers and mobile devices. New exciting areas arise every few months as possible Semantic Web flagship applications. As new areas burst forth, the fundamental principles remain important and are extended and adjusted. At the same time, the principles of openness and consensus among international stakeholders which the WWW Consortium (W3C) employs for new technology are adjusted, but ever-important.
Wednesday

10:30 – 10:50 Break

10:50 – 12:20 Parallel Sessions

PT01 Usage Analysis
Location: Room 301
Session Chair: Bing Liu, University of Illinois at Chicago

Semantic Similarity Between Search Engine Queries Using Temporal Correlation
Steve Chien, Microsoft Research
Nicole Immorlica, MIT

Duplicate Detection in Click Streams
Ahmed Metwally*, Divyakant Agrawal† and Amr El Abbadi‡
*UCSB, ValueClick, Inc.
†UCSB

Improving Recommendation Lists Through Topic Diversification
Cai-Nicolas Ziegler*, Sean M. McNee†, Joseph A. Konstan† and Georg Lausen*
*University of Freiburg, Germany
†University of Minnesota, USA

PT02 Wide-area Architectures and Protocols
Location: Room 302
Session Chair: Misha Rabinovich, AT&T Labs - Research

GlobeDB: Autonomic Data Replication for Web Applications
Swaminathan Sivasubramanian*, Gustavo Alonso†, Guillaume Pierre* and Maarten van Steen*
*Department of Computer Science, Vrije Universiteit, Amsterdam
†Department of Computer Science, Swiss Federal Institute of Technology (ETH), Zurich

Hierarchical Substring Caching for Efficient Content Distribution to Low-Bandwidth Clients
Utku Irmak and Torsten Suel, Polytechnic University

Executing Incoherency Bounded Continuous Queries at Web Data Aggregators
Rajeev Gupta*, Ashish Puri† and Krithi Ramamritham†
*IBM, India Research Lab
†Indian Institute of Technology, Bombay

PT03 Data Extraction
Location: Room 303
Session Chair: Shinichi Morishita, University of Tokyo

Fully Automatic Wrapper Generation for Search Engines
Hongkun Zhao*, Weiyi Meng*, Zonghuan Wu†, Vijay Raghavan† and Clement Yu‡
*State University of New York at Binghamton
†University of Louisiana at Lafayette
‡University of Illinois at Chicago
Wednesday

**Web Data Extraction Based on Partial Tree Alignment**
Yanhong Zhai and Bing Liu, *University of Illinois at Chicago*

**Thresher: Automating the Unwrapping of Semantic Content from the World Wide Web**
Andrew Hogue, *Google, Inc., MIT CSAIL*
David Karger, *MIT CSAIL*

**Industrial and Practical Experience Track (Paper 1)**
Location: Room 304
Session Chair: Alex Arsky, *Yahoo!*

- A personalized search engine based on web-snippet hierarchical clustering
  P. Ferragina and Antonio Gull, *Dipartimento di Informatica, Pisa*

- Ranking Definitions with Supervised Learning Methods
  Jun Xu*, Yunbo Cao†, Hang Li‡ and Min Zhao‡
  *Nankai University
  †Microsoft Research Asia
  ‡Chinese Academy of Sciences

- Identifying link farm spam pages
  Baoning Wu and Brian D. Davison, *Lehigh University*

- The Volume and Evolution of Web Page Templates
  David Gibson*, Kunal Punera† and Andrew Tomkins*
  *IBM Almaden Research Center
  †University of Texas at Austin

**Panel 01 Can semantic web be made to flourish?**
Location: Room 201
Moderator: David Wood, *Software Memetics*
Panelists: Zavisa Bjelogrlic, Co-founder, @semantics
Bernadette Hyland, Co-founder, Tucana Technologies
Prof. Jim Hendler, Director, MIND Lab, *University of Maryland*
Kanzaki Masahide, Consultant, Kanzaki.com

This panel’s objective will be to discuss whether the Semantic Web can be made to grow in a “viral” manner, like the World Wide Web did in the early 1990s. The scope of the discussion will include efforts by the World Wide Web Consortium’s Semantic Web Best Practices & Deployment Working Group to identify and publish best practices of Semantic Web practitioners, and the barriers to adoption of those practices by a wider community. The concept of “best practices” as it applies to a distributed, diverse and partially-defined Semantic Web will be discussed and its relevance debated. Specifically, panelists will discuss the capability of standards bodies, commercial companies and early adopters to create a viral technology.
Wednesday

[**W3C01**] Enabling the Mobile Web  
**Location:** International Conference Room  
**Session Chairs:** Dan Applequist, Vodafone  
Stéphane Boyera, W3C Device Independence Activity Lead  
**Speakers:** Dan Applequist, Vodafone  
Stéphane Boyera, W3C Device Independence Activity Lead  

The session’s goal is twofold: present in details the objectives and roadmap of W3C’s work in the Mobile Web area (in Mobile Web Best Practices and Device Description), and get feedback and input from Japanese companies involved in the mobile market in Japan, very advanced in terms of enabling and accessing the Web on mobile devices.

The session will mainly consist on a panel discussion where all actors of the mobile delivery chain will be represented.

**12:20 – 13:30**  
**Lunch**  
**Location:** Exhibition Hall 8

**13:30 – 14:30**  
**Keynote Speech**  
**Location:** Convention Hall  
**Session Chair:** Tatsuya Hagino, Keio University

**Innovation for a Human-Centered Network**  
Yuji Inoue, NTT

This talk presents NTT’s approach for realizing a Human-Centered Network. Last November, we announced the NTT Group’s Medium-Term Management Strategy, which consists of three management objectives: (1) building the ubiquitous broadband market and helping achieve the e-Japan Strategy and the u-Japan Initiative; (2) building a safe, secure, and convenient communications network environment and broadband access infrastructure, while achieving a seamless migration from the legacy telephone network to the next generation network; and (3) striving to increase corporate value and achieve sustainable growth. Since the management strategy takes account of Japan’s future social issues such as declining birthrate and aging population, the need to reduce the environmental load, etc, we believe that the R&D activities directed towards accomplishing these objectives consequently lead to the realization of a Human-Centered Network.

**14:40 – 16:10** Parallel Sessions

**PT04** Semantic Querying  
**Location:** Room 301  
**Session Chair:** Andrew Tomkins, IBM Almaden Research Center
Wednesday

Ranking a Stream of News
Gianna M. Del Corso*, Antonio Gulli† and Francesco Romani*
* Dip. di Informatica, Pisa, Italy
† Dip. di Informatica, Pisa, Italy and IIT-CNR

Algorithmic Detection of Semantic Similarity
Ana Maguitman, Filippo Menczer, Heather Roinestad and Alessandro Vespignani, Indiana University

SemRank: Ranking Complex Relationship Search Results on the Semantic Web
Kemafor Anyanwu, Angela Maduko and Amit Sheth, University of Georgia

PT05 Web Services
Location: Room 302
Session Chair: Arnaud Sahuguet, Bell Labs

A Service Creation Environment based on End to End Composition of Web Services
Vikas Agarwal, Koustuv Dasgupta, Neeran Karnik, Arun Kumar, Ashish Kundu, Sumit Mittal and Biplav Srivastava, IBM India Research Lab

Ensuring Required Failure Atomicity of Composite Web Services
Sami Bhiri, Olivier Perrin and Claude Godart, LORIA-INRIA France

Web Service Interfaces
Dirk Beyer, EPFL, Lausanne, Switzerland
Arindam Chakrabarti, University of California, Berkeley
Thomas A. Henzinger, EPFL Lausanne, CH & UC Berkeley

PT06 Web Application Design
Location: Room 303
Session Chair: Geert-Jan Houben, Eindhoven University of Technology

Building Adaptable and Reusable XML Applications with Model Transformations
Ivan Kurtev and Klaas van den Berg, Software Engineering Group, University of Twente

Exception Handling in Workflow-Driven Web Applications
Marco Brambilla, Stefano Ceri, Sara Comai and Christina Tziviskou, Politecnico di Milano

AwareDAV: A Generic WebDAV Notification Framework and Implementation
Henning Qin Jehoj, Niels Olof Bouvin and Kaj Grønbæk, Department of Computer Science, University of Aarhus

IT02 Industrial and Practical Experience Track (Invited 1)
Location: Room 304
Session Chair: Kazuo Iwano, IBM Japan

DoCoMo's Challenge Towards New Mobile Services
Kiyoyuki Tsujimura, NTT DoCoMo

Automatic Text Processing to Enhance Product Search for On-line Shopping
Gilles Vandelle, Kelkoo
Wednesday

Approach and the problem of business of NHN Group in South Korea, Japan, and China
TBD, NHN Corporation Group

Current trends in the integration of search and browsing
Location: Room 201
Moderators: Andrei Z Broder, IBM T.J. Watson Research Center, USA
Voelle S. Maarek, IBM Research, Israel
Panelists: Krishna Bharat, Principal Scientist, Google Inc.
Susan Dumais, Senior Researcher, Microsoft Research
Steve Papa, Founder and CEO, Endeca
Jan Pedersen, Chief Scientist, Yahoo Inc.
Prabhakar Raghavan, Senior Vice President and CTO, Verity, Inc.

Searching and browsing are the two basic information discovery paradigms, since the early days of the Web. After more than ten years down the road, three schools seem to have emerged: (1) The search-centric school argues that guided navigation is superfluous since free form search has become so good and the search UI so common, that users can satisfy all their needs via simple queries (2) The taxonomy navigation school claims that users have difficulties expressing informational needs and (3) The meta-data centric school advocates the use of meta-data for narrowing large sets of results, and is successful in e-commerce where it is known as “multi faceted search”. This panel brings together experts and advocates for all three schools, who will discuss these approaches and share their experiences in the field. We will ask the audience to challenge our experts with real information architecture problems.

Accessibility Aspects within Mobile Web and Other Developing Technologies
Location: International Conference Room
Session Chair: Shawn Henry, W3C WAI Activity Team
Speakers: Shawn Henry, W3C WAI Activity Team
Wendy Chisholm, W3C

In the first part of this session we explain the interdependencies between essential components of Web accessibility, and show that the responsibility for Web accessibility goes beyond the content developer to include developers of authoring tools, user agents, assistive technologies, and technical specifications. We provide a brief update on WCAG 2.0, ATAG 2.0, and international Web accessibility developments.

In the second part, we explore how the knowledge and experience in Web accessibility helps inform the development of emerging Web technologies, including the mobile Web, multimodal interaction, and content adaptation.

16:10 – 16:30
Break
Wednesday

16:30 – 18:00 Parallel Sessions

**PT07** Semantic Web
Location: Room 301
Session Chair: Jim Hendler, *University of Maryland*

Learning Domain Ontologies for Web Service Descriptions: an Experiment in Bioinformatics
Marta Sabou*, Chris Wroe†, Carole Goble‡ and Gilad Mishne‡
* Vrije Universiteit Amsterdam
† University of Manchester
‡ University of Amsterdam

Making RDF Presentable — Selection, Structure and Surfability for the Semantic Web
Lloyd Rutledge, Jacco van Ossenbruggen and Lynda Hardman, CWI

**PT08** Applications
Location: Room 302
Session Chair: Jonathan Trevor, *Fuji-Xerox Palo Alto Laboratory*

Shared Lexicon for Distributed Annotations on the Web
Paolo Avesani and Marco Cova, ITC-irst

Using XForms to Simplify Web Programming
Richard Cardone, Danny Soroker and Alpana Tiwari, IBM Watson Research Center

Web-Assisted Annotation, Semantic Indexing and Search of Television and Radio News
Mike Dowman*, Valentin Tablan*, Hamish Cunningham* and Borislav Popov†
* University of Sheffield
† Ontotext Lab, Sirma AI EAD

**PT09** Indexing and Querying
Location: Room 303
Session Chair: Frank McSherry, Microsoft

Improving Web Search Performance Via a Locality Based Static Pruning Method
* Federal University of Amazonas
† INESC
‡ University of Alberta

Sampling Search-Engine Results
Aris Anagnostopoulos, Brown University
Andrei Broder, IBM Watson Research Lab
David Carmel, IBM Research Lab in Haifa

Three-Level Caching for Efficient Query Processing in Large Web Search Engines
Xiaohui Long and Torsten Suel, Polytechnic University
Wednesday

**IT03** Industrial and Practical Experience Track (Invited 2)
Location: Room 304
Session Chair: Naohiko Uramoto, *IBM Tokyo Research Laboratory*

- **Internet Search Engines: Past and Future**
  Jan Pedersen, *Yahoo!*

- **News in the Age of the Web**
  Krishna Bharat, *Google*

- **Technical Challenges in Exploiting the Web as a Business Resource**
  Andrew Tomkins, *IBM*

**PANEL03** Do we need more web performance research?
Location: Room 201
Moderator: Michael Rabinovich, *AT&T Labs - Research, USA*
Panelists: Giovanni Pacifici, *IBM Watson Research Center, USA*
  Michele Colajanni, *University of Modena, Italy*
  Krithi Ramamritham, *IIT Bombay, India*
  Bruce Maggs, *CMU/Akamai, USA*

This panel will discuss the future and purpose of Web performance research, concentrating on the reasons for modest success in the adoption of research results in practice. The panel will in particular examine factors that hinder technology transfer in the Web performance area, consider examples of past successes and failures in this arena, and stimulate the discussion on how to make Web performance research more relevant.

**W3C03** Foundations And Future Directions of Web Services
Location: International Conference Room
Session Chair: Hugo Haas, *W3C Web Services Activity Lead*
Speakers: Hugo Haas, *W3C Web Services Activity Lead*
  Charlton Barreto, *webMethods*

This session will give an overview of the motivation for Web services, how the technologies standardized at W3C fit together, starting with the messaging framework (SOAP 1.2, MTOM, WS-Addressing 1.0) and continuing with the description languages for services and choreographies (WSDL 2.0, WS-CDL 1.0). Finally, this presentation will discuss future work considered to continue making the Web services’ promise a reality.

**18:30 – 20:30**
Poster Reception
Location: Exhibition Hall 8
## Thursday

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<td>Conference Dinner</td>
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### 9:00 - 10:00

**Keynote Speech**

Location: Convention Hall  
Session Chair: Prabhakar Raghavan, *Verity, Inc.*

**The Case for Technology for Developing Regions**  
Eric Brewer, *University of California, Berkeley*

Moore's Law and the wave of technologies it enabled have led to tremendous improvements in productivity and the quality of life in the industrialized world. Yet, technology has had almost no effect on the four billion people that make less US$2000/day. In this talk I argue that the decreasing costs of computing and wireless networking make this the right time to spread the benefits of technology, and that the biggest missing piece is a lack of focus on the problems that matter, including health, education, and government. After covering some example applications that have shown very high impact, I take an early look at the research agenda for developing regions. Finally, I examine some of the pragmatic issues required to make progress on these very challenging problems. My goal is to convince high-tech researchers that technology for developing regions is an important and viable research topic.

### 10:00 - 10:30

**Break**
Thursday

10:30 – 12:00 Parallel Sessions

PT10 XML Query and Programming Languages
Location: Room 301
Session Chair: Jim Webber, University of Sydney

Sub-document queries over XML with XSQuirrel
Arnaud Sahuguet, Bell Labs research
Bogdan Alexe, Ecole Polytechnique + ENST

Facilitating XML Processing in Java
Matthew Harren*, Mukund Raghavachari†, Oded Shmueli†, Michael Burke†, Rajesh Bordawekar†, Igor Pechtchanski† and Vivek Sarkar†
* University of California, Berkeley
† IBM T.J. Watson Research Center
‡ Technion Israel Institute of Technology

XQuery Containment in Presence of Variable Binding Dependencies
Li Chen, San Diego Supercomputer Center
Elke Rundensteiner, Worcester Polytechnic Institute

PT11 Web-based Educational Applications
Location: Room 302
Session Chair: Lora Aroyo, Eindhoven University of Technology

eBag - a Ubiquitous Web Infrastructure for Nomadic Learning
Christina Brodersen*, Bent Guldjbjerg Christensen*, Kaj Grønbæk* and Christian Dindler†
* Department of Computer Science, University of Aarhus
† Department of Information- and Media Sciences, University of Aarhus

Online Curriculum on the Semantic Web: The CSD-UoC Portal for Peer-to-Peer e-learning
Sofia Pediaditaki, Apostolos Apostolidis and Dimitris Kotzinos, Department of Computer Science, University of Crete

The Classroom Sentinel: Supporting Data-Driven Decision Making in the Classroom
Mark K. Singley and Richard B. Lam, IBM T.J. Watson Research Center

PT12 Text Analysis and Extraction
Location: Room 303
Session Chair: Filippo Menczer, University of Indiana

Topic Segmentation of Message Hierarchies for Indexing and Navigation Support
Jong Wook Kim, K. Selcuk Candan and Mehmet E. Donderler, Arizona State University

Gimme’ The Context: Context-driven automatic semantic annotation with C-PANKOW
Philipp Cimiano*, Günter Ladwig* and Steffen Staab†
* Institute AIFB, University of Karlsruhe
† Institute for Computer Science, University of Knoblenz-Landau
Thursday

Opinion Observer: Analyzing and Comparing Opinions on the Web
Bing Liu, Mingqing Hu and Junsheng Cheng, University of Illinois at Chicago

IT04 Industrial and Practical Experience Track (Paper 2)
Location: Room 304
Session Chair: Yuichi Nakamura, IBM Tokyo Research Laboratory

The Infocious Web Search Engine: Improving Web Searching through Linguistic Analysis
Alexandros Ntoulas, Gerald Chao and Junghoo Cho, Infocious Inc.

How to make Web sites talk together - Web Service Gateway Solution
Hoang Pham Huy*, Takahiro Kawamura† and Tetsuo Hasegawa†
* Hanoi University of Technology
† Toshiba R&D Center

Diversified SCM Standard for the Japanese Retail Industry
Koichi Hayashi, Naoki Koguro and Reki Murakami, UL Systems, Inc.

Crawling a Country: Better Strategies than Breadth-First for Web Page Ordering
Ricardo Baeza-Yates*, Carlos Castillo*, Mauricio Marin† and Andrea Rodriguez‡
* Universidad de Chile
† Universidad de Magallanes
‡ Universidad de Concepción

PANEL04 Mobile Multimedia Services
Location: Room 201
Moderator: Behzad Shahraray, AT&T Labs - Research, USA
Panelists: Wei-Ying Ma, Microsoft Research, USA
Avidéh Zakhor, University of California, Berkeley, USA
Noboru Babaguchi, Osaka University, Japan

This panel will mainly focus on the role that media processing can play in creating mobile communications, information, and entertainment services. A major premise of our discussion is that media processing techniques go beyond compression and can be employed to monitor, filter, convert, and repurpose information. Such automated techniques can serve to create personalized information and entertainment services in a cost-effective way, adapt existing content for consumption on mobile devices, and circumvent the inherent limitations of mobile devices. Some examples of the applications of media processing techniques for mobile service generation will be given.

W3C04 Privacy and the Semantic Web
Location: International Conference Room
Session Chairs: Giles Hogben, Joint Research Center of the European Commission
Thomas Roessler, W3C Technology and Society Team
Speakers: Giles Hogben, Joint Research Center of the European Commission
Thomas Roessler, W3C Technology and Society Team
This session will explore privacy-enhancing technologies beyond P3P, how the semantic web is contributing to these technologies and vice-versa.

We will discuss new technologies for enforcing privacy promises, evaluating the security of data processing operations in realtime and reasoning about anonymity of authorization credentials requested. The session will consist of presentations and a subsequent panel discussion.

10:00 – 10:30
Lunch
Location: Exhibition Hall 8

13:30 – 14:30
Keynote Speech
Location: Convention Hall
Session Chair: Fred Douglis, IBM Research
Towards Usable Web Privacy and Security
Lorrie Cranor, Carnegie Mellon University

Internet users now rely on a whole arsenal of tools to protect their security and privacy. Experts recommend that computer users install personal firewalls, anti-virus software, spyware blockers, spam filters, cookie managers, and a variety of other tools to keep themselves safe. Users are told to pick hard-to-guess passwords, use a different password at every Web site, and not to write any of their passwords down. They are told to read privacy policies before providing personal information to Web sites, look for lock icons before typing in a credit card number, refrain from opening email attachments from people they don’t know, and even to think twice about opening email attachments from people they do know. With so many do’s and don’ts, it is not surprising that much of this advice is ignored. In this talk I will highlight usability problems that make it difficult for people to protect their privacy and security on the Web, and I will discuss a number of approaches to addressing these problems.

14:40 – 16:10 Parallel Sessions
PT13 Web Engineering with Semantic Annotation
Location: Room 301
Session Chair: Piero Fraternali, Politecnico di Milano

Accessibility: A Web Engineering Approach
Peter Plessers*, Sven Casteleyn*, Yeliz Yesilada†, Olga De Troyer*, Robert Stevens†, Simon Harper† and Carole Goble†
* Vrije Universiteit Brussel
† School of Computer Science

A Multilingual Usage Consultation Tool based on Internet Searching —More than search engine, Less than QA—
Kumiko Tanaka-Ishii and Hiroshi Nakagawa, University of Tokyo

Improving Portlet aggregation through deep annotation
Oscar Díaz, Jon Ithurriz and Arantza Irastorza, Department of Computer Languages and Systems, University of the Basque Country, Spain
**Thursday**

**[PT14] User-focused Search and Crawling**

Location: Room 302  
Session Chair: Brian Davison, Lehigh

**CubeSVD: A Novel Approach to Personalized Web Search**  
Jian-Tao Sun*, Hua-Jun Zeng†, Huan Liu‡, Yu-Chang Lu§ and Zheng Chen†  
*Department of Computer Science, Tsinghua University.  
†Microsoft Research Asia  
‡Department of Computer Science Engineering, Arizona State University  
§Department of Computer Science, Tsinghua University  

**Automatic Identification of User Goals in Web Search**  
Uichin Lee, Zhenyu Liu and Junghoo Cho, Computer Science Department, UCLA

**User-Centric Web Crawling**  
Sandeep Pandey and Christopher Olston, CMU

**[PT15] Trustworthy web sites**

Location: Room 303  
Session Chair: Oliver Spatscheck, AT&T Labs-Research

**An Abuse-Free Fair Contract Signing Protocol Based on the RSA Signature**  
Guilin Wang, Institute for Infocomm Research, Singapore

**SGuard: Countering Vulnerabilities in Reputation Management for Decentralized Overlay Networks**  
Mudhakar Srivatsa, Li Xiong and Ling Liu, College of Computing, Georgia Tech

**Static Approximation of Dynamically Generated Web Pages**  
Yasuhiko Minamidome, University of Tsukuba

**[PANEL05] On culture in a world-wide information society: Toward the knowledge society - the challenge**

Location: Room 201  
Moderator: Alfredo M. Ronchi, Politecnico di Milano, Milano Italy  
Panelists: Lynn Thiesmeyer, Keio University, Tokyo, Japan  
Antonella Quacchia, International Labor Office, Geneve, Swiss  
Georges Mihajes, Oslo Platform, Oslo, Norway  
Katsuhiro Onoda, Foundation for Computer & Communication Promotion, Japan  
Ranjit Makkuni, Sacred World Foundation - New Delhi - India

Starting from more then ten years of experience and achievements in online cultural content, the panel aims to provide a comprehensive view on controversial issues, or unsolved problems, both in the WWW and Cultural community to stimulate lively, thoughtful, and sometimes provocative discussions. Panelists will outline the relevance of digital collections of intangible heritage and endangered archives and discuss the following topics: the “global” Web vs. the preservation of “local” cultural identities, cultural diversities and their relevance in delivering web based services, preservation & future of digital memories, Web-based development and sustainability models. We expect the panelists to actively engage the audience and help them broaden their understanding of the issues.

URL: http://www.medicif.org/Events/MEDICI_events/WWW2005/default.htm

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Recent Work in the Semantic Web Activity: Query and Best Practices

Location: International Conference Room
Session Chair: Guus Schreiber, W3C Semantic Web Best Practices and Deployment Working Group co-chair (Vrije Universiteit)
Speakers: Guus Schreiber, W3C Semantic Web Best Practices and Deployment Working Group co-chair (Vrije Universiteit)
Jeremy Carroll, HP
David Wood, Mindswap, co-chair SWBPD
Eric Prud’hommeaux, W3C

This session presents recent work in the W3C Semantic Web activity, in particular the activities of the Semantic Web Best Practices & Deployment Working Group and the Data Access Working Group.

The session will feature a number of talks addressing selected topics from this work, namely (i) links between RDF/OWL and UML, (ii) support for RDF/OWL-based ontology engineering, (iii) representing RDF metadata in XHTML, and (iv) an overview of the draft query language SPARQL. The session will also show some sample applications of semantic-web technology.

14:40 – 17:00
Industrial and Practical Experience Track Panel
How Search Engines Shape the Web
Location: Room 304
Moderator: Byron Dom, Yahoo!
Panelists: Krishna Bharat, Google
Andrei Broder, IBM
Jan Pedersen, Yahoo!
Yoshinobu Tonomura, NTT
Marc Najork, Microsoft

16:10 – 16:30
Break

16:30 – 18:00 Parallel Sessions
Semantic Search
Location: Room 301
Session Chair: Junghoo (john) Cho, University of California, Los Angeles

A Search Engine for Large-Corpus Language Applications
Michael J. Cafarella and Oren Etzioni, University of Washington

An Enhanced Model for Searching in Semantic Portals
Lei Zhang*, Yong Yu*, Jian Zhou*, ChenXi Lin* and David Y. Yang†
*Shanghai JiaoTong University
†Hong Kong University of Science and Technology
Thursday

Disambiguating Web Appearances of People in a Social Network
Ron Bekkerman and Andrew McCallum, Department of Computer Science, University of Massachusetts

PT17 Security Through the Eyes of Users
Location: Room 302
Session Chair: Mark Manasse, Microsoft Research

A Convenient Method for Securely Managing Passwords
J. Alex Halderman, Brent Waters and Edward W. Felten, Department of Computer Science, Princeton University

Improving Understanding of Website Privacy Policies with Fine-Grained Policy Anchors
Stephen E. Levy, Watson Research Center, IBM
Carl Gutwin, Computer Science Department, University of Saskatchewan

Hardening Web Browsers Against Man-in-the-Middle and Eavesdropping Attacks
Haidong Xia and José Carlos Brustoloni, University of Pittsburgh

PT18 Measurements and analysis
Location: Room 303
Session Chair: Prashant Shenoy, University of Massachusetts

ATMEN: A Triggered Network Measurement Infrastructure
Balachander Krishnamurthy*, Harsha V. Madhyastha† and Oliver Spatscheck*  
*AT&T Labs-Research  
†University of Washington

On the lack of typical behavior in the global Web traffic network
Mark Meiss, Filippo Menczer and Alessandro Vespignani, Indiana University

Analysis of Multimedia Workloads with Implications for Internet Streaming
Lei Guo*, Songqing Chen†, Zhen Xiao‡ and Xiaodong Zhang*  
*Department of Computer Science, College of William and Mary  
†Department of Computer Science, George Mason University  
‡AT&T Labs-Research

PANEL06 Exploiting the dynamic networking effects of the web
Location: Room 201
Moderator: Ramesh Sarukkai, Yahoo, USA
Panelists: Prof. Soumen Chakrabarti, Professor, IIT Bombay  
Dr. Gary William Flake, Head of Research Labs, Yahoo!  
Dr. Narayanan Shivakumar, Director of Ad Systems, Google  
Prof. Asim M. Ansari, Professor, Columbia Business School

This panel aims to explore the dynamic networking effects of the Web. Today, linkages on the Web are augmented with dynamic connectivities based on various monetization strategies: e.g. ads and sponsored links. Such linkages change the dynamics of user click/flow on the Web. The key focus of this panel is to debate whether/how such dynamic effects on the Web can
be modeled and best exploited. How can we derive cooperative placement strategies that are optimal from a customer perspective? As the World Wide Web becomes more dynamic with fluid link placements guided by different factors, optimizing link placement in a cooperative fashion across the Web will be an integral and crucial component.


W3C06 Web Internationalization Developments
Location: International Conference Room
Session Chair: Richard Ishida, W3C Internationalization Activity Lead
Speaker: Richard Ishida, W3C Internationalization Activity Lead

The W3C Internationalization Activity now comprises three Working Groups. This session brings you up to date with key areas of their work.

Topics covered: recent clarifications by the GEO Working Group on language declaration and character encoding for Web documents; the issues before the newly formed Internationalized Tag Set Working Group; work by the Core Working Group on internationalized Web addresses; and related work on language tags.

18:30 – 20:30
Conference Dinner
Location: Hotel New Otani, Tsuru
### Friday

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<td>PANEL08 Web engineering: technical discipline or social process</td>
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**9:00 – 10:00**

**Keynote Speech**

Location: Convention Hall  
Session Chair: Fred Douglis, *IBM Research*

*Real and the Future of Digital Media*

Rob Glaser, *RealNetworks, Inc.*

**10:00 – 10:30**

**Break**

**10:30 – 12:00** **Parallel Sessions**

**PT19** Service selection and Metadata  
Location: Room 301  
Session Chair: Philipp Cimiano, *Institute AIFB, University of Karlsruhe*

- **On Optimal Service Selection**  
  P.A. Bonatti and P. Festa, *University of Napoli Federico II*

- **G-ToPSS: Fast Filtering of Graph-based Metadata**  
  Milenko Petrovic, Haifeng Liu and Hans-Arno Jacobsen, *University of Toronto*

- **Automating Metadata Generation: the Simple Indexing Interface**  
  Kris Cardinaels, Michael Meire and Erik Duval, *Departement Computerwetenschappen, Katholieke Universiteit Leuven*
Friday

[PT20] Link-based Ranking
Location: Room 302
Session Chair: Torsten Suel, Polytechnic University, Brooklyn

PageRank as a Function of the Damping Factor
Paolo Boldi, Massimo Santini and Sebastiano Vigna, Università degli Studi di Milano

Object-Level Ranking: Bringing Order to Web Objects
Zaiqing Nie*, Yuanzhi Zhang†, Ji-Rong Wen* and Wei-Ying Ma*
*Microsoft Research Asia, Beijing, China
†Peking University, Beijing, China

Unifying a Large Class of PageRank Optimizations
Frank McSherry, Microsoft Research, SVC

[PT21] Improving the Browsing Experience
Location: Room 303
Session Chair: Yoelle Maarek, IBM Research Haifa

Information Search and Re-access Strategies of Experienced Web Users
Anne Aula, Natalie Jhaveri and Mika Käki, University of Tampere

Browsing Fatigue in Handhelds: Semantic Bookmarking Spells Relief
Saikat Mukherjee and I.V. Ramakrishnan, Department of Computer Science, SUNY Stony Brook

WebPod: Persistent Web Browsing Sessions with Pocketable Storage Devices
Shaya Potter and Jason Nieh, Columbia University

[PANEL07] Querying the past, present and future: where we are and where we will be
Location: Room 201
Moderator: Ling Liu, Georgia Institute of Technology, USA
Panelists: Andrei Z Broder, IBM T.J. Watson Research Center, USA
Dieter Fensel, Digital Enterprise Research Institute (DERI), Europe
Carole Goble, University of Manchester, United Kingdom
Christopher Olsen, MIT, USA
Calton Pu, CERCS, Georgia Tech, USA

This panel will focus on exploring future enhancements of Web technology for active Internet-scale information delivery and dissemination. It will ask the questions of whether the current Web technology is sufficient, what can be leveraged in this endeavor, and how a combination of ideas from a variety of existing disciplines can help in meeting the new challenges of large scale information dissemination. Relevant existing technologies and research areas include: active databases, agent systems, continual queries, event Web, publish/subscribe technology, sensor and stream data management. We expect that some suggestions may be in conflict with current, well-accepted approaches.
The Future of XML

Location: International Conference Room
Session Chair: Liam Quin, W3C XML Activity Lead
Speakers: Liam Quin, W3C XML Activity Lead
          Makoto Murata, IBM Tokyo Research Lab
          Robin Berjon, Expway

What should the W3C XML Activity be working on over the next few years? How might we incorporate efficient transfer of XML (e.g. binary XML) into the XML stack? Where should our major specifications be going? Should we work on new specifications?

This is a community session: come prepared to voice a considered opinion and be heard.

12:00 – 13:30
Lunch
Location: Exhibition Hall 8

13:30 – 15:00 Parallel Sessions

PT22 Semantic Web Foundations
Location: Room 301
Session Chair: Steffen Staab, University of Koblenz-Landau

- Named Graphs, Provenance and Trust
  Jeremy J. Carroll, HP Labs
  Christian Bizer, Free University of Berlin
  Pat Hayes, IHMC
  Patrick Stickler, Nokia

- OWL DL vs. OWL Flight: Conceptual Modeling and Reasoning for the Semantic Web
  Jos de Bruijn, Axel Pollered, Ruben Lara and Dieter Fensel, Digital Enterprise Research Institute (DERI)

- Debugging OWL Ontologies
  Bijan Parsia, Evren Sirin and Aditya Kalyanpur, University of Maryland, College Park

PT23 Link-based Similarity
Location: Room 302
Session Chair: Marc Najork, Microsoft

- Scaling Link-Based Similarity Search
  Daniel Fogaras, Budapest University of Technology and Economics
  Balazs Racz, Computer and Automation Research Institute of the Hungarian Academy of Sciences

- LSH Forest: Self-Tuning Indexes for Similarity Search
  Mayank Bawa*, Tyson Condie† and Prasanna Ganesan*
  *
  *Stanford University
  † University of California, Berkeley
Partitioning of Web Graphs by Community Topology
Hidehiko Ino, Mineichi Kudo and Atsuyoshi Nakamura, Hokkaido University

PT24 XML Parsing and Stylesheets
Location: Room 303
Session Chair: Makoto Murata, IBM Tokyo Research Lab

Incremental Maintenance for Materialized XPath/XSLT Views
Makoto Onizuka*, Fong Yee Chan†, Ryusuke Michigami‡ and Takashi Honishi*
*NTT CyberSpace Laboratories
†Simon Fraser University
‡Plala Networks Inc.

Compiling XSLT 2.0 into XQuery 1.0
Achille Fokoue, Kristoffer Rose, Jerome Simeon and Lionel Villard, IBM T.J. Watson Research Center

An Adaptive, Fast, and Safe XML Parser Based on Byte Sequences Memorization
Toshiro Takase, Hisashi Miyashita, Toyotaro Suzumura and Michiaki Tatsubori, IBM Tokyo Research Laboratory

PANEL08 Web engineering: technical discipline or social process
Location: Room 201
Moderator: Bebo White, Stanford Linear Accelerator Center, USA
Panelists: David Lowe, University of Technology, Sydney
        Martin Gaedke, University of Karlsruhe
        Daniel Schwabe, PUC Rio de Janeiro
        Yogesh Deshpande, University of Western Sydney

This panel aims to explore the nature of the emerging Web engineering discipline. It will attempt to strongly engage with the issue of whether Web Engineering is currently, and (more saliently) should be in the future, viewed primarily as a technical design discipline with its attention firmly on the way in which Web technologies can be leveraged in the design process, or whether it should be viewed primarily as a socio-positioned discipline which focuses on the nature of the way in which projects are managed, needs are understood and users interact.

W3C08 Interaction and the Web: The Future Browser
Location: International Conference Room
Session Chair: Steven Pemberton, W3C Interaction Domain Team
Speakers: Steven Pemberton, W3C Interaction Domain Team
        Bert Bos, W3C
        TV Raman, IBM
        Mark Birbeck, x-port.net
        Dean Jackson, W3C

As new W3C technologies begin to come online in browsers, new possibilities open for how browsers can be used and applied, across devices, and for new purposes. This session explores some of these new directions.
Friday

15:00 – 15:30
Break

15:30 – 17:00 Parallel Sessions

PT25 Schemas and Semantics
Location: Room 301
Session Chair: Wolfgang Nejdl, L3S and University of Hannover

CaTTS: Calendar Types and Constraints for Web Applications
François Bry, Frank-André Rieß and Stephanie Spranger, University of Munich

Expressiveness of XSDs: from Practice to Theory, There and Back Again
Geert Jan Bex*, Wim Martens*, Frank Neven* and Thomas Schwentick†
*Limburgs Universitair Centrum
†Philipps Universitaet Marburg

WEESA - Web Engineering for Semantic Web Applications
Gerald Reif*, Harald Gall† and Mehdi Jazayeri*
* Distributed Systems Group, Vienna University of Technology
†Department of Informatics, University Zurich

PT26 Architecture and Implementation of Web sites
Location: Room 302
Session Chair: Fred Douglis, IBM Research

A Multi-Threaded PIPELINED Web Server Architecture for SMP/SoC Machines
Gyu Sang Choi, Jin-Ha Kim, Deniz Ersoz and Chita R. Das, Pennsylvania State University

Cataclysm: Policing Extreme Overloads in Internet Applications
Bhuvan Urgaonkar and Prashant Shenoy, University of Massachusetts

Design for Verification for Asynchronously Communicating Web Services
Aysu Betin-Can*, Tevfik Bultan* and Xiang Fu†
*University of California at Santa Barbara
†Georgia Southwestern State University

PT27 Embedded Web
Location: Room 303
Session Chair: Tatsuya Hagino, Keio University

Need for Non-Visual Feedback with Long Response Times in Mobile HCI
Virpi Roto, Nokia Research Center
Antti Oulasvirta, Helsinki Institute of Information Technology

An environment for collaborative contents aquisition and editing by coordinated ubiquitous devices
Yutaka Kidawara, NICT
Tomoyuki Uchiyama, Kyoto University
Katsumi Tanaka, NICT and Kyoto University

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Web services considered harmful?

Location: Room 201
Moderator: Rohit Khare, CommerceNet Labs, USA
Panelists: Jeff Barr, Amazon Web Services
Mark Baker, Developer’s Day Chair
Adam Bosworth, Google
Tim Bray, Sun Microsystems
Jeffery McMamus, eBay Web Services

It has been estimated that all of the Web Services specifications and proposals (“WS-*”) weigh in at several thousand pages by now. At the same time, their predecessor technologies such as XML-RPC have developed alongside other “grassroots” technologies like RSS. This debate has arguably even risen to the architectural level, contrasting “service-oriented architectures” with REST-based architectural styles. Unfortunately, the multiple overlapping specifications, standards bodies, and vendor strategies tend to obscure the very real successes of providing machine-automatable services over the Web today. This panel asks: Are current community processes for developing, debating, and adopting Web Services are helping or hindering the adoption of Web Services technology?

URL: http://labs.commerce.net/wiki/images/1/19/CN-TR-04-05.pdf

Questions & Answers to the W3C Members and Team

Location: International Conference Room
Session Chair: Steve Bratt, W3C Chief Operating Officer
Speaker: all W3C Track’05 session chairs and speakers

17:10 – 18:00
Closing Ceremony
Location: Convention Hall
**Saturday — Developers’ Day Tutorials**

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<thead>
<tr>
<th></th>
<th>TITLE</th>
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<td>TD01</td>
<td>Web Bloopers — Avoiding Common Web Design Mistakes</td>
<td>Jeff Johnson</td>
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<td>TD02</td>
<td>Current Best Practices in Web Development and Design</td>
<td>(with WOW Web Professional Certification Exam Option)</td>
<td>303</td>
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**TD01** Web Bloopers: Avoiding Common Web Design Mistakes
Jeff Johnson, *UI Wizards, Inc.*
Location: 101

This tutorial is based on the presenter’s new book: *Web Bloopers: 60 Common Web Design Mistakes and How to Avoid Them* (Morgan Kaufmann, 2003). The book explains how to avoid common Web design errors, illustrated with examples from actual websites. The tutorial, like the book, organizes bloopers into categories: Content, Task-Support, Navigation, Form, Search, Text & Writing, Link Presentation, and Graphic and Layout. It includes class exercises in which participants review actual websites looking for bloopers and discuss how to improve them. The tutorial is intended for Web designers and developers, mainly those who lack several years of experience designing and evaluating websites and Web applications. Others who might benefit from this tutorial are web Q/A engineers, usability testers, and web development managers. After completing this full-day tutorial, participants will:

- Have seen the most common Web design errors and ways to avoid them;
- Be able to recognize those errors in websites and Web applications;
- Be better designers and customers of websites and online services.

**TD02** Current Best Practices in Web Development and Design
*(with WOW Web Professional Certification Exam Option)*
Location: 304

The advancement of Web-based technologies is exciting, yet how do designers and developers working day to day adopt contemporary practices into existing workflow? This session’s goal is to focus on the hot topics in Web design and development as they pertain to the practical application of progressive web technologies. An emphasis on semantic markup, CSS, accessibility, as well as a concern for esthetic choices for screen, alternative devices, and even print will be discussed.

Key Objectives: During these sessions you will:

- Hone in on workflow problems in the industry, and learn about new models that can aid in improving your workflow.
- Learn contemporary design & development technologies and how they can serve you.
- Learn about Cascading Style Sheets (CSS) and how they are so critical not just for designers, but for web developers and site managers, too.
- Gain insight into current tools, including web browsers, and how to work with them more effectively.
Saturday — Developers’ Day Tutorials

- Understand the benefits of Web standards and best practices, and learn how technical and ROI performance improves with their implementation.

Participants will have the option to take one of two WOW certification exams at the end of the session, the Certified Professional Webmaster (CPW), or the Certified Professional Web Designer (CPWD) exam. For further information about WOW’s full day event, WOW’s certification exams, more about the WOW organization and additional certification resources and objectives visit:

- English version: http://www.webprofessionals.org/www2005
Saturday — Developers’ Day

**9:00 — 10:00**

Keynote Speech
Location: Room 201

*One project, four schema languages; medley or melee?*
Makoto Murata, *International University of Japan*

**10:30 – 12:00** Parallel Sessions

**DD01** Semantic Web
Location: Room 201
Session Chair: Jim Hendler, *University of Maryland*

**DD02** Microformats
Location: Room 301A
Session Chairs: Tantek Celik, *Technorati*
Eric Meyer, *Complex Spiral Consulting*

**DD03** Interaction and Visualization
Location: Room 301B
Session Chairs: Joyce Park, *CommerceNet Labs*
Kevin Hughes, *CommerceNet Labs*
Mark Baker, *Coactus, Canada*

**DD04** Semantic Web Services in Practice
Location: Room 302
Session Chairs: Terry Payne, *Southampton University*
Evren Sirin, *University of Maryland*

**13:30 – 15:00** Parallel Sessions

**DD05** Semantic Web
Location: Room 201

**DD06** Microformats
Location: Room 301A

**DD07** Interaction and Visualization
Location: Room 301B

**DD08** Semantic Web Services in Practice
Location: Room 302

**15:30 – 16:15** Parallel Sessions

**DD09** Semantic Web
Location: Room 201
Saturday — Developers’ Day

**DD10** Microformats  
Location: Room 301A

**15:30 – 17:00**  
**DD11** Interaction and Visualization  
Location: Room 301B

**16:15 – 17:00**  
**DD12** (Panel) Semantic Web and Microformats  
Location: Room 201  
Moderator: Mark Baker, *Coactus, Canada*
Posters
Location: Exhibition Hall 8

E-Commerce

0101 Designing Learning Services: From Content-based to Activity-based Learning Systems
Pythagoras Karampiperis and Demetrios Sampson,
Advanced e-Services for the Knowledge Society Research Unit, Informatics and Telematics Institute

0102 How much is a Keyword worth?
Ramesh Sarukkai, Yahoo! Inc.

Multimedia

0201 Accuracy Enhancement of Function oriented Classification of Web Images
Koji Nakahira, Toshihiko Yamasaki and Kiyoharu Aizawa, Department of Frontier Informatics, The University of Tokyo

0202 Multichannel publication of interactive media documents in a news environment
Tom Beckers*, Nico Oorts†, Filip Hendrickx‡ and Rik Van de Walle*

*Ghent University-IBBT
†VRT
‡IMEC

0203 Multi-Step Media Adaptation: Implementation of a Knowledge-Based Engine
Peter Soetens and Matthias De Geyter, VRT

0204 Personal TV Viewing by Using Live Chat as Metadata
Hisashi Miyamori*, Satoshi Nakamura* and Katsumi Tanaka†

*National Institute of Information and Communications Technology (NICT)
†National Institute of Information and Communications Technology (NICT) and Kyoto University
0205 Video Quality Estimation for Internet Streaming
Amy Reibman, Subhabrata Sen and Jacobus van der Merwe, AT&T Labs-Research

0206 Webified Video: Media Conversion from TV Program to Web Content and their Integrated Viewing Method
Hisashi Miyamori, National Institute of Information and Communications Technology (NICT)
Katsumi Tanaka, National Institute of Information and Communications Technology (NICT) and Kyoto University

Networking

0301 A Publish and Subscribe Collaboration Architecture for Web-Based Information
M. Brian Blake∗, David H. Fado† and Gregory A. Mack†
∗Department of Computer Science, Georgetown University
†Advanced Systems and Concepts, Science Applications International Corp. (SAIC)

0302 An Adaptive Middleware Infrastructure for Mobile Computing
Ronnie Cheung, Department of Computing, Hong Kong Polytechnic University

0303 An Approach for Realizing Privacy-Preserving Web-Based Services
Wei Xu∗, R. Sekar∗, I.V. Ramakrishnan∗ and V.N. Venkatakrishnan†
∗Department of Computer Science, Stony Brook University
†Department of Computer Science, University of Illinois at Chicago

0304 Application Networking on Peer-to-Peer Networks
Mu Su and Chi-Hung Chi, School of Computing, National University of Singapore

0305 Automatic Generation of Web Portals Using Artificial Ants
Hanene Azzag∗, Gilles Venturini∗ and Christiane Guinot†
∗Laboratoire d’Informatique, Polytech Tours
†CE.R.I.E.S

0306 Data Versioning Techniques for Internet Transaction Management
Ramkrishna Chatterjee and Gopalan Arun, Oracle Corporation

0307 Design and Implementation of A Feedback Controller for Slowdown Differentiation on Internet Servers
Jianbin Wei and Cheng-Zhong Xu, Department of Electrical and Computer Engineering, Wayne State University

0308 Exploiting the Web for Point-in-Time File Sharing
Roberto J. Bayardo Jr., IBM Almaden Research Center
Sebastian Thomschke, IBM Deutschland GmbH

0309 Finding Group Shilling in Recommendation System
Xue-Feng Su∗, Hua-Jun Zeng† and Zheng Chen†
∗Computer Science and Technology, Beijing University of Posts and Telecommunications
†Microsoft Research Asia

0310 Improved Timing Control for Web Server Systems Using Internal State Information
Xue Liu, Rong Zheng, Jin Heo and Lui Sha,
Department of Computer Science, University of Illinois at Urbana-Champaign

0311 Information Flow using Edge Stress Factor
Franco Salvetti, University of Colorado at Boulder
Savitha Srinivasan, IBM Almaden Research Center

0312 Predicting Navigation Patterns on the Mobile-Internet Using Time of the Week
Martin Halvey, Mark T. Keane and Barry Smyth,
Adaptive Information Cluster, Department of Computer Science, University College Dublin

0313 WAND: A Meta-data Maintenance System over the Internet
Anubhav Bhatia, Saikat Mukherjee, Saugat Mitra and Srinath Srinivasan, Indian Institute of Technology, Bangalore

0314 Web Page Marker: a Web Browsing Support System based on Marking and Anchoring
Takahiro Koga, Noriharu Tashiro, Tadachika Ozono, Takayuki Ito and Toramatsu Shintani, Department of Computer Science and Engineering, Nagoya Institute of Technology

0315 Web Resource Geographic Location Classification and Detection
Chuang Wang∗, Xing Xie†, Lee Wang†, Yansheng Lu∗ and Wei-Ying Ma†
∗Department of Computer Science, Huazhong University of Science and Technology
†Microsoft Research Asia
‡Microsoft Corporation
Performance

0401 A Comprehensive Comparative Study on Term Weighting Schemes for Text Categorization with Support Vector Machines
Man Lan*, Chew-Lim Tan†, Hwee-Boon Low* and Sam-Yuan Sung†
*Institute for Infocomm Research
†Department of Computer Science, National University of Singapore

0402 A Framework for Determining Necessary Query Set Sizes to Evaluate Web Search Effectiveness
Eric C. Jensen*, Steven M. Beitzel*, Ophir Frieder† and Abdur Chowdhury†
*Information Retrieval Laboratory, Illinois Institute of Technology
†Search & Navigation Group, America Online Inc.

0403 Applying NavOptim to Minimise Navigational Effort
David Lowe and Xiaoying Kong, University of Technology, Sydney

0404 Boosting SVM Classifiers By Ensemble
Yan-Shi Dong, Shanghai Jiao Tong University
Ke-Song Han, Motorola Labs, China Research Center

0405 Bootstrapping Ontology Alignment Methods with APFEL
Marc Ehrig*, Steffen Staab† and York Sure*
*AIFB, University of Karlsruhe
†ISWeb, University of Koblenz-Landau

0406 Can Link Analysis Tell Us about Web Traffic?
Marcin Sydow, Polish-Japanese Institute of Information Technology

0407 Clustering for Probabilistic Model Estimation for CF
Qing Li Kumoh*, Byeong Man Kim† and Sung Hyon Myaeng*
*National Institute of Technology, Information & Communication University, Korea
†Kumoh National Institute of Technology

0408 Efficient Structural Joins with On-The-Fly Indexing
Kun-Lung Wu, Shyh-Kwei Chen and Philip S. Yu,
IBM T. J. Watson Research Center

0409 Finding The Search Engine That Works For You
Kin F. Li*, Wei Yu*, Shojiro Nishio† and Yali Wang*
*Department of Electrical & Computer Engineering, University of Victoria
†Graduate School of Information Science & Technology, Osaka University

0410 Improving Text Collection Selection with Coverage and Overlap Statistics
Thomas Hernandez and Subbarao Kambhampati,
Department of Computer Science and Engineering, Arizona State University

0411 Predicting Outcomes of Web Navigation
Jacek Gwizdka and Ian Spence, Department of Psychology, University of Toronto

0412 Site Abstraction for Rare Category Classification in Large-Scale Web Directory
Tie-Yan Liu*, Hao Wan†, Tao Qin†, Zheng Chen*, Yong Ren† and Wei-Ying Ma*
*Microsoft Research Asia
†Department of Electronic Engineering, Tsinghua University

0413 The WT10G dataset and the evolution of the Web
Wei-Tsen Milly*, Markus Hagenbuchner* and Ah Chung Tsol†
*University of Wollongong
†Australian Research Council

0414 TotalRank: Ranking Without Damping
Paolo Boldi, DSI, Università degli Studi di Milano

0415 WCAG Formalization with W3C Standards
Vicente Luque Centeno*, Carlos Delgado Kloos*, Martin Gaedke† and Martin Nussbaumer†
*Carlos III University of Madrid
†University of Karlsruhe

Search and Data Mining

0501 A Clustering Method for News Articles Retrieval System
Hiroyuki Toda and Ryoji Kataoka, NTT Cyber Solutions Laboratories, NTT Corporation

0502 A More Precise Model of Web Retrieval
Junli Yuan, Institute for Infocomm Research, School of Computing, National University of Singapore
Chi-Hung Chi, School of Computing, National University of Singapore
Qibin Sun, Institute for Infocomm Research
0503 Adaptive Page Ranking with Neural Networks
Franco Scarselli*, Sweah Liang Yong†, Markus Hagenbuchner† and Ah Chung Tsoi†
*University of Siena
†University of Wollongong
‡Australian Research Council

0504 Adaptive Query Routing in Peer Web Search
Le-Shin Wu*, Ruj Akavipat* and Filippo Menczer†
*Department of Computer Science, Indiana University
†School of Informatics and Department of Computer Science, Indiana University

0505 An Analysis of Search Engine Switching Behavior using Click Streams
Yun-Fang Juan and Chi-Chao Chang, Yahoo! Inc.

0506 An Economic Model of Web Search
Georgios Kouroupas*, Elias Koutsoupias†, Christos Papadimitriou† and Martha Sideri*
*Athens University of Economics and Business
†University of Athens
‡University of California, Berkeley

0507 An Information Extraction Engine for Web Discussion Forums
Hanny Yulius Limanto, Nguyen Ngoc Giang, Vo Tan Trung, Nguyen Quang Huy, Jun Zhang and Qi He,
Nanyang Technological University

0508 Analysis of Topic Dynamics in Web Search
Xuehua Shen*, Susan Dumais† and Eric Horvitz†
*Department of Computer Science, University of Illinois
†Microsoft Research

0509 Analyzing Online Discussion for Marketing Intelligence
Natalie Glance, Matthew Hurst, Kamal Nigam, Matthew Siegler, Robert Stockton and Takashi Tomokiyo,
Intelliseek Applied Research Center

0510 Analyzing Web Page Headings Considering Various Presentation
Yushin Tatsumi and Toshiyuki Asahi, NEC Internet Systems Research Laboratories

0511 Automatically Learning Document Taxonomies for Hierarchical Classification
Kunal Punera, Suju Rajan and Joydeep Ghosh,
Department of Electrical and Computer Engineering, University of Texas at Austin

0512 BackRank: an Alternative for PageRank
Mohamed Bouklit, LIRMM
Fabien Mathieu, LIRMM-INRIA

0513 Building an Open Source Meta-Search Engine
Antonio Gulli, Dipartimento di Informatica,
University of Pisa
Alessio Signorini, University of Iowa, Computer Science

0514 Comparing Relevance Feedback algorithms for Web Search
Vishwa Vinay*, Ken Wood†, Natasa Milic-Frayling†
and Ingemar Cox*
*University College London
†Microsoft Research Cambridge

0515 Cyclone: An Encyclopedic Web Search Site
Atsushi Fujii*, Katunobu Itou† and Tetsuya Ishikawa*
*Graduate School of Library, Information and Media Studies, University of Tsukuba
†Graduate School of Information Science, Nagoya University

0516 Delivering new web content reusing remote and heterogeneous sites. A DOM-based approach
Luis Alvarez Sabucedo and Luis Anido Rifón,
Universidade de Vigo, Departamento Telemática

0517 Exploiting the Deep Web with DynaBot: Matching, Probing, and Ranking
Daniel Rocco*, James Caverlee†, Ling Liu† and Terence Critchlow†
*University of West Georgia
†Georgia Institute of Technology
‡Lawrence Livermore National Laboratory

0518 Extracting Context To Improve Accuracy For HTML Content Extraction
Suhit Gupta*, Gail Kaiser* and Salvatore Stolfo†
*Programming Systems Lab, Columbia University
†Intrusion Detection Lab, Columbia University

0519 Focused Crawling By Exploiting Anchor Text Using Decision Tree
Jun Li, Department of General System Studies, The University of Tokyo
Kazutaka Furuse, Institute of Information Sciences & Electronics, University of Tsukuba
Kazumori Yamaguchi, Information Technology Center, The University of Tokyo

0520 From User-Centric Web Traffic Data to Usage Data
Thomas Beauvisage and Houssem Assadi, France Telecom R&D
Incremental Page Rank Computation on Evolving Graphs
Prasanna Desikan*, Nishith Pathak†, Delhi Jaideep Srivastava* and Vipin Kumar*
* Department of Computer Science, University of Minnesota
† Department of Computer Science, University of Minnesota & Indian Institute of Technology

Information Retrieval in P2P Networks Using Genetic Algorithm
Wan Yeung Wong, Tak Pang Lau and Irwin King,
Department of Computer Science & Engineering, The Chinese University of Hong Kong

Learning How to Learn with Web Contents
Akihiro Kashihara, The University of Electro-Communications
Shinobu Hasegawa, Research Center for Distance Learning, Japan Advanced Institute of Science and Technology

METEOR: Metadata and Instance Extraction from Object Referral Lists on the Web
Hasan Davulçu*, Srinivas Vadrevu*, Saravanan Kumar Nagarajan* and Fatih Gelgi†
* Department of Computer Science and Engineering, Arizona State University
† Department of Computer Science and Engineering, Arizona State University

Mining Directed Social Network from Message Board
Naohiro Matsumura*, David E. Goldberg† and Xavier Llorà*
* Osaka University
† University of Illinois at Urbana-Champaign

Mining Web Site’s Topic Hierarchy
Nan Liu and Christopher C. Yang, Department of Systems Engineering and Engineering Management, The Chinese University of Hong Kong

Modeling the Author Bias Between Two On-line Computer Science Citation Databases
Vaclav Petricek*, Ingemar J. Cox*, Hui Hani†, Isaac Coucill‡ and C. Lee Giles‡
* University College London
† Yahoo! Inc.
‡ The School of Information Sciences and Technology, The Pennsylvania State University

On the Feasibility of Low-rank Approximation for Personalized PageRank
András Benczúr*, Károly Csatógány* and Tamás Sarlós†
* Eötvös University
† Computer and Automation Institute, Hungarian Academy of Sciences

Predictive Ranking: A Novel Page Ranking Approach by Estimating the Web Structure
Haixuan Yang*, Irwin King† and Michael R. Lyu‡
* Department of Computer Science and Engineering, The Chinese University of Hong Kong
† Department of Computer Science and Engineering, The Chinese University of Hong Kong
‡ Department of Computer Science and Engineering, The Chinese University of Hong Kong

Representing Personal Web Information as a Topic-Oriented Interface
Zhigang Hua*, Hao Liu†, Xing Xie†, Hanqing Lu* and Wei-Ying Ma‡
* Institute of Automation, Chinese Academy of Sciences
† Department of Information Engineering, Chinese University of Hong Kong
‡ Microsoft Research Asia

Retrieving Multimedia Web Objects Based on Page Rank Algorithm
Christopher C. Yang and K. Y. Chan, Department of Systems Engineering and Engineering Management, The Chinese University of Hong Kong

SAT-MOD: Moderate Itemset Fittest for Text Classification
Jianlin Feng, Huijun Liu and Jing Zou, Department of Computer Science, Huazhong University of Science & Technology

Semantic Search of Schema Repositories
Tanveer Syeda-Mahmood*, Gauri Shah*, Lingling Yan† and Willi Urban‡
* IBM Almaden Research Center
† IBM SVL
‡ IBM Software Group
Posters

0535 The Indexable Web is More than 11.5 Billion Pages
Antonio Gulli, Università di Pisa, Dipartimento di Informatica
Alessio Signorini, University of Iowa, Computer Science

0536 TruRank: Taking PageRank to the Limit
Sebastiano Vigna, Dipartimento di Scienze dell’Informazione, Università degli Studi di Milano

0537 Using Visual Cues for Extraction of Tabular Data from Arbitrary HTML Documents
Bernhard Krüpl, Marcus Herzog and Wolfgang Gatterbauer, Vienna University of Technology

0538 Web Data Cleansing for Information Retrieval using Key Resource Page Selection
Yiqun Liu, Canhui Wang, Min Zhang and Shaoping Ma, State Key Lab of Intelligent technology & systems, Tsinghua University

0539 Web Log Mining with Adaptive Support Thresholds
Jian-Chih Ou*†, Chang-Hung Lee† and Ming-Syan Chen*†
*Department of Electrical Engineering, National Taiwan University
†BenQ Corporation 18

0540 XAR-Miner: Efficient Association Rules Mining for XML Data
Sheng Zhang*, Ji Zhang†, Han Liu† and Wei Wang‡
*College of Physics Sciences and Technology, Nanjing Normal University, Nanjing, China
†Department of Computer Science, University of Toronto
‡College of Educational Science, Nanjing Normal University, Nanjing, China

0536 An Architecture for Personal Semantic Web Information Retrieval System
Haibo Yu*, Tsunenori Mine† and Makoto Amamiya‡
*Graduate School of Information Science and Electrical Engineering, Kyushu University
†Faculty of Information Science and Electrical Engineering, Kyushu University

0541 Association Search in Semantic Web: Search + Inference
Liang Bangyong, Tang Jie and Li Juanzi, Department of Computer Science, Tsinghua University

0537 Automated Semantic Web Services Orchestration via Concept Covering
Tommaso Di Noia*, Eugenio Di Sciascio†, Francesco M. Domini‡, Azzurra Ragone* and Simona Colucci‡
*Politecnico di Bari
†Università della Tuscia
‡Politecnico di Bari and Knowledge Management Institute - Open University

0542 AVATAR: An approach based on Semantic Reasoning to Recommend Personalized TV programs
Yolanda Blanco-Fernández, Jose J. Pazos-Arias, Alberto Gil-Solla, Manuel Ramos-Cabrera, Ana Fernández-Vilas, Rebeca P. Díaz-Redondo, Martín López-Nores and Belén Barragáns-Martínez, Department of Telematic Engineering, University of Vigo

0543 Constructing Extensible XQuery Mappings
Gang Qian and Yisheng Dong, Department of Computer Science and Engineering, Southeast University

0544 Hera Presentation Generator
Flavius Frasincar, Geert-Jan Houben and Peter Barna, Eindhoven University of Technology

0545 Hybrid Semantic Tagging for Information Extraction
Ronen Feldman*, Benjamin Rosenfeld*, Moshe Fresko* and Brian D. Davison†
*Computer Science Department, Bar-Ilan University
†Computer Science and Engineering, Lehigh University

0546 Multiple Strategies Detection in Ontology Mapping
Jie Tang, Bang-Yong Liang and Juan-Zi Li, Department of Computer, Tsinghua University

0547 Semantic Virtual Environments
Kursten A. Otto, Freie Universität Berlin

Semantic Web

0601 An Agent System for Ontology Sharing on WWW
Kotaro Nakayama, Takahiro Hara and Shojiro Nishio, Graduate School of Information Science and Technology, Osaka University

0602 An Approach for Ontology-based Elicitation of User Models to Enable Personalization on the Semantic Web
Ronald Denaux*, Lora Aroyo* and Vania Dimitrova†
*Department of Computer Science, Eindhoven University of Technology
†School of Computing, University of Leeds

0603 Semantic Virtual Environments
Kursten A. Otto, Freie Universität Berlin
Service Discovery and Measurement based on DAML-QoS Ontology
Chen Zhou, Liang-Tien Chia and Bu-Sung Lee, Center for Multimedia & Network Technology, Nanyang Technological University

Signing individual fragments of an RDF graph
Giovanni Tummarello, Christian Morbidoni, Paolo Puliti and Francesco Piazza, Università Politecnica delle Marche

Soundness Proof of Z Semantics of OWL Using Institutions
Dorel Lucanu*, Yuan Fang Li† and Jin Song Dong†
*Faculty of Computer Science, “A.I.Cuza” University
†School of Computing, National University of Singapore

Verify Feature Models using Protege-OWL
Hai Wang, The University of Manchester
Yuan Fang Li, National University of Singapore
Jing Sun, The University of Auckland
Hongyu Zhang, RMIT University

Applications and User Interface

A Language for Expressing User-Context Preferences in the Web
Juan Ignacio Vazquez and Diego Lopez de Ipiña, Faculty of Engineering, Deusto University

ALVIN: A System for Visualizing Large Networks
Davood Rafiei and Stephen Curial, Department of Computer Science, University of Alberta

Automatic Generation of Link Collections and their Visualization
Osamu Segawa*, Jun Kawai† and Kazuyuki Sakauchi‡
*Chubu Electric Power Co., Inc.
†TIS Inc.
‡Istituto di Tecnologie della Comunicazione, Università della Svizzera Italiana

Building Reactive Web Applications
Federico M. Facca*, Stefano Ceri†, Jacopo Armani‡ and Vera Demalde†
*Dipartimento di Elettronica e Informazione, Politecnico di Milano
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†Chemnitz University of Technology

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†Istituto di Tecnologie della Comunicazione, Università della Svizzera Italiana
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