

Message from the Conference Chairs and Program Chair

WI'04 and IAT'04

Welcome to the 2004 IEEE/WIC/ACM International Joint Conference on Web Intelligence and Intelligent Agent Technology (WI'04 and IAT'04). On behalf of the WI'04 and IAT'04 Conference Committees, we would like to thank you for coming to WI'04 and IAT'04, and we hope you will enjoy the conference technical and social programs as well as the beautiful city of Beijing, China.

The WI'04 and IAT'04 conferences are sponsored and organized by the IEEE Computer Society Technical Committee on Computational Intelligence (TCCI), by the Web Intelligence Consortium (WIC), and by ACM SIGART.

Web intelligence is a field of scientific research and development that deals with the fundamental roles as well as practical impacts of artificial intelligence and advanced information technology on the next generation of Web-empowered products, systems, services, and activities. Following the great success of WI'01 held in Maebashi City, Japan, in 2001 and WI'03 held in Halifax, Canada, in 2003, WI'04 will provide a leading international forum for researchers and practitioners (1) to present information on state-of-the-art WI technologies and (2) to cross-fertilize ideas on the development of Web-based intelligent information systems among different domains.

IAT'04 follows the great success of IAT'99 held in Hong Kong in 1999, IAT'01 held in Maebashi City, Japan, in 2001, and IAT'03 held in Halifax, Canada, in 2003. The aim of IAT'04 is to bring together researchers and practitioners from diverse fields, such as artificial intelligence, software engineering, Internet computing, computational sciences, business, and robotics and automation. By encouraging idea sharing and discussions on the underlying logical, cognitive, physical, and biological foundations as well as the enabling technologies of intelligent agents, IAT'04 is expected to stimulate the future development of new models, new methodologies, and new tools for building a variety of embodiments of agent-based systems.

Both WI and IAT are interdisciplinary fields of research and development. WI'04 and IAT'04 topics will cover, but not be limited to, the following:

WI'04 Topics

- *World Wide Wisdom Web (W4)*: distributed resources optimization; goal-directed services support; information and knowledge markets; knowledge community formation and support; meta-knowledge discovery and representation; new social interaction paradigms; Problem-Solver Markup Language (PSML); regularities and laws of W4; search of best means and ends; service self-aggregation; social and psychological contexts; Web inference engines
- *Social Networks and Social Intelligence*: entertainment; knowledge community formation and support; link topology and site hierarchy; intelligent wireless Web; social networks mining;

- theories about small-world Webs; ubiquitous computing; ubiquitous learning systems; virtual and Web communities; Web-based cooperative work; Web site clustering
- *Knowledge Grids and Grid Intelligence*: brokering and scheduling; knowledge resources and services discovery; middleware architectures and tools; on-demand planning and routing; semantic grids
 - *Web Mining and Farming*: context sensitive Web mining; e-mail classification; data warehousing; learning of user profiles; multimedia data mining; mining of data streams; text mining; Web farming and warehousing; Web content mining; Web information clustering; Web information indexing; Web log and usage mining; Web page clustering and mining; Web site classification
 - *Semantics and Ontology Engineering*: ontology-based information extraction and retrieval; ontology-based Web mining; Web-based ontology learning; semantic Web
 - *Web Agents*: agent networks and topologies; coordination; distributed problem solving; global information foraging; macroscopic behavior modeling; mobile agents; remembrance agents; resource intermediary and coordination mechanisms; self-organization and reproduction; trust models for Web agents
 - *Web Services*: matchmaking; middleware-based ubiquitous services; Web service reconfiguration; Web service workflow composition; grid services
 - *Web Information Filtering and Retrieval*: automatic cataloging and indexing; clustering-based recommendation systems; collaborative filtering; digital library; distributed Web search; hybrid recommendation; information retrieval criteria and evaluations; proxy and cache techniques; search engines and meta-search engines; specifications for Web information extraction processes; Web crawling systems; Web information categorization and ranking; Web prediction and prefetching
 - *Intelligent Human–Web Interactions*: adaptive web interfaces; context-aware computing; learning of user profiles; multimedia representation; personalized interfaces; personalized Web sites; social and psychological issues; visualization of information and knowledge
 - *Web Support Systems*: information retrieval support systems; Web site navigation support systems; recommendation support systems; soft computing (including neural networks, fuzzy logic, evolutionary computation, rough sets, and granular computing) and uncertainty management for WI; Web-based decision support systems
 - *Intelligent E-Technology*: collaborative filtering and recommendations; business intelligence; decentralized community communication techniques; e-business and e-commerce; e-community; e-finance; e-government; e-learning; e-publishing; e-science; intelligent enterprise portals; Web-based direct marketing and CRM; Web-based editing; Web security, integrity, privacy, and trust

IAT'04 Topics

- *Autonomy-Oriented Computing (AOC)*: agent-based complex systems modeling and development; agent-based simulation; autonomy-oriented modeling and computation methods; behavioral self-organization; complex behavior characterization and engineering; emergent behavior; hard computational problem solving; self-organized criticality; self-organized intelligence; swarm intelligence; nature-inspired paradigms
- *Autonomous Knowledge and Information Agents*: agent-based distributed data mining; agent-based knowledge discovery and sharing; autonomous information services; distributed knowledge systems; emergent natural law discovery in multi-agent systems; evolution of

- knowledge networks; human-agent interaction; information filtering agents; knowledge aggregation; knowledge discovery; ontology-based information services
- *Agent Systems Modeling and Methodology*: agent interaction protocols; fault-tolerance in multi-agent systems; formal framework for multi-agent systems; information exchanges in multi-agent systems; learning and self-adaptation in multi-agent systems; mobile agent languages and protocols; multi-agent autonomic architectures; multi-agent coordination techniques; multi-agent planning and replanning; peer-to-peer models for multi-agent systems; reinforcement learning; social interactions in multi-agent systems; task-based agent context; task-oriented agents
 - *Distributed Problem Solving*: agent-based grid computing; agent networks in distributed problem solving; collective group behavior; coordination and cooperation; distributed intelligence; dynamics of agent groups and populations; efficiency and complexity issues; market-based computing; problem-solving in dynamic environments; distributed search
 - *Autonomous Auctions and Negotiation*: agent-based marketplaces; auction markets; combinatorial auctions; hybrid negotiation; integrative negotiation; mediating agents; pricing agents; thin double auctions
 - *Applications*: agent-based assistants; agent-based virtual enterprise; embodied agents and agent-based systems applications; interface agents; knowledge- and data-intensive systems; scalability; software and pervasive agents; tools and standards; ubiquitous systems and e-technology agents; ubiquitous software services; XML-based agent systems

With the strong support of world-renowned researchers and practitioners from the international WI and IAT communities, the IEEE/WIC/ACM Joint Conference has received an overwhelming response compared to any other related conferences this year. WI'04 and IAT'04 received 641 submissions (375 for WI'04 and 266 for IAT'04) to the research and industry tracks from more than 42 countries and regions: Australia, Austria, Bangladesh, Belgium, Brazil, Canada, China, Cyprus, Czech Republic, Egypt, Finland, France, Germany, Greece, Hong Kong, India, Iran, Ireland, Israel, Italy, Japan, Korea, Malaysia, Mexico, The Netherlands, New Zealand, Norway, Oman, Pakistan, Portugal, Romania, Russia, Singapore, Slovenia, Spain, Sweden, Switzerland, Taiwan, Thailand, Tunisia, the United Kingdom, and the United States. In addition, we also received 63 demo proposals to the demo track.

The submitted full-length papers went through a rigorous reviewing process: Each of the 641 submissions was reviewed by at least two program committee members, and the borderline cases were re-reviewed by additional program committee members and by chair(s). As a result, approximately 16% of the 375 WI'04 submissions were accepted as regular papers and 21% of the submitted papers were accepted as short papers. For IAT'04, around 16% of the 266 submissions were accepted as regular papers and 21% of the submitted papers were accepted as short papers. In addition to the paper and demo presentations at the research, industry, and demo tracks, our technical program also features six keynote/invited talks, nine workshops, and three tutorials.

Any successful, high-quality conference requires enormous effort and expertise from many committed people. We would like to thank the organizing chairs (Tieyong Zuo, Chongzheng Sun, Chunnian Liu); program co-chairs (WI Track: Henry Tirri, Yiyu Yao, Lizhu Zhou; IAT Track: Jeffrey Bradshaw, Sankar K. Pal, Domenico Talia); industry track chairs (Qiang Yang, Wei-Ying Ma); workshop chair (Pawan Lingras); tutorial chair (Gerd Wagner); publicity chair (Yuefeng Li); local arrangement chairs (Shujie Zhang, Baocai Yin); WI'04 and IAT'04 conference secretariats (Jia Hu, Jiajin Huang); and all vice chairs and members of the WI'04 and IAT'04 program committees

as well as appointed reviewers for the countless hours they devoted to the conference organization and review activities. Special thanks go to IEEE-CS-TCCI chair (Xindong Wu), ACM SIGART chair (Maria Gini), WIC Advisory Board members (Edward A. Feigenbaum, Setsuo Ohsuga, Benjamin Wah, Philip Yu, and L.A. Zadeh), and WIC Technical Committee and WI/IAT Steering Committee members (Nick Cercone, Dieter Fensel, Georg Gottlob, Lakhmi Jain, W. Lewis Johnson, Jianchang Mao, Hiroshi Motoda, Toyooki Nishida, Xindong Wu, and Yiyu Yao) for their constant support.

The conference Web support team of WIC did a wonderful job in putting together and maintaining the home pages for WI'04 and IAT'04 as well as the Cyber-Chair software, an intelligent agent for conference management and communications among conference organizers, program committee members, and authors/attendees.

We would like to express our special appreciation to our world-class keynote/invited speakers:

- John McCarthy, *Stanford University*
- Carl Kesselman, *Information Sciences Institute, University of Southern California*
- Victor Lesser, *University of Massachusetts*
- Tom M. Mitchell, *Carnegie Mellon University*
- Xindong Wu, *University of Vermont*
- Boi Faltings, *Swiss Federal Institute of Technology*

We are very grateful to the following WI'04 and IAT'04 cooperative sponsors for their generous support:

- Beijing University of Technology
- National Natural Science Foundation of China (NSFC)
- Microsoft Research Asia

We also thank the following for their role as co-organizers and in cooperation with WI'04 and IAT'04:

- Beijing University of Technology
- China Computer Federation (CCF)
- Hong Kong Baptist University
- Maebashi Institute of Technology
- Tsinghua University

Last but not the least, we would like to thank all the authors of submitted papers and the attendees for their contribution and participation. Without their strong support, we could not have a successful conference.

Jiming Liu and Nick Cercone
WI'04 and IAT'04 Conference Chairs

Ning Zhong
WI'04 and IAT'04 Program Chair