Lecture Notes in Computer Science   6724

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

Dickson K.W. Chiu   Ladjel Bellatreche
Hideyasu Sasaki   Ho-fung Leung
Shing-Chi Cheung   Haiyang Hu   Jie Shao (Eds.)

Web Information Systems Engineering – WISE 2010 Workshops

WISE 2010 International Symposium WISS
and International Workshops CISE, MBC
Hong Kong, China, December 12-14, 2010
Revised Selected Papers

Springer

Volume Editors

Dickson K.W. Chiu
Dickson Computer Systems, Kowloon, Hong Kong, China
E-mail: dicksonchiu@ieee.org

Ladjel Bellatreche
Laboratoire d'Informatique Scientifique et Industrielle (LISI/ENSMA), France
E-mail: bellatreche@ensma.fr

Hideyasu Sasaki
Ritsumeikan University, Dept. of Computer Science and Engineering, Japan
E-mail: hsasaki@uchicago.edu

Ho-fung Leung
The Chinese University of Hong Kong, Dept. of Comp. Science and Engin., China
E-mail: lhf@cuhk.edu.hk

Shing-Chi Cheung
Hong Kong Univ. of Science and Tech., Dept. of Comp. Science and Engin., China
E-mail: scc@cs.ust.hk

Haiyang Hu
Hangzhou Dianzi University, School of Computer Science, China
E-mail: huhaiyang@hdu.edu.cn

Jie Shao
Univ. of Melbourne, Dept. of Computer Science and Software Engineering, Australia
E-mail: jsh@csse.unimelb.edu.au

WISE 2010 Workshop Chairs' Message

The conference series on Web Information Systems Engineering (WISE) provides a leading international forum for researchers, professionals, and industrial practitioners to share their knowledge in the rapidly growing area of Web technologies, methodologies, and applications. Previous WISE conferences were held in Hong Kong, China (2000), Kyoto, Japan (2001), Singapore (2002), Rome, Italy (2003), Brisbane, Australia (2004), New York, USA (2005), Wuhan, China (2006), Nancy, France (2007), Auckland, New Zealand (2008), and Poznan, Poland (2009). This year, the conference venue came back to Hong Kong, 10 years after its founding. To continue this excellent program, we were pleased to serve as the Workshop Chairs for WISE 2010. This volume comprises papers from one collated symposium and two WISE 2010 workshops:

1. The First International Symposium on Web Intelligent Systems and Services (WISS 2010)
2. The Second International Workshop on Mobile Business Collaboration (MBC 2010)
3. The First International Workshop on Cloud Information System Engineering(CISE 2010)

These three events were elected from a public call-for-proposals process. The event organizers put tremendous effort into soliciting and selecting research papers with a balance of high quality, novel ideas, and emerging applications. They also followed our recommended vigorous review process. A total of about 40 papers from a wide range of countries were accepted. We appreciate interest and support of the authors and attendees. We are grateful to the WISE 2010 organizers for their generous support, in particular, Qing Li, Lei Chen, Hong-va Leong, and Howard Leung. We appreciate the hard work of all event organizers and Program Committee members in putting together the program. We also thank all the authors for their contributions.

December 2010   Dickson K.W. Chiu
                                                       Ladjel Bellatreche

The First International Symposium on Web Intelligent Systems and Services (WISS 2010) Chairs' Message

The global economy and organizations are evolving to become service-oriented and many business activities have moved to the Web. Beyond service-oriented architecture (SOA) and Web 2.0, intelligence in computing is essential to achieve service personalization and excellence for the ever complicated requirements in the rapidly evolving global environment. This involves knowledge from various disciplines such as computer science, industrial and systems engineering, management science, operations research, marketing, contracts and negotiations, as well as culture transformation and integration methods based on beliefs, assumptions, principles, and values among organizations and humans. The creation, operation, and evolution of such research and practice raise concerns that range from high-level requirements and policy modeling through to the deployment of specific implementation technologies and paradigms, and involve a wide (and ever growing) range of methods, tools, and technologies. They also cover a broad spectrum of vertical domains, industry segments, and even government sectors. We intentionally sought scientists, engineers, educators, industry people, policy makers, decision makers, and others who have insight, vision, and understanding of the big challenges in Web intelligent systems and services. We accepted over 30 papers from various countries all over the world. We thank the WISE2010 organizers, the *International Journal of Systems and Service-Oriented Engineering* (IJSSOE), and the *International Journal of Organization and Collective Intelligence* (IJOCI) for their generous support. The great success of the workshop is indebted to the hard work of all Program Committee members. We also thank all the authors for their contributions.

December 2010

<div align="right">Hideyasu Sasaki
Dickson K.W. Chiu</div>

The First International Workshop on Cloud Information System Engineering(CISE 2010) Chairs' Message

"Cloud" is a common metaphor for an Internet-accessible platform of shared hardware and software hidden from users for scalable service provision. The technical foundations of cloud computing include service-oriented architecture (SOA) and virtualizations of hardware and software. Under cloud computing, the capabilities of information systems are provided as services, accessible anywhere anytime without requiring detailed knowledge of the underlying technology. Thus, many mature technologies are used as components in cloud computing, but there are still many unresolved and open problems. In particular, how traditional information systems can be (re-)engineered and migrated to new cloud platforms is a key issue of its adoption. This leads to our workshop topic of "Cloud Information System Engineering" (CISE). The creation, operation, and evolution of such research and practice raise concerns that range from high-level requirements and policy modeling through to the deployment of specific implementation technologies and paradigms, and involve a wide (and ever growing) range of methods, tools, and technologies. They also cover a broad spectrum of vertical domains, industry segments, and even government sectors. This event intentionally seeks scientists, engineers, educators, industry people, policy makers, decision makers, and others to share their insight, vision, and understanding of the big challenges in cloud information systems engineering. We thank the WISE 2010 organizers, the *International Journal of Systems and Service-Oriented Engineering* (IJS-SOE), and the *International Journal of Organization and Collective Intelligence* (IJOCI) for their generous support. The great success of the workshop is indebted to the hard work of all Program Committee members. We also thank all the authors for their contributions.

December 2010

Ho-fung Leung
Shing-Chi Cheung
Dickson K.W. Chiu

The Second International Workshop on Mobile Business Collaboration (MBC 2010) Chairs' Message

The recent advancement of workflow technologies and adoption of the service-oriented architecture (SOA) has much facilitated the automation of business collaboration within and across organizations to increase their competiveness and responsiveness to the fast evolving global economic environment. The widespread use of mobile technologies has further resulted in an increasing demand for the support of mobile business collaboration (MBC) across multiple platforms anytime and anywhere. Examples include supply-chain logistics, group calendars, and dynamic human resources planning. As mobile devices become more powerful, the adoption of mobile computing is imminent. However, mobile business collaboration is not merely porting the software with an alternative user interface, but rather involves a wide range of new requirements, constraints, and technical challenges. The First International Workshop on Mobile Business Collaboration organized by Dickson K.W. Chiu and Yi Zhuang was held on April 21, 2009 in Brisbane, Australia. After the successful first year providing many interesting ideas and research problems, we believe that MBC will become an annual meeting opportunity for the research community. The Second International Workshop on Mobile Business Collaboration (MBC 2010) was held in conjunction with the 11th International Conference on Web Information System Engineering (WISE 2010). We intentionally sought for scientists, engineers, educators, industry people, policy makers, decision makers, and others who had insight, vision, and understanding of the big challenges in this emerging field. We would like to take this opportunity to thank our Program Committee for their work in selecting the papers, and the WISE conference organizers for their generous support for this year's event. This workshop was partially sponsored by the National Natural Science Foundation of China under grant Nos.60873022 and Nos.60903053, and the Natural Science Foundation of Zhejiang Province of China under Grant No. Z1100822.

December 2010   Haiyang Hu
                                                                             Jie Shao

Organization

WISS Co-chairs

Haiyang Hu	Hangzhou Dianzi University, China
Jie Shao	The University of Melbourne, Australia

WISS Program Committee

Akinori Abe	Advanced Telecommunications Research Institute International, Japan
Frederic Andres	National Institute of Informatics, Japan
Richard Chbeir	Bourgogne University, France
Hisao Ishibuchi	Osaka Prefecture University, Japan
Hiroshi Ishikawa	Shizuoka University, Japan
Ivan Jordanov	University of Portsmouth, UK
Eleanna Kafeza	Athens University of Economics and Business, Greece
Epaminondas Kapetanios	University of Westminster, UK
Shiguo Lian	France Telecom R&D Beijing, China
Yasuo Matsuyama	Waseda University, Japan
Tomonobu Ozaki	Kobe University, Japan
Shigeo Sugimoto	University of Tsukuba, Japan
Takeshi Takenaka	National Institute of Advanced Industrial Science and Technology, Japan
Yuzuru Tanaka	Hokkaido University, Japan
Leng Theng	Nanyang Technological University, Singapore
Chutiporn Anutariya	Shinawatra University, Thailand
Youakim Badr	INSA-Lyon, France
Hsueh-hua Chen	National Taiwan University, Taiwan
Xi Chen	Nanjing University, China
Chi-hung Chi	Tsing Hua University, China
Constantine Coutras	Pace University, USA
Sally Jo Cunningham	Waikato University, New Zealand
Jim Dimarogonas	The MITRE Corporation, USA
Susan Elias	Sri Venkateswara College of Engineering, India
Fernando Ferri	IRPPS-CNR, Italy
Nobutada Fujii	Kobe University, Japan
Naoki Fukuta	Shizuoka University, Japan
Zbigniew Galias	AGH-University of Science and Technology, Poland
G.R. Gangadharan	Telematica Instituut, The Netherlands
Antoniya Georgieva	University of Oxford, UK

Chi Keong Goh	Advanced Technology Centre, Rolls-Royce, Singapore
Yoshiko Hanada	Kansai University, Japan
Hisashi Handa	Okayama University, Japan
Penny Hart	University of Portsmouth, UK
Toshiharu Hatanaka	Osaka University, Japan
Keiichi Horio	Kyushu Institute of Technology, Japan
Haiyang Hu	Zhejiang Gongshang University, China
Wendy W.Y. Hui	University of Nottingham at Ningbo, China
Patrick C.K. Hung	University of Ontario Institute of Technology, Canada
Hiroshi Igaki	Kobe University, Japan
Tsukasa Ishigaki	National Institute of Advanced Industrial Science and Technology, Japan
Kengo Katayama	Okayama University of Science, Japan
Ichiro Kobayashi	Ochanomizu University, Japan
Mario Koeppen	Kyushu Institute of Technology, Japan
P. Radha Krishna	SET Labs - Infosys Technologies Ltd., India
Carmen Ka Man Lam	Hong Kong Baptist University, Hong Kong
Raymond Y.K. Lau	City University of Hong Kong, Hong Kong
Chei Sian Lee	Nanyang Technological University, Singapore
Pierre Levy	The University of Ottawa, Canada
Tieyan Li	Institute for Infocomm Research I2R, Singapore
Fu-ren Lin	National Tsing Hua University, Taiwan
Wenyin Liu	City University of Hong Kong, Hong Kong
Edwin Lughofer	Fuzzy Logic Laboratorium Linz-Hagenberg, Austria
Zongwei Luo	University of Hong Kong, China
Yinghua Ma	Shanghai JiaoTong University, China
Huiye Ma	Eindhoven University of Technology, The Netherlands
Akira Maeda	Ritsumeikan University, Japan
Mitsunori Matsushita	Kansai University, Japan
Farid Meziane	Salford University, UK
Atsuyuki Morishima	University of Tsukuba, Japan
Koichi Moriyama	Osaka University, Japan
Sanaz Mostaghim	University of Karlsruhe, Germany
Yoichi Motomura	National Institute of Advanced Industrial Science, Japan

CISE Co-chairs

Ho-fung Leung	The Chinese University of Hong Kong, China
Shing-Chi Cheung	The Hong Kong University of Science and Technology, China
Dickson K.W. Chiu	Dickson Computer Systems, Hong Kong

CISE Program Committee

Patrick C.K. Hung	University of Ontario Institute of Technology, Canada
Eleanna Kafeza	Athens University of Economics and Business, Greece
Raymond Y.K. Lau	City University of Hong Kong, Hong Kong
Hideyasu Sasaki	Ritsumeikan University, Japan
Maggie M. Wang	The University of Hong Kong, Hong Kong
Yi Zhuang	Zhejian Gongshang University, China
Kuo-Ming Chao	Coventry University, UK
Lei Chen	HK University of Science and Technology, Hong Kong
Chi-hung Chi	Tsing Hua University, China
Samuel P.M. Choi	The Open University of Hong Kong, Hong Kong
Jerry Fjermestad	New Jersey's Science and Technology University, USA
Wai-Wa Fung	Information Security and Forensics Society, Hong Kong
Yunjun Gao	Singapore Management University, Singapore
Haiyang Hu	Zhejian Gongshang University, China
Wendy W.Y. Hui	University of Nottingham at Ningbo, China
Lucas Hui	University of Hong Kong, Hong Kong
Edward Hung	Hong Kong Polytechnic University, Hong Kong
Marijn Janssen	Delft University of Technology, The Netherlands
Irene Kafeza	Irene Law Office, Greece
Thomas Y. Kwok	IBM T.J.Watson Research Center, USA
Ka-man Lam	Hong Kong Baptist University, Hong Kong
Fu-ren Lin	National Tsing Hua University, Taiwan
An Liu	University of Science and Technology of China, China
Chengfei Liu	Swinburne University of Technology, Australia
Wenyin Liu	City University of Hong Kong, Hong Kong
Huiye Ma	Centrum voor Wiskunde en Informatica, The Netherlands
Zakaria Maamar	Zayed University, United Arab Emirates
Radha Krishna Pisipati	Infosys Technologies Ltd., India

Dumitru Roman	University of Innsbruck, Austria
Jianping Wang	City University of Hong Kong, Hong Kong
Raymond Wong	National ICT, Australia
Jian Yang	Macquarie University, Australia
Benjamin Yen	University of Hong Kong, Hong Kong
Xiaohui Zhao	Swinburne University of Technology, Australia
Chi Keong Goh	Advanced Technology Centre, Rolls-Royce, Singapore
Yoshiko Hanada	Kansai University, Japan
Hisashi Handa	Okayama University, Japan
Penny Hart	University of Portsmouth, UK
Toshiharu Hatanaka	Osaka University, Japan
Keiichi Horio	Kyushu Institute of Technology, Japan
Haiyang Hu	Zhejiang Gongshang University, China
Wendy W.Y. Hui	University of Nottingham at Ningbo, China
Patrick C.K. Hung	University of Ontario Institute of Technology, Canada
Hiroshi Igaki	Kobe University, Japan
Tsukasa Ishigaki	National Institute of Advanced Industrial Science and Technology, Japan
Kengo Katayama	Okayama University of Science, Japan
Ichiro Kobayashi	Ochanomizu University, Japan
Mario Koeppen	Kyushu Institute of Technology, Japan
P. Radha Krishna	SET Labs - Infosys Technologies Ltd., India
Carmen Ka Man Lam	Hong Kong Baptist University, Hong Kong
Raymond Y.K. Lau	City University of Hong Kong, Hong Kong
Chei Sian Lee	Nanyang Technological University, Singapore
Pierre Levy	The University of Ottawa, Canada
Tieyan Li	Institute for Infocomm Research (I2R), Singapore
Fu-ren Lin	National Tsing Hua University, Taiwan
Wenyin Liu	City University of Hong Kong, Hong Kong
Edwin Lughofer	Fuzzy Logic Laboratorium Linz-Hagenberg, Austria
Zongwei Luo	University of Hong Kong, China
Yinghua Ma	Shanghai JiaoTong University, China
Huiye Ma	Eindhoven University of Technology, The Netherlands
Akira Maeda	Ritsumeikan University, Japan
Mitsunori Matsushita	Kansai University, Japan
Farid Meziane	Salford University, UK
Atsuyuki Morishima	University of Tsukuba, Japan
Koichi Moriyama	Osaka University, Japan
Sanaz Mostaghim	University of Karlsruhe, Germany
Yoichi Motomura	National Institute of Advanced Industrial Science, Japan

MBC General Chairs

Yi Zhuang   Zhejiang Gongshang University, China
Hua Hu   Hangzhou Dianzi University, China

MBC Program Chairs

Haiyang Hu   Hangzhou Dianzi University, China
Jie Shao   The University of Melbourne, Australia

MBC Program Committee

Patrick C.K. Hung   University of Ontario Institute of Technology,
                              Canada
Samuel P.M. Choi   The Open University of Hong Kong, China
Eleanna Kafeza   Athens University of Economics and
                              Commerce, Greece
Baihua Zheng   Singapore Management University, Singapore
Edward Hung   Hong Kong Polytechnic University, China
Ho-fung Leung   Chinese University of HongKong, China
Zakaria Maamar   Zayed University, U.A.E.
Stefan Voss   University of Hamburg, Germany
Cuiping Li   Renmin University, China
Chi-hung Chi   National Tsing Hua University, Taiwan, China
Stephen Yang   National Central University, Taiwan, China
Ibrahim Kushchu   Mobile Government Consortium International,
                              UK
Jidong Ge   Nanjing University, China
Huiye Ma   CWI, The Netherlands
Pirkko Walden   Abo Akademi University, Finland
Raymond Wong   National ICT, Australia
Lidan Shou   Zhejiang University, China
Matti Rossi   Helsinki School of Economics, Finland
Achim Karduck   Furtwangen University, Germany
Xiangmin Zhou   CSIRO Canberra ICT Center, Australia
Hoyoung Jeung   EPFL, Switzerland
Zaiben Chen   The University of Queensland, Australia
Ruopeng Lu   SAP Research CEC Brisbane, Australia
Quanqing Xu   National University of Singapore, Singapore
Mohammed Eunus Ali   The University of Melbourne, Australia
Zhenjiang Lin   Chinese University of Hong Kong, China

Table of Contents

The 1st International Symposium on Web Intelligent Systems and Services(WISS 2010)

Decision and e-markets

Rules and XML

Web Service Intelligence

Semantics and Services

Analyzing Web Resources

Engineering Web Systems

Intelligent Web Applications

Web Communities and Personalization

The 1st International Workshop on Cloud Information System Engineering(CISE 2010)

The 2nd International Workshop on Mobile Business Collaboration (MBC2010)