Preface

Dear delegates, friends and members of the growing KES professional community, welcome to the proceedings of the 9th International Conference on Knowledge-Based and Intelligent Information and Engineering Systems hosted by La Trobe University in Melbourne Australia.

The KES conference series has been established for almost a decade, and it continues each year to attract participants from all geographical areas of the world, including Europe, the Americas, Australasia and the Pacific Rim. The KES conferences cover a wide range of intelligent systems topics. The broad focus of the conference series is the theory and applications of intelligent systems. From a pure research field, intelligent systems have advanced to the point where their abilities have been incorporated into many business and engineering application areas. KES 2005 provided a valuable mechanism for delegates to obtain an extensive view of the latest research into a range of intelligent-systems algorithms, tools and techniques. The conference also gave delegates the chance to come into contact with those applying intelligent systems in diverse commercial areas. The combination of theory and practice represented a unique opportunity to gain an appreciation of the full spectrum of leading-edge intelligent-systems activity.

The papers for KES 2005 were either submitted to invited sessions, chaired and organized by respected experts in their fields, or to a general session, managed by an extensive International Program Committee, or to the Intelligent Information Hiding and Multimedia Signal Processing (IIHMSP) Workshop, managed by an International Workshop Technical Committee. Whichever route they came through, all papers for KES 2005 were thoroughly reviewed. The adoption by KES of the PROSE Publication Review and Organisation System software greatly helped to improve the transparency of the review process and aided quality control.

In total, 1382 papers were submitted for KES 2005, and a total of 688 papers were accepted, giving an acceptance rate of just under 50%. The proceedings, published this year by Springer, run to more than 5000 pages. The invited sessions are a valuable feature of KES conferences, enabling leading researchers to initiate sessions that focus on innovative new areas. A number of sessions in new emerging areas were introduced this year, including Experience Management, Emotional Intelligence, and Smart Systems. The diversity of the papers can be judged from the fact that there were about 100 technical sessions in the conference program. More than 400 universities worldwide participated in the conference making it one of the largest conferences in the area of intelligent systems. As would be expected, there was good local support with the participation of 20 Australian universities. There was a significant business presence, provided by the involvement of a number of industry bodies, for example, CSIRO Australia, DSTO Australia, Daewoo South Korea and NTT Japan.

KES International gratefully acknowledges the support provided by La Trobe University in hosting this conference. We acknowledge the active interest and support from La Trobe University’s Vice Chancellor and President, Prof. Michael Osborne, Dean of
the Faculty of Law and Management, Prof. Raymond Harbridge, Dean of the Faculty of Science and Technology, Prof. David Finlay, and Head of the School of Business, Prof. Malcolm Rimmer. KES International also gratefully acknowledges the support provided by Emeritus Prof. Greg O’Brien.

A tremendous amount of time and effort goes into the organization of a conference of the size of KES 2005. The KES community owes a considerable debt of gratitude to the General Chair Prof. Rajiv Khosla and the organizing team at La Trobe University for their huge efforts this year in bringing the conference to a successful conclusion. As the conference increases in size each year the organizational effort needed increases and we would like to thank Prof. Khosla and his colleagues for coping efficiently with the largest KES conference to date.

We would like to thank the Invited Session Chairs, under the leadership and guidance of Prof. Lakhmi Jain and Prof. Rajiv Khosla for producing high-quality sessions on leading-edge topics. We would like to thank the KES 2005 International Program Committee for undertaking the considerable task of reviewing all of the papers submitted for the conference. We express our gratitude to the high-profile keynote speakers for providing talks on leading-edge topics to inform and enthuse our delegates. A conference cannot run without authors to write papers. We thank the authors, presenters and delegates to KES 2005 without whom the conference could not have taken place. Finally we thank the administrators, caterers, hoteliers, and the people of Melbourne for welcoming us and providing for the conference.

We hope you found KES 2005 a worthwhile, informative and enjoyable experience.

July 2005

Bob Howlett
Rajiv Khosla
Lakhmi Jain
KES 2005 Conference Organization

General Chair

Rajiv Khosla  
Business Systems and Knowledge Modelling Laboratory  
School of Business  
La Trobe University  
Melbourne, Victoria 3086  
Australia

Conference Founder and Honorary Program Committee Chair

Lakhmi C. Jain  
Knowledge-Based Intelligent Information and Engineering Systems Centre  
University of South Australia, Australia

KES Executive Chair

Bob Howlett  
Intelligent Systems and Signal Processing Laboratories/KTP Centre  
University of Brighton, UK

KES Journal General Editor

Bogdan Gabrys  
University of Bournemouth, UK

Local Organizing Committee

Malcolm Rimmer – Chair, School of Business, La Trobe University  
Rajiv Khosla, Selena Lim, Brigitte Carrucan, Monica Hodgkinson, Marie Fenton,  
Maggie Van Tonder, and Stephen Muir  
La Trobe University, Melbourne, Australia

KES 2005 Web Page Design Team

Joe Hayes, Anil Varkey Samuel, Mehul Bhatt, Rajiv Khosla  
La Trobe University, Melbourne, Australia
KES 2005 Liaison and Registration Team

Rajiv Khosla, Selena Lim, Brigitte Carrucan, Jodie Kennedy, Maggie Van Tonder, Marie Fenton, Colleen Stoate, Diane Kraal, Cary Slater, Petrus Usmanij, Chris Lai, Rani Thanacoody, Elisabeth Tanusasmita, George Plocinski
La Trobe University, Melbourne, Australia

KES 2005 Proceedings Assembly Team

Rajiv Khosla
Selena Lim
Monica Hodgkinson
George Plocinski
Maggie Van Tonder
Colleen Stoate
Anil Varkey Samuel
Marie Fenton
Mehul Bhatt
Chris Lai
Petrus Usmanij
International Program Committee

Hussein Abbass, University of New South Wales, Australia
Akira Asano, Hiroshima University, Japan
Robert Babuska, Delft University of Technology, The Netherlands
Patrick Bosc, IRISA/ENSSAT, France
Pascal Bouvry, Luxembourg University of Applied Sciences, Luxembourg
Krzysztof Cios, University of Colorado, USA
Carlos A. Coello, LANIA, Mexico
Ernesto Damiani, University of Milan, Italy
Da Deng, University of Otago, New Zealand
Vladan Devedzic, University of Belgrade, Serbia and Montenegro
Vladimir Gorodetski, Russian Academy of Sciences, Russia
Manuel Grana, UPV/EHU, Spain
Lars Kai Hansen, Technical University of Denmark, Denmark
Yuzo Hirai, University of Tsukuba, Japan
Daniel Howard, QinetiQ, UK
Tzung-Pei Hong, National University of Kaohsiung, Taiwan
Hisao Ishibuchi, Osaka Prefecture University, Japan
Naohiro Ishii, Aichi Institute of Technology, Japan
Seong-Joon Yoo, Sejong University, Korea
Nikos Karacapilidis, University of Patras, Greece
Rajiv Khosla, La Trobe University, Australia
Laszlo T. Koczy, Budapest and Széchenyi István University, Hungary
Andrew Kusiak, University of Iowa, USA
W.K. Lai, MIMOS Berhad, Malaysia
Ian C. Parmee, University of the West of England, UK
Dong Hwa Kim, Hanbat National University, Korea
Jingli Cao, La Trobe University, Australia
Da Ruan, Belgian Nuclear Research Centre, Belgium
Ang Yang, University of New South Wales, Australia
Adrian Stoica, NASA Jet Propulsion Laboratory, USA
Janusz Kacprzyk, Polish Academy of Sciences, Poland
Vijayan Asari, Old Dominion University, USA
Raymond Lee, Hong Kong Polytechnic University, Hong Kong, China
Chee-Peng Lim, University of Science, Malaysia
Ignac Lovrek, University of Zagreb, Croatia
Bob McKay, University of NSW, Australia
Dan C. Marinescu, University of Central Florida, USA
Radko Mesiar, Slovak Technical University, Slovakia
Hirofumi Nagashino, University of Tokushima, Japan
Ciprian Daniel Neagu, University of Bradford, UK
Ngoc Thanh Nguyen, Wroclaw University of Technology, Poland
Toyoaki Nishida, University of Tokyo, Japan
Vasile Palade, Oxford University, UK
John A. Rose, University of Tokyo, Japan
Rajkumar Roy, Cranfield University, UK
Udo Seiffert, Leibniz Institute of Plant Genetics and Crop Plant Research, Germany
Flavio Soares Correa da Silva, University of Sao Paulo, Brazil
Von-Wun Soo, National Tsing Hua University, Taiwan
Sarawut Sujitjorn, Suranaree University of Technology, Thailand
Takushi Tanaka, Fukuoka Institute of Technology, Japan
Eiichiro Tazaki, University of Yokohama, Japan
Jon Timmis, University of Kent, UK
Jim Torresen, University of Oslo, Norway
Andy M. Tyrrell, University of York, UK
Eiji Uchino, University of Yamaguchi, Japan
Jose Luis Verdegay, University of Granada, Spain
Dianhui Wang, La Trobe University, Australia
Junzo Watada, Waseda University, Japan
Xin Yao, University of Birmingham, UK
Boris Galitsky, University of London, UK
Bogdan Gabrys, Bournemouth University, UK
Norbert Jesse, Universität Dortmund, Germany
Keiichi Horio, Kyushu Institute of Technology, Japan
Bernd Reusch, University of Dortmund, Germany
Nadia Berthouze, University of Aizu, Japan
Hideyuki Sawada, Kagawa University, Japan
Yasue Mitsukura, University of Okayama, Japan
Dharmendra Sharma, University of Canberra, Australia
Adam Grzech, Wroclaw University of Technology, Poland
Mircea Negoita, Wellington Institute of Technology, New Zealand
Hongen Lu, La Trobe University, Australia
Kosuke Sekiyama, University of Fukui, Japan
Raquel Flórez-López, Campus de Vegazana, Spain
Eugénio Oliveira, University of Porto, Portugal
Roberto Frias, University of Porto, Portugal
Maria Virvou, University of Piraeus, Greece
Daniela Zambarbieri, Università di Pavia, Italy
Andrew Skabar, La Trobe University, Australia
Zhao hao Sun, University of Wollongong, Australia
Koren Ward, University of Wollongong, Australia
Invited Session Chairs Committee

Krzysztof Cios, University of Denver, USA
Toyoaki Nishida, University of Tokyo, Japan
Ngoc Thanh Nguyen, Wroclaw University of Technology, Poland
Tzung-Pei Hong, National University of Kaohsiung, Taiwan
Yoshinori Adachi, Chubu University, Japan
Nobuhiro Inuzuka, Nagoya Institute of Technology, Japan
Naohiro Ishii, Aichii Institute of Technology, Japan
Yuji Iwahori, Chubu University, Japan
Tai-hoon Kim, Security Engineering Research Group (SERG), Korea
Daniel Howard, QinetiQ, UK
Mircea Gh. Negoita, Wellington Institute of Technology, New Zealand
Akira Suyama, University of Tokyo, Japan
Dong Hwa Kim, Hanbat National University, Korea
Hussein A. Abbas, University of New South Wales, Australia
William Grosky, University of Michigan-Dearborn, USA
Elisa Bertino, Purdue University, USA
Maria L. Damiani, University of Milan, Italy
Kosuke Sekiyama, University of Fukui, Japan
Seong-Joon Yoo, Sejong University, Korea
Hirokazu Taki, Wakayama University, Japan
Satoshi Hori, Institute of Technologists, Japan
Hideyuki Sawada, Kagawa University, Japan
Vicenc Torra, Artificial Intelligence Research Institute, Spain
Maria Vamrell, Artificial Intelligence Research Institute, Spain
Manfred Schmitt, Technical University of Munich, Germany
Denis Helic, Graz University of Technology, Austria
Yoshiteru Ishida, Toyohashi University of Technology, Japan
Giuseppina Passiante, University of Lecce, Italy
Ernesto Damiani, University of Milan, Italy
Susumu Kunifuj, Japan Advanced Institute of Science and Technology, Japan
Motoki Miura, Japan Advanced Institute of Science and Technology, Japan
James Liu, Hong Kong Polytechnic University, Hong Kong, China
Honghua Dai, Deakin University, Australia
Pascal Bouvry, Luxembourg University, Luxembourg
Gregoire Danoy, Luxembourg University, Luxembourg
Ojoung Kwon, California State University, USA
Jun Munemori, Wakayama University, Japan
Takashi Yoshino, Wakayama University, Japan
Takaya Yuizono, Shimane University, Japan
Behrouz Homayoun Far, University of Calgary, Canada
Toyohide Watanabe, Nagoya University, Japan
Dharmendra Sharma, University of Canberra, Australia
Dat Tran, University of Canberra, Australia
Kim Le, University of Canberra, Australia
Takumi Ichimura, Hiroshima City University, Japan
K Yoshida, St. Marianna University, Japan
Phill Kyu Rhee, Inha University, Korea
Chong Ho Lee, Inha University, Korea
Mikhail Prokopenko, CSIRO ICT Centre, Australia
Daniel Polani, University of Hertfordshire, UK
Dong Chun Lee, Howon University, Korea
Dawn E. Holmes, University of California, USA
Kok-Leong Ong, Deakin University, Australia
Vincent Lee, Monash University, Australia
Wee-Keong Ng, Nanyang Technological University
Gwi-Tae Park, Korea University, Korea
Giles Oatley, University of Sunderland, UK
Sangkyun Kim, Korea Information Engineering Service, Korea
Hong Joo Lee, Daewoo Electronics Corporation, Korea
Ryohei Nakano, Nagoya Institute of Technology, Japan
Kazumi Saito, NTT Communication Science Laboratories, Japan
Kazuhiko Tsuda, University of Tsukuba, Japan
Torbjørn Nordgård, Norwegian University of Science and Technology, Norway
Øystein Nytrø, Norwegian University of Science and Technology, Norway
Amund Tveit, Norwegian University of Science and Technology, Norway
Thomas Brox Røst, Norwegian University of Science and Technology, Norway
Manuel Graña, Universidad Pais Vasco, Spain
Richard Duro, Universidad de A Coruña, Spain
Kazumi Nakamatsu, University of Hyogo, Japan
Jair Minoro Abe, University of Sao Paulo, Brazil
Hiroko Shoji, Chuo University, Japan
Yukio Ohsawa, University of Tsukuba, Japan
Da Deng, University of Otago, New Zealand
Irena Koprinska, University of Sydney, Australia
Eiichiro Tazaki, University of Yokohama, Japan
Kenneth J. Mackin, Tokyo University of Information Sciences, Japan
Lakhmi Jain, University of South Australia, Australia
Tetsuo Fuchino, Tokyo Institute of Technology, Japan
Yoshiyuki Yamashita, Tohoku University, Japan
Martin Purvis, University of Otago, New Zealand
Mariusz Nowostawski, University of Otago, New Zealand
Bastin Tony Roy Savarimuthu, University of Otago, New Zealand
Norio Baba, Osaka Kyoiku University, Japan
Junzo Watada, Waseda University, Japan
Petra Povalej, Laboratory for System Design, Slovenia
Peter Kokol, Laboratory for System Design, Slovenia
Woochun Jun, Seoul National University of Education, Korea
Andrew Kusiak, University of Iowa, USA
Hanh Pham, State University of New York, USA
IIHMSP Workshop Organization Committee

General Co-chairs

Jeng-Shyang Pan  
National Kaohsiung University of Applied Sciences, Taiwan  
Lakhmi C. Jain  
University of South Australia, Australia

Program Committee Co-chairs

Wai-Chi Fang  
California Institute of Technology, USA  
Eiji Kawaguchi  
Keio University, Japan

Finance Chair

Jui-Fang Chang  
National Kaohsiung University of Applied Sciences, Taiwan

Publicity Chair

Kang K. Yen  
Florida International University, USA

Registration Chair

Yan Shi  
Tokai University, Japan

Electronic Media Chair

Bin-Yih Liao  
National Kaohsiung University of Applied Sciences, Taiwan

Publication Chair

Hsiang-Cheh Huang  
National Chiao Tung University, Taiwan
Local Organizing Chair

R. Khosla
La Trobe University, Australia

Asia Liaison

Yoiti Suzuki
Tohoku University, Japan

North America Liaison

Yun Q. Shi
New Jersey Institute of Technology, USA

Europe Liaison

R.J. Howlett
University of Brighton, UK
KES 2005 Reviewers

H. Abbass, University of New South Wales, Australia
J.M. Abe, University of Sao Paulo, Brazil
Y. Adachi, Chubu University, Japan
F. Alpaslan, Middle East Technical University, Turkey
P. Andreae, Victoria University, New Zealand
A. Asano, Hiroshima University, Japan
K.V. Asari, Old Dominion University, USA
N. Baba, Osaka-Kyoiku University, Japan
R. Babuska, Delft University of Technology, The Netherlands
P. Bajaj, G.H. Raisoni College of Engineering, India
A. Bargiela, Nottingham Trent University, UK
M. Bazu, Institute of Microtechnology, Romania
N. Berthouze, University of Aizu, Japan
E. Bertino, Purdue University, USA
Y. Bodyanskiy, Kharkiv National University of Radioelectronics, Ukraine
P. Bosc, IRISA/ENSSAT, France
P. Bouvry, Luxembourg University, Luxembourg
P. Burrell, South Bank University, UK
J. Cao, La Trobe University, Australia
B. Chakraborty, Iwate Prefectural University, Japan
Y.-W. Chen, Ryukyu University, Japan
Y.-H. Chen-Burger, University of Edinburgh, UK
V. Cherkassky, University of Minnesota, USA
K. Cios, University at Denver, USA
C.A. Coello, LANIA, Mexico
G. Coghill, University of Auckland, New Zealand
D. Corbett, SAIC, USA
D.W. Corne, University of Exeter, UK
D. Cornforth, Charles Sturt University, Australia
F.S.C. da Silva, University of Sao Paulo, Brazil
H. Dai, Deakin University, Australia
E. Damiani, University of Milan, Italy
M.L. Damiani, University of Milan, Italy
G. Danoy, Luxembourg University, Luxembourg
K. Deep, Indian Institute of Technology Roorkee, India
D. Deng, University of Otago, New Zealand
V. Devedzic, University of Belgrade, Serbia and Montenegro
D. Dubois, Université Paul Sabatier, France
R. Duro, Universidad de A Coruña, Spain
D. Earl, Oak Ridge National Laboratory, USA
B. Far, University of Calgary, Canada
M. Fathi, National Magnet Laboratory, USA
R. Flórez-López, Campus de Vegazana, Spain
M. Frean, Victoria University of Wellington, New Zealand
R. Frias, University of Porto, Portugal
T. Fuchino, Tokyo Institute of Technology, Japan
P. Funk, Mälardalen University, Sweden
B. Gabrys, University of Bournemouth, UK
B. Galitsky, University of London, UK
T. Gedeon, Murdoch University, Australia
M. Gen, Waseda University, Japan
A. Ghosh, ISICAI, India
V. Gorodetski, Russian Academy of Sciences, Russia
M. Grana, Facultad de Informatica UPV/EHU, Spain
W. Grosky, University of Michigan-Dearborn, USA
A. Grzech, Wroclaw University of Technology, Poland
D. Gwaltney, NASA George C. Marshall Space Flight Center, USA
L.K. Hansen, Technical University of Denmark, Denmark
C.J. Harris, University of Southampton, UK
D. Helic, Graz University of Technology Austria
L. Hildebrand, University of Dortmund, Germany
Y. Hirai, University of Tsukuba, Japan
D.E. Holmes, University of California, USA
B. Homayoun, Far University of Calgary, Canada
T.-P. Hong, National University of Kaohsiung, Taiwan
S. Hori, Institute of Technologists, Japan
K. Horio, Kyushu Institute of Technology, Japan
D. Howard, QinetiQ, UK
B. Howlett, University of Brighton, UK
M.-P. Huget, University of Savoie, France
H. Iba, University of Tokyo, Japan
T. Ichimura, Hiroshima City University, Japan
N. Inuzuka, Nagoya Institute of Technology, Japan
H. Ishibuchi, Osaka Prefecture University, Japan
Y. Ishida, Toyohashi University of Technology, Japan
N. Ishii, Aichi Institute of Technology, Japan
Y. Iwahori, Chubu University, Japan
L. Jain, University of South Australia, Australia
M.M. Jamshidi, University of New Mexico, USA
N. Jesse, Universität Dortmund, Germany
S. Joo, Sejong University, Korea
W. Jun, Seoul National University of Education, Korea
J. Kacprzyk, Polish Academy of Sciences, Poland
N. Karacapilidis, University of Patras, Greece
V. Kecman, Auckland University, New Zealand
R. Khosla, La Trobe University, Australia
D.H. Kim, Hanbat National University, Korea
S. Kim, Korea Information Engineering Service, Korea
T.-H. Kim, Security Engineering Research Group (SERG), Korea
L.T. Koczy, Budapest University of Technology and Economics, Hungary
P. Kokol, Laboratory for System Design, Slovenia
A. Konar, Jadavpur University, India
I. Koprinska, University of Sydney, Australia
H. Koshimizu, Chukyo University, Japan
S. Kunifuji, Japan Advanced Institute of Science and Technology, Japan
A. Kusiak, University of Iowa, USA
O. Kwon, California State University, USA
W.K. Lai, MIMOS Berhad, Malaysia
P.L. Lanzi, Polytechnic Institute, Italy
K. Le, University of Canberra, Australia
C.H. Lee, Inha University, Korea
D.C. Lee, Howon University, Korea
H.J. Lee, Daewoo Electronics Corporation, Korea
R. Lee, Hong Kong Polytechnic University, Hong Kong, China
V. Lee, Monash University, Australia
Q. Li, La Trobe University, Australia
C.-P. Lim, University of Science, Malaysia
S. Lim, La Trobe University, Australia
J. Liu, Hong Kong Polytechnic University, Hong Kong, China
I. Lovrek, University of Zagreb, Croatia
H. Lu, La Trobe University, Australia
B. MacDonald, Auckland University, New Zealand
K.J. Mackin, Tokyo University of Information Sciences, Japan
L. Magdalena-Layos, EUSFLAT, Spain
D.C. Marinescu, University of Central Florida, USA
F. Masulli, University of Pisa, Italy
J. Mazumdar, University of South Australia, Australia
B. McKay, University of NSW, Australia
S. McKinlay, Wellington Institute of Technology, New Zealand
R. Mesiar, Slovak Technical University, Slovakia
J. Mira, UNED, Spain
Y. Mitsukura, University of Okayama, Japan
M. Miura, Japan Advanced Institute of Science and Technology, Japan
J. Munemori, Wakayama University, Japan
H. Nagashino, University of Tokushima, Japan
N. Nagata, Chukyo University, Japan
K. Nakajima, Tohoku University, Japan
K. Nakamatsu, University of Hyogo, Japan
R. Nakano, Nagoya Institute, Japan
T. Nakashima, Osaka University, Japan
L. Narasimhan, University of Newcastle, Australia
V.E. Neagoe, Technical University, Romania
C.D. Neagu, University of Bradford, UK
M.G. Negoita, WelTec, New Zealand
W.-K. Ng, Nanyang Technological University, Singapore
C. Nguyen, Catholic University of America, USA
N.T. Nguyen, Wroclaw University of Technology, Poland
T. Nishida, University of Tokyo, Japan
T. Nordgård, Norwegian University of Science and Technology, Norway
M. Nowostawski, University of Otago, New Zealand
Ø. Nytrø, Norwegian University of Science and Technology, Norway
G. Oatley, University of Sunderland, UK
Y. Ohsawa, University of Tsukuba, Japan
E. Oliveira, University of Porto, Portugal
K.-L. Ong, Deakin University, Australia
N.R. Pal, Indian Statistical Institute, India
V. Palade, Oxford University, UK
G.-T. Park, Korea University, Korea
I.C. Parmee, University of the West of England, UK
G. Passiante, University of Lecce, Italy
C.-A. Peña-Reyes, Swiss Federal Institute of Technology - EPFL, Switzerland
H. Pham, State University of New York, USA
D. Polani, University of Hertfordshire, UK
T. Popescu, National Institute for Research and Development Informatic, Italy
P. Povalej, Laboratory for System Design, Slovenia
M. Prokopenko, CSIRO ICT Centre, Australia
M. Purvis, University of Otago, New Zealand
G. Resconi, Catholic University, Italy
B. Reusch, University of Dortmund, Germany
P.K. Rhee, Inha University, Korea
J.A. Rose, University of Tokyo, Japan
T.B. Røst, Norwegian University of Science and Technology, Norway
E. Roventa, York University, Canada
R. Roy, Cranfield University, UK
D. Ruan, Belgian Nuclear Research Centre, Belgium
A. Saha, NCD, Papua New Guinea
K. Saito, NTT Communication Science Laboratories, Japan
T. Samatsu, Kyushu Tokai University, Japan
E. Sanchez, Université de la Méditerranée, France
B.T.R. Savarimuthu, University of Otago, New Zealand
H. Sawada, Kagawa University, Japan
M. Schmitt, Technical University of Munich, Germany
M. Schoenauer, INRIA, France
U. Seiffert, Leibniz Institute of Plant Genetics and Crop Plant Research Gatersleben, Germany
K. Sekiyama, University of Fukui, Japan
D. Sharma, University of Canberra, Australia
H. Shoji, Chuo University, Japan
A. Skabar, La Trobe University, Australia
B. Smyth, University College Dublin, Ireland
V.-W. Soo, National Tsing Hua University, Taiwan
A. Stoica, NASA Propulsion Jet Laboratory, USA
M.R. Stytz, Yamaguchi University, Japan
N. Suetake, Yamaguchi University, Japan
S. Sujitjorn, Suranaree University of Technology, Thailand
Z. Sun, University of Wollongong, Australia
A. Suyama, University of Tokyo, Japan
H. Taki, Wakayama University, Japan
T. Tanaka, Fukuoka Institute of Technology, Japan
M. Tanaka-Yamawaki, Tottori University, Japan
E. Tazaki, University of Yokohama, Japan
S. Thatcher, University of South Australia, Australia
P. Theodor, National Institute for Research and Development Informatics, Romania
J. Timmis, University of Kent at Canterbury, UK
V. Torra, Artificial Intelligence Research Institute, Spain
J. Torresen, University of Oslo, Norway
D. Tran, University of Canberra, Australia
K. Tsuda, University of Tsukuba, Japan
C. Turchetti, Università Politecnica delle Marche, Italy
A. Tveit, Norwegian University of Science and Technology, Norway
J. Tweedale, Defence Science and Technology Organization, Australia
A.M. Tyrrell, University of York, UK
E. Uchino, University of Yamaguchi, Japan
A. Uncini, University of Rome, Italy
P. Urlings, Defence Science and Technology Organization, Australia
M. Vamrell, Artificial Intelligence Research Institute, Spain
J.L. Verdegay, University of Granada, Spain
M. Virvou, University of Piraeus, Greece
S. Walters, University of Brighton, UK
D. Wang, La Trobe University, Australia
L. Wang, Nanyang Technical University, Singapore
P. Wang, Temple University, USA
K. Ward, University of Wollongong, Australia
J. Watada, Waseda University, Japan
K. Watanabe, Saga University, Japan
T. Watanabe, Nagoya University, Japan
T. Yamakawa, Kyushu Institute of Technology, Japan
Y. Yamashita, Tohoku University, Japan
A. Yang, University of New South Wales, Australia
X. Yao, University of Birmingham, UK
S.-J. Yoo, Sejong University, Korea
K. Yoshida, Kyushu Institute of Technology, Japan
T. Yoshino, Wakayama University, Japan
T. Yuizono, Shimane University, Japan
L. Zadeh, Berkeley University of California, USA
D. Zambarbieri, Università di Pavia, Italy
X. Zha, National Institute of Standards and Technology, USA
KES 2005 Keynote Speakers

1. **Professor Jun Liu**, Harvard University, MA, USA  
   **Topic:** From Sequence Information to Gene Expression

2. **Professor Ron Sun**, Rensselaer Polytechnic Institute, New York, USA  
   **Topic:** From Hybrid Systems to Hybrid Cognitive Architectures

3. **Professor Jiming Liu**, Hong Kong Baptist University, Hong Kong, China  
   **Topic:** Towards Autonomy Oriented Computing (AOC):  
   Formulating Computational Systems with Autonomous Components

4. **Professor Toyoaki Nishida**, Kyoto University and Tokyo University, Japan  
   **Topic:** Acquiring, Accumulating, Transforming, Applying,  
   and Understanding Conversational Quanta

5. **Professor Marimuthu Palaniswami**, University of Melbourne, Australia  
   **Topic:** Convergence of Smart Sensors and Sensor Networks
Knowledge-Based Intelligent Information and Engineering Systems
9th International Conference, KES 2005, Melbourne, Australia, September 14-16, 2005, Proceedings, Part II
Khosla, R. (Ed.)
2005, CLVIII, 1376 p. With online files/update. In 2 volumes, not available separately., Softcover
ISBN: 978-3-540-28895-4