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LNAI 3215

# Knowledge-Based Intelligent Information and Engineering Systems

8th International Conference, KES 2004  
Wellington, New Zealand, September 2004  
Proceedings, Part III

**3**  
Part III

 Springer

TP182-53

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2004  
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# Knowledge-Based Intelligent Information and Engineering Systems

8th International Conference, KES 2004  
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Springer



E200404690

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Library of Congress Control Number: 2004112584

CR Subject Classification (1998): I.2, H.4, H.3, J.1, H.5, K.6, K.4

ISSN 0302-9743

ISBN 3-540-23205-2 Springer Berlin Heidelberg New York

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springeronline.com

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Printed in Germany

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India  
Printed on acid-free paper SPIN: 11325567 06/3142 5 4 3 2 1 0

**Lecture Notes in Artificial Intelligence**

**3215**

Edited by J. G. Carbonell and J. Siekmann

**Subseries of Lecture Notes in Computer Science**

## Preface

We were very pleased to once again extend to the delegates and, we are pleased to say, our friends the warmest of welcomes to the 8<sup>th</sup> International Conference on Knowledge-Based Intelligent Information and Engineering Systems at Wellington Institute of Technology in Wellington, New Zealand.

The KES conferences attract a wide range of interest. The broad focus of the conference series is the theory and applications of computational intelligence and emergent technologies. Once purely a research field, intelligent systems have advanced to the point where their abilities have been incorporated into many conventional application areas. The quest to encapsulate human knowledge and capabilities in domains such as reasoning, problem solving, sensory analysis, and other complex areas has been avidly pursued. This is because it has been demonstrated that these abilities have definite practical applications. The techniques long ago reached the point where they are being exploited to provide commercial advantages for companies and real beneficial effects on profits. KES 2004 provided a valuable mechanism for delegates to obtain a profound view of the latest intelligent systems research into a range of algorithms, tools and techniques. KES 2004 also gave delegates the chance to come into contact with those applying intelligent systems in diverse commercial areas. The combination of theory and practice represents a uniquely valuable opportunity for appreciating the full spectrum of intelligent-systems activity and the “state of the art”.

For the first time in the short history of KES, the conference came to New Zealand. KES 2004 aimed at providing not only a high-tech forum for presenting results on theory and applications of intelligent systems and techniques, but focused on some significant emerging intelligent technologies including evolvable hardware (*EHW*), evolutionary computation in computational intelligence, *DNA* computing, artificial immune systems (*AIS*), bioinformatics using intelligent and machine learning techniques, and intelligent Web mining.

The impressive audience of the KES conferences series was confirmed, and we broke some KES records, such as: about 500 attendants from 55 countries, and for the first time in the conference history, more than one third of the participant presenting high-quality papers were Ph.D. students from all over the world. This last detail is relevant for the major role played by the KES organization and conferences with respect to support and education for practitioners who are acting in the area of intelligent systems and emergent technologies.

Thanking all the individuals who contributed to a conference like this is always fraught with difficulty, as someone is always unintentionally omitted. The WelTec team, including Gary Hartley, the conference administrator, Michael Hyndman, the conference Web page designer, and the Local Organizing Committee, chaired by Dr. Linda Sissons, WelTec CEO, all worked hard to bring the conference to a high level of organization. We would like to arrange a special appreciation on behalf of the KES 2004 General Chair for the hard work done by David Pritchard from the WelTec Centre for Computational Intelligence. We would like to extend our praise and thanks to them.

An important distinction of the KES conferences over others is the Invited Session Program. Invited sessions give new and dedicated researchers an opportunity to present a “mini-conference” of their own. By this means they can bring to public view a topic at the leading edge of intelligent science and technology. This mechanism for feeding new blood into the research is immensely valuable, and strengthens KES conferences enormously. For this reason we must extend thanks to the Invited Session Chairs who contributed in this way.

We would like to thank the KES 2004 International Program Committee and the KES 2004 Reviewers Team who were essential in providing their reviews of the papers. We are immensely grateful for this service, without which the conference would not have been possible. We thank the high-profile keynote speakers and invited tutorial lecturers for providing interesting and informed talks to catalyze subsequent discussions.

In some ways, the most important contributors to KES 2004 were the authors, presenters and delegates without whom the conference could not have taken place. So we thank them for their contributions. Finally we thank the “unsung heroes” the army of administrators, caterers, hoteliers, and the people of Wellington, for welcoming us and providing for the conference.

We hope the attendees all found KES 2004 a worthwhile, informative and enjoyable experience. We hope to see them in Melbourne for KES 2005, which will be hosted by La Trobe University, Melbourne, Australia.

June 2004

Prof. Mircea Gh. Negoita  
Dr. R.J. Howlett  
Prof. Lakhmi C. Jain

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