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Preface

The two volumes contain the papers presented at the ICONIP 2008 conference of the Asia Pacific Neural Network Assembly, held in Auckland, New Zealand, November 25–28, 2008.

ICONIP 2008 attracted around 400 submissions, with approx. 260 presentations accepted, many of them invited. ICONIP 2008 covered a large scope of topics in the areas of: methods and techniques of artificial neural networks, neurocomputers, brain modeling, neuroscience, bioinformatics, pattern recognition, intelligent information systems, quantum computation, and their numerous applications in almost all areas of science, engineering, medicine, the environment, and business.

One of the features of the conference was the list of 20 plenary and invited speakers, all internationally established scientists, presenting their recent work. Among them: Professors Shun-ichi Amari, RIKEN Brain Science Institute; Shiro Usui, RIKEN Brain Science Institute, Japan; Andrzej Cichocki, RIKEN Brain Science Institute; Takeshi Yamakawa, Kyushu Institute of Technology; Kenji Doya, Okinawa Institute of Science and Technology; Youki Kadobayashi, National Institute of Information and Communications Technology, Japan; Sung-Bae Cho, Yonsei University, Korea; Alessandro Villa, University of Grenoble, France; Danilo Mandic, Imperial College, UK; Richard Duro, Universidade da Coruna, Spain, Andreas König, Technische Universität Kaiserslautern, Germany; Yaochu Jin, Honda Research Institute Europe, Germany; Bogdan Gabrys, University of Bournemouth, UK; Jun Wang, Chinese University of Hong Kong; Mike Paulin, Otago University, New Zealand; Mika Hirvensalo, University of Turku, Finland; Lei Xu, Chinese University of Hong Kong and Beijing University, China; Wlodzislaw Duch, Nicholaus Copernicus University, Poland; Gary Marcus, New York University, USA.

The organizers would also like to thank all special session organizers for their strong efforts to enrich the scope and program of this conference. The ICONIP 2008 conference covered the following special sessions: "Data Mining Methods for Cybersecurity," organized by Youki Kadobayashi, Daisuke Inoue, and Tao Ban, "Computational Models and Their Applications to Machine Learning and Pattern Recognition," organized by Kazunori Iwata and Kazushi Ikeda, "Lifelong Incremental Learning for Intelligent Systems," organized by Seiichi Ozawa, Paul Pang, Minho Lee, and Guang-Bin Huang, "Application of Intelligent Methods in Ecological Informatics," organized by Michael J. Watts and Susan P. Worner,"Pattern Recognition from Real-world Information by SVM and Other Sophisticated Techniques," organized by Ikuko Nishikawa and Kazushi Ikeda, "Dynamics of Neural Networks," organized by Zhigang Zeng and Tingwen Huang, "Recent Advances in Brain-Inspired Technologies for Robotics," organized by Kazuo Ishii and Keiichi Horio, and "Neural Information Processing

in Cooperative Multi-Robot Systems," organized by Jose A. Becerra, Javier de Lope, and Ivan Villaverde.

Another feature of ICONIP 2008 was that it was preceded by the First Symposium of the International Neural Network Society (INNS) on New Directions in Neural Networks (NNN 2008), held November 25–25, 2008. This symposium was on the topic "Modeling the Brain and Neurvous systems," with two streams: Development and Learning and Computational Neurogenetic Modeling. Among the invited speakers were: A. Villa, J. Weng, G. Marcus, C. Abraham, H. Kojima, M. Tsukada, Y. Jin, L. Benuskova. The papers presented at NNN 2008 are also included in these two volumes.

ICONIP 2008 and NNN 2008 were technically co-sponsored by APNNA, INNS, the IEEE Computational Intelligence Society, the Japanese Neural Network Society (JNNS), the European Neural Network Society (ENNS), the Knowledge Engineering and Discovery Research Institute (KEDRI), Auckland University of Technology, Toyota USA, Auckland Sky City, and the School of Computing and Mathematical Sciences at the Auckland University of Technology. Our sincere thanks to the sponsors!

The ICONIP 2008 and the NNN 2008 events were hosted by the Knowledge Engineering and Discovery Research Institute (KEDRI) of the Auckland University of Technology (AUT). We would like to acknowledge the staff of KEDRI and especially the Local Organizing Chair Joyce DMello, the Web manager Peter Hwang, and the publication team comprising Stefan Schliebs, Raphael Hu and Kshitij Doble, for their effort to make this conference an exciting event.

March 2009

Nikola Kasabov
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