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Neural Information Processing

18th International Conference, ICONIP 2011
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Proceedings, Part I

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Preface

This book and its sister volumes constitute the proceedings of the 18th International Conference on Neural Information Processing (ICONIP 2011) held in Shanghai, China, during November 13–17, 2011. ICONIP is the annual conference of the Asia Pacific Neural Network Assembly (APNNA). ICONIP aims to provide a high-level international forum for scientists, engineers, educators, and students to address new challenges, share solutions, and discuss future research directions in neural information processing and real-world applications.

The scientific program of ICONIP 2011 presented an outstanding spectrum of over 260 research papers from 42 countries and regions, emerging from multidisciplinary areas such as computational neuroscience, cognitive science, computer science, neural engineering, computer vision, machine learning, pattern recognition, natural language processing, and many more to focus on the challenges of developing future technologies for neural information processing. In addition to the contributed papers, we were particularly pleased to have 10 plenary speeches by world-renowned scholars: Shun-ichi Amari, Kunihiro Fukushima, Aike Guo, Lei Xu, Jun Wang, DeLiang Wang, Derong Liu, Xin Yao, Soo-Young Lee, and Nikola Kasabov. The program also includes six excellent tutorials by David Cai, Irwin King, Pei-Ji Liang, Hiroshi Mamitsuka, Ming Zhou, Hang Li, and Shan-feng Zhu. The conference was followed by three post-conference workshops held in Hangzhou, on November 18, 2011: “ICONIP2011Workshop on Brain – Computer Interface and Applications,” organized by Bao-Liang Lu, Liqing Zhang, and Chin-Teng Lin; “The 4th International Workshop on Data Mining and Cybersecurity,” organized by Paul S. Pang, Tao Ban, Youki Kadobayashi, and Jung-suk Song; and “ICONIP 2011 Workshop on Recent Advances in Nature-Inspired Computation and Its Applications,” organized by Xin Yao and Shan He.

The ICONIP 2011 organizers would like to thank all special session organizers for their effort and time high enriched the topics and program of the conference. The program included the following 13 special sessions: “Advances in Computational Intelligence Methods-Based Pattern Recognition,” organized by Kai-Zhu Huang and Jun Sun; “Biologically Inspired Vision and Recognition,” organized by Jun Miao, Libo Ma, Liming Zhang, Juyang Weng and Xilin Chen; “Biomedical Data Analysis,” organized by Jie Yang and Guo-Zheng Li; “Brain Signal Processing,” organized by Jian-Ting Cao, Tomasz M. Rutkowski, Toshihisa Tanaka, and Liqing Zhang; “Brain-Realistic Models for Learning, Memory and Embodied Cognition,” organized by Hua-jin Tang and Jun Tani; “Clifford Algebraic Neural Networks,” organized by Tohru Nitta and Yasuaki Kuroe; “Combining Multiple Learners,” organized by Younès Bennani, Nistor Grozavu, Mohamed Nadif, and Nicoleta Rogovschi; “Computational Advances in Bioinformatics,” organized by Jonathan H. Chan; “Computational-Intelligent Human–Computer Interaction,” organized by Chin-Teng Lin, Jyh-Yeong Chang,

John Kar-Kin Zao, Yong-Sheng Chen, and Li-Wei Ko; “Evolutionary Design and Optimization,” organized by Ruhul Sarker and Mao-Lin Tang; “Human-Originated Data Analysis and Implementation,” organized by Hyeyoung Park and Sang-Woo Ban; “Natural Language Processing and Intelligent Web Information Processing,” organized by Xiao-Long Wang, Rui-Feng Xu, and Hai Zhao; and “Integrating Multiple Nature-Inspired Approaches,” organized by Shan He and Xin Yao.

The ICONIP 2011 conference and post-conference workshops would not have achieved their success without the generous contributions of many organizations and volunteers. The organizers would also like to express sincere thanks to APNNA for the sponsorship, to the China Neural Networks Council, International Neural Network Society, and Japanese Neural Network Society for their technical co-sponsorship, to Shanghai Jiao Tong University for its financial and logistic supports, and to the National Natural Science Foundation of China, Shanghai Hyron Software Co., Ltd., Microsoft Research Asia, Hitachi (China) Research & Development Corporation, and Fujitsu Research and Development Center, Co., Ltd. for their financial support.

We are very pleased to acknowledge the support of the conference Advisory Committee, the APNNA Governing Board and Past Presidents for their guidance, and the members of the International Program Committee and additional reviewers for reviewing the papers. Particularly, the organizers would like to thank the proceedings publisher, Springer, for publishing the proceedings in the *Lecture Notes in Computer Science Series*. We want to give special thanks to the Web managers, Haoyu Cai and Dong Li, and the publication team comprising Li-Chen Shi, Yong Peng, Cong Hui, Bing Li, Dan Nie, Ren-Jie Liu, Tian-Xiang Wu, Xue-Zhe Ma, Shao-Hua Yang, Yuan-Jian Zhou and Cong Xie for checking the accepted papers in a short period of time. Last but not least, the organizers would like to thank all the authors, speakers, audience, and volunteers.

November 2011

Bao-Liang Lu
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