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Advances in Natural Computation

First International Conference, ICNC 2005
Changsha, China, August 27-29, 2005
Proceedings, Part II



Springer

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Library of Congress Control Number: Applied for

CR Subject Classification (1998): F.1, F.2, I.2, G.2, I.4, I.5, J.3, J.4

ISSN	0302-9743
ISBN-10	3-540-28325-0 Springer Berlin Heidelberg New York
ISBN-13	978-3-540-28325-6 Springer Berlin Heidelberg New York

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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: 11539117 06/3142 5 4 3 2 1 0

Preface

This book and its sister volumes, i.e., LNCS vols. 3610, 3611, and 3612, are the proceedings of the 1st International Conference on Natural Computation (ICNC 2005), jointly held with the 2nd International Conference on Fuzzy Systems and Knowledge Discovery (FSKD 2005, LNAI vols. 3613 and 3614) from 27 to 29 August 2005 in Changsha, Hunan, China. In its budding run, ICNC 2005 successfully attracted 1887 submissions from 32 countries/regions (the joint ICNC-FSKD 2005 received 3136 submissions). After rigorous reviews, 502 high-quality papers, i.e., 313 long papers and 189 short papers, were included in the ICNC 2005 proceedings, representing an acceptance rate of 26.6%.

The ICNC-FSKD 2005 featured the most up-to-date research results in computational algorithms inspired from nature, including biological, ecological, and physical systems. It is an exciting and emerging interdisciplinary area in which a wide range of techniques and methods are being studied for dealing with large, complex, and dynamic problems. The joint conferences also promoted cross-fertilization over these exciting and yet closely-related areas, which had a significant impact on the advancement of these important technologies. Specific areas included neural computation, quantum computation, evolutionary computation, DNA computation, chemical computation, information processing in cells and tissues, molecular computation, computation with words, fuzzy computation, granular computation, artificial life, swarm intelligence, ants colonies, artificial immune systems, etc., with innovative applications to knowledge discovery, finance, operations research, and more. In addition to the large number of submitted papers, we were blessed with the presence of four renowned keynote speakers and several distinguished panelists.

On behalf of the Organizing Committee, we thank Xiangtan University for sponsorship, and the IEEE Circuits and Systems Society, the IEEE Computational Intelligence Society, and the IEEE Control Systems Society for technical co-sponsorship. We are grateful for the technical cooperation from the International Neural Network Society, the European Neural Network Society, the Chinese Association for Artificial Intelligence, the Japanese Neural Network Society, the International Fuzzy Systems Association, the Asia-Pacific Neural Network Assembly, the Fuzzy Mathematics and Systems Association of China, and the Hunan Computer Federation. We thank the members of the Organizing Committee, the Advisory Board, and the Program Committee for their hard work in the past 18 months. We wish to express our heartfelt appreciation to the keynote and panel speakers, special session organizers, session chairs, reviewers, and student helpers. Our special thanks go to the publisher, Springer, for publishing the ICNC 2005 proceedings as three volumes of the Lecture Notes in Computer Science series (and the FSKD 2005 proceedings as two volumes of the Lecture Notes in Artificial Intelligence series). Finally, we thank all the authors and par-

ticipants for their great contributions that made this conference possible and all the hard work worthwhile.

August 2005

Lipo Wang
Ke Chen
Yew Soon Ong

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ICNC 2005 was organized by Xiangtan University and technically co-sponsored by the IEEE Circuits and Systems Society, the IEEE Computational Intelligence Society, and the IEEE Control Systems Society, in cooperation with the International Neural Network Society, the European Neural Network Society, the Chinese Association for Artificial Intelligence, the Japanese Neural Network Society, the International Fuzzy Systems Association, the Asia-Pacific Neural Network Assembly, the Fuzzy Mathematics and Systems Association of China, and the Hunan Computer Federation.

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