

ICONIP'02

Proceedings of the 9th International Conference on Neural Information Processing



VOLUME 3

**Lipo Wang,
Jagath C. Rajapakse,
Kunihiko Fukushima,
Soo-Young Lee,
and Xin Yao (Editors)**

**November 18 - 22, 2002
Orchid Country Club, Singapore**



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Computational Intelligence for the E-Age

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**Lipo Wang, Jagath C. Rajapakse, Kunihiro Fukushima,
Soo-Young Lee, and Xin Yao (Editors)**

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Welcome Message from Conference Chairs

On behalf of the Organizing Committee, we welcome you to the 9th International Conference on Neural Information Processing (ICONIP'02), the 4th Asia-Pacific Conference on Simulated Evolution And Learning (SEAL'02), and the 1st International Conference on Fuzzy Systems and Knowledge Discovery (FSKD'02). And for most of you, welcome to Singapore!

ICONIP is the annual conference of the Asia-Pacific Neural Network Assembly. SEAL is a biannual conference on evolutionary computation in the Asia-Pacific region. It is the first time that these two conferences are held jointly at the same venue and at the same time, and it is also the first time that they are held here in Singapore. We are very pleased that both ICONIP'02 and SEAL'02 are among the most successful in their respective serials. The name of the FSKD conference was suggested to us by its Honorary Conference Chair, Professor Lotfi A. Zadeh. It is gratifying to see the extremely encouraging first run of FSKD'02.

ICONIP'02 has attracted 670 submissions. The joint conference has received a total of 1100 submissions from 60 countries in all continents. We have selected 536 high quality papers for ICONIP'02 (852 for the joint conference) based on a thorough and comprehensive review of each and every paper. About 15% of these accepted papers are from special sessions, for which the special session organizers coordinated the reviews. The accepted papers are arranged into 12 parallel oral sessions, plus 1 poster session in each afternoon.

The theme of the conference is "Computational Intelligence for the E-Age". With the proliferation of soft computing applications, there are numerous challenges for both researchers and practitioners in the broad areas of neural information processing, evolutionary computation, fuzzy systems, and knowledge discovery. The joint ICONIP'02-SEAL'02-FSKD'02 aims at providing a common platform to report recent developments, as well as to promote cross-fertilization, in these exciting and yet closely-related areas. The Organizing Committee firmly believes that the joint conference will have a significant impact on the advancement of these important technologies.

The Conference starts off with tutorials and we are fortunate to have several well-known authorities to deal in depth with issues related to the conference theme. More than 100 participants have registered for the tutorial sessions.

We are blessed with the presence of six renowned keynote and plenary speakers. Each of them will address a very topical issue. We are sure you will find their addresses inspiring and insightful.

On behalf of the Organizing Committee, we thank our Guest-of-Honour, Dr Cham Tao Soon, President of Nanyang Technological University, for gracing the Opening Ceremony. We thank Professor Er Meng Hwa, Deputy President, Dean of College of Engineering, and Dean of the School of Electrical and Electronic Engineering, Nanyang Technological University, for his advice, guidance and encouragement given to the Organizing Committee. We are grateful for the technical cooperation from the IEEE Neural Networks Society, the International Neural Network Society, the European Neural Network Society, the SPIE, and the Singapore Neuroscience Association. We would like to thank the generous financial support from our sponsors: Lee Foundation, Singapore Exhibition and Convention Bureau, U.S. Asian Office of Aerospace Research & Development (AOARD), U.S. Army Research Office-Far East (ARO-FE), Novartis Pharmaceuticals, Salford Systems, and CyberSoft.

We thank the members of the Organizing Committee, the International Advisory Board, and the Program Committees for their hard work in the past 18 months, especially the Advisor, Professor Alex Kot, for his extremely valuable suggestions and input throughout.

We also wish to express our heart-felt appreciation to the keynote and plenary speakers, special session organizers, session chairs, reviewers, tutorial speakers, staff members from the NTU Conference Management Center, and student helpers. Special thanks are due to the Support Team Leader, Sophia Kuo, as well as the members of the Support Team, for their most dedicated and enthusiastic efforts.

Last, but definitely the most, thank you all, the authors and participants, for your great contributions that have made this conference possible. It is your very presence here that makes all the hard work worthwhile.

We trust that you will have a rewarding experience at the conference and a pleasant stay in Singapore. You may have noticed that some of the name tags, including ours, are printed on colored papers. This is not to make the rest of you envious, but to identify those whom you can approach for assistance during the conference, should the need arises.

Sincerely,

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