

*THE 30th INTERNATIONAL CONFERENCE ON NEURAL
INFORMATION PROCESSING
(ICONIP 2023)*

*20 November - 23 November 2023,
Changsha, China,*

Call for paper

Special session on

***“Metaheuristics and Evolutionary Computation in Intelligent
Information Processing: Theoretical Foundations and
Applications”***

Weng Kin Lai, Chu Kiong Loo, Chee Peng Lim

Intelligent systems generally refer to computing systems that are modelled after intelligence found in Nature. These systems exhibit certain salient characteristics pertaining to cognitive capabilities, which include learning, understanding, reasoning, inference, adaptation, perception, and evolution. While evolutionary computation is associated with systems that use computational models of evolutionary processes as the key elements in design and implementation, i.e. computational techniques which are based to some degree on the evolution of biological life in the natural world, nevertheless, both metaheuristics and evolutionary computation guide the search process to efficiently explore the search space in order to find near-optimal solutions. Recently, many different intelligent systems derived from a variety of interdisciplinary methodologies have emerged, and a lot of successful applications of these intelligent systems have been reported.

In this special session, we solicit papers that study the fundamental theories and principles underpinning the design and development of such intelligent systems for supporting complex decision-making problems in solving challenging real-world problems. Papers that demonstrate how metaheuristics or evolutionary systems can be applied to support complex decision-making problems in the real world are welcome. The scope of this special session includes, but is not limited to, evolutionary algorithms, swarm intelligence, DNA computing, artificial immune systems, agent-based technologies, cellular and molecular automata, etc

Topics of Interest

The areas related to either the theoretical foundations or applications include, but are not limited to,

- metaheuristics,
- evolutionary systems
- swarm intelligence such as ant colony and particle swarm optimization, etc
- theoretical developments
- quality control and inspection,
- biomedical engineering and modeling,
- fault detection,
- control and automation,
- optimisation, etc

IMPORTANT DATES

- ◆ Paper Submission Deadline: June 10, 2023
- ◆ Notification of Acceptance: July 31, 2023
- ◆ Camera ready & Registration: August 20, 2023
- ◆ Conference Date: November 20-23, 2023

Biography of Chairs

Weng Kin LAI holds a Ph.D. in Electrical & Electronics Engineering from the University of Auckland in New Zealand, as well as a MSc. in Electronics from the Queen's University of Belfast, U.K.. He has been Adjunct Member of the Faculty of several universities in Malaysia and was active in the industry for more than 20 years before joining Tunku Abdul Rahman University of Management and Technology where he is currently the Deputy Dean (Research and Commercialization) and Professor for Intelligent Systems. He has published more than 100 papers in peer-reviewed journals, conference proceedings, and books. His research interest is in computational intelligence and their applications. He was a member of APNNS' Governing Board member (Malaysia) for three consecutive terms (2016 - 2017, 2018 - 2019 and 2020 – 2021) and the conference co-Chair for ICONIP in 2014.

Chu Kiong LOO received the B.Eng. degree (Hons.) in mechanical engineering from the University of Malaya, Kuala Lumpur, Malaysia, and the Ph.D. degree from Universiti Sains Malaysia, George Town, Malaysia. He was a Design Engineer with various industrial firms and is the Founder of the Advanced Robotics Laboratory, University of Malaya. He has been involved in the application of research into Peruss quantum associative model and Pribram's holonomic brain in humanoid vision projects. He is currently a Professor in computer science and information technology with the University of Malaya. He has led many projects funded by the Ministry of Science in Malaysia and the High Impact Research Grant from the Ministry of Higher Education, Malaysia. His current research interests include brain-inspired quantum neural networks, constructivism-inspired neural networks, synergetic neural networks, and humanoid research. He was the conference Chair for ICONIP 2014. He is currently a Governing Board Member in APNNS for Malaysia and has been the President of APNNA, the predecessor of APNNS in 2014.

Chee Peng LIM received his Ph.D. degree from the University of Sheffield, UK, in 1997. He has published over 500 technical papers in the domain of computational intelligence, focusing on the principles and applications of pattern recognition, optimization, and decision support. He has received many prestigious fellowships for his research, which include the Australia-India Senior Visiting Fellowship (by Australian Academy of Science), Australia-Japan Emerging Research Leaders Exchange Program (by Australian Academy of Technological Sciences and Engineering), Commonwealth Fellowship (at University of Cambridge, UK), Fulbright Fellowship (at University of California, Berkeley, USA), and Visiting Scientists Program of the Office of Naval Research Global (at Harvard University and Stanford University, USA). He has previously served in the Asia Pacific Neural Assembly (the predecessor of the Asia Pacific Neural Network Society) as a Governing Board member. He is currently Professor of Complex Systems, Institute for Intelligent Systems Research and Innovation, Deakin University, Australia.