

2016 IEEE Special Session on Evolutionary Computation in Operations Research, Management Science and Decision Making

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Organized by

*IEEE CIS Task Force on Intelligent Adaptive Fault Tolerant Control, Reliability,
and Optimization*

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Aim and Scope

Evolutionary Computation has been shown to attain high quality solutions to difficult optimization problems in fields for which exact and analytical methods do not perform well within tractable time, especially on big-scale problems, since the early 1990s. The essential idea of Evolutionary algorithms lies in the use of simple agents that work together in leading to emergent global behaviors that solve complex problems efficiently and effectively. In the recent years, there has been increasing interests to create new Evolutionary Computation methodologies by extending from existing Genetic algorithm (GA), Memetic Algorithm (MA), Ant Colony Optimization (ACO), Particle Swarm Optimization (PSO), Artificial Bee Colony (ABC) algorithms, Simplified Swarm Optimization (SSO), and others, that better emulates the power of nature in addressing big-scale real world problems in the field of Operations Research, Management Science and Decision Making. . The developed evolutionary algorithms are expected to be flexible to internal and external changes, robust even when some individuals fail, decentralized and self-organized.

In spite of the significant amount of research on Evolutionary Computation, there remain many open issues and intriguing challenges in addressing big-scale real world problems in the field of Operations Research, Management Science and Decision Making. The aims of this special session are to demonstrate the current state-of-the-art concepts of Evolutionary Computation in the field of Operations Research, Management Science and Decision Making, to reflect on the latest advances and showcase new directions in the area.

Authors are invited to submit their original and unpublished work in the areas including, but not limited to:

- Evolutionary Computation
- Advances in Evolutionary Computation
- Evolutionary Computation applied to all fields of science and technology
- Novel or Improved frameworks of Evolutionary Computation model
- Knowledge incorporation in Evolutionary Computation,
- Neural Networks
- Fuzzy Systems
- Multi-objective optimization
- Robotics
- Data Mining
- Green logistic problems
- Advanced transportation problems
- Network design
- Manufacturing cell design
- Reliability design problems
- Others

Program Organizers and Chair:

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Wei-Chang Yeh has completed his Ph.D degree in 1992 at the Department of Industrial Engineering, University of Texas at Arlington, USA. He is the Professor of the Department of Industrial Engineering and Engineering Management in the National Tsing Hua University, Taiwan. He has also published more than 108 papers in reputed journals and serves as an editorial board member of repute. His research interest includes Network Reliability, Cloud Computing Management, SSO and Soft Computing and Data Mining. Prof. Yeh is an editorial board member of “Reliability Engineering and System Safety (RESS)”, “Soft Computing with Applications (SCA)” and “International Journal of management and Marketing (IJMM)”. He is most honored to be able to serve as the Chair for the IEEE Computational Intelligence Society, and looks forward to the event.

Yew-Soon Ong is currently an Associate Professor and Director of Computational Intelligence Graduate Laboratory, Director of the A*Star SIMTECH-NTU Joint Lab on Complex Systems at the Nanyang Technological University, Singapore, and the Programme Principal Investigator of the Rolls-Royce@NTU

Corporate Lab. He received his PhD degree on Artificial Intelligence in complex design from the Computational Engineering and Design Center, University of Southampton, United Kingdom in 2003. His current research interest in computational intelligence spans across memetic computation, evolutionary computation, machine learning, Big Data Analytics and agent-based systems.

He is the founding Technical Editor-in-Chief of Memetic Computing Journal, founding Chief Editor of the Springer book series on studies in adaptation, learning, and optimization, Associate Editor of the IEEE Transactions on Evolutionary Computation, the IEEE Transactions on Neural Networks & Learning Systems, IEEE Computational Intelligence Magazine, IEEE Transactions on Cybernetics, IEEE Transactions on Big Data, Soft Computing, International Journal of System Sciences and others. He has coauthored over 200 refereed publications and his research grants in the last five years amounts to a total of more than 25 million Singapore dollars. His research work on Memetic Algorithm was featured by Thomson Scientific's Essential Science Indicators as one of the most cited emerging area of research in August 2007. And he is recipient of the 2015 IEEE Computational Intelligence Magazine Outstanding Paper Award and the 2012 IEEE Transactions on Evolutionary Computation Outstanding Paper Award for his work pertaining to Memetic Computation. Several of his research technologies in memetic computation have been commercialized and licensed to companies and institutions worldwide. Over the last 5 years, he has been invited to deliver over 20 keynote, plenary or lecture speeches at international conferences, workshops and lecture series.

He chaired the IEEE Computational Intelligence Society Emerging Technologies Technical Committee from 2012-2013 and the IEEE Computational Intelligence Society Intelligent Systems and Applications Technical Committee from 2013-2014. Presently, he is Conference Chair of the Congress on Evolutionary Computation, World Congress on Computational Intelligence, Vancouver, Canada, 2016 and also secretary of the IEEE Transactions on Computational Intelligence and AI in Games steering committee.

Program Committee of Potential Participants and Reviewers:

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A/Professor Chia-Ling Huang, Ph.D.

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