

INVITATION TO IEEE DISTINGUISHED LECTURE

IEEE Distinguished Lecture hosted by Platform Technologies Research Institute, School of Computer Science and Information Technology and the IEEE Victorian Section Computational Intelligence Chapter: **Data-driven Evolutionary Complex Engineering Optimisation** presented by Professor Yaochu Jin, Chair of Computational Intelligence with the Department of Computing, University of Surrey, U.K., and head of the Nature Inspired Computing and Engineering Group.

Date: Thursday 6 February 2014

Time: 6:30pm - 7:30pm (refreshments from 5.45pm)

Venue: RMIT City Campus Bldg 12, Level 8, Room 2
(394 - 412 Swanston St, Melbourne, 3000)

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About the presentation

Real-world complex engineering optimisation remains a challenging issue in evolutionary optimisation.

This talk discusses the major challenges we face in applying evolutionary algorithms (EAs) and other metaheuristics to complex engineering optimization, including compact problem representation, handling of timeconsuming quality evaluation processes, vagueness in objective formulation, scalability to high-dimensional design space, and changing or uncertain environments.

We suggest that for complex engineering optimisation, effective re-use of knowledge extracted from experimental and simulation data becomes indispensable for the application of EAs to complex engineering optimisation. Finally, a brief discussion of the relationship between data-driven complex engineering optimisation and Big Data science is presented.

About the presenter

Professor Yaochu Jin received his BSc, MSc and PhD from Zhejiang University, Hangzhou, China, in 1988, 1991, and 1996 respectively, and the Dr. Ing. degree from Ruhr-University Bochum, Bochum, Germany, in 2001.

He is Professor and Chair in Computational Intelligence with the Department of Computing, University of Surrey, Guildford, U.K., where he heads the Nature Inspired Computing and Engineering Group.

His science-driven research interests lie in interdisciplinary areas that bridge the gap between computational intelligence, computational neuroscience, and computational systems biology. He is also particularly interested in nature-inspired, real-world driven problem-solving, such as aerodynamic optimisation, natural gas terminal design, intelligent heating systems, and process optimisation and control.

Professor Jin has (co) edited five books and three conference proceedings, authored a monograph, and (co) authored over 150 peer-reviewed journal and conference papers. He has been granted eight US, EU and Japan patents. His current research is funded by EC FP7, UK EPSRC and industries, including Airbus, Bosch UK, HR Wallingford and Honda. He has delivered 16 invited keynote speeches at international conferences.

He is Associate Editor/Editorial Board Member of IEEE Transactions on Cybernetics, IEEE Transactions on NanoBioscience, and IEEE Computational Intelligence Magazine, Evolutionary Computation (MIT), BioSystems (Elsevier) and Soft Computing (Springer). He is a past Associate Editor of IEEE Transactions on Neural Networks, IEEE Transactions on Systems man and Cybernetics, Part C, and IEEE Transactions on Control Systems Technology.

Professor Jin is currently an IEEE Distinguished Lecturer and Vice President for Technical Activities of the IEEE Computational Intelligence Society.