Seminar

Prof. Qingfu Zhang

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Venue: SR04, Bldg 32, UNSW Canberra, Time: 2:30 - 3:30 pm, July 29, 2015. RSVP: h.singh@adfa.edu.au by COB July 19.

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Combination of Evolutionary Algorithms with Experimental Design, Traditional Optimization and Machine Learning

Abstract: Evolutionary algorithms alone cannot solve optimization problems very efficiently since there are many random (not very rational) decisions in these algorithms. Combination of evolutionary algorithms and other techniques have been proven to be an efficient optimization methodology. In this talk, I will explain the basic ideas of our three algorithms along this line (1): Orthogonal genetic algorithm which treats crossover/mutation as an experimental design problem, (2) Multiobjective evolutionary algorithm based on decomposition (MOEA/D) which uses decomposition techniques from traditional mathematical programming in multiobjective optimization evolutionary algorithm, and (3) Regular model based multiobjective estimation of distribution algorithms (RM-MEDA) which uses the regular property and machine learning methods for improving multiobjective evolutionary algorithms.

Qingfu Zhang is a Professor at the Department of Computer Science, City University of Hong Kong, Hong Kong, a Professor on leave from the School of Computer Science and Electronic Engineering, University of Essex, UK, and a Changjiang Visiting Chair Professor in Xidian University, China. He holds two patents and is the author of many research publications. His main research interests include evolutionary computation, optimization, neural networks, data analysis, and their applications. He is currently leading the Metaheuristic Optimization Research (MOP) Group in City University of Hong Kong.

Prof. Zhang is an Associate Editor of the IEEE Transactions on Evolutionary Computation and the IEEE Transactions on Systems, Man, and Cybernetics–Part B. He is also an Editorial Board Member of three other international journals. MOEA/D, a multiobjective optimization algorithm developed in his group, won the Unconstrained Multiobjective Optimization Algorithm Competition at the Congress of Evolutionary Computation 2009, and was awarded the 2010 IEEE Transactions on Evolutionary Computation Outstanding Paper Award.