

IEEE Computational Intelligence Society

Distinguished Lecturer Speech

Distinguished Lecturer: Prof Kay Chen Tan, National University of Singapore

Venue: Department of Computing, University of Surrey, Room: 39BB02

Date: 11 June, 2013

Time: 2:00-3:30pm

Title: **Advances in Evolutionary Multi-objective Optimization**

Abstract: Multi-objective evolutionary algorithms are a class of stochastic optimization techniques that simulate biological evolution to solve problems with multiple (and often conflicting) objectives. Advances made in the field of evolutionary multi-objective optimization (EMO) are the results of more than two decades of research, studying various topics that are unique to MO problems, such as fitness assignment, diversity preservation, balance between exploration and exploitation, elitism and archiving. The lecture will first provide an overview of evolutionary computation and its application to multi-objective optimization. It will then discuss challenges faced in EMO research and present various EMO features and algorithms for good optimization performance. The lecture will also discuss the applications of EMO techniques for solving engineering problems, such as control system design and scheduling, which often involve different competing specifications in a large and constrained search space.