Evolutionary Computation and Its Applications

Professor Xin Yao, University of Birmingham, UK

Abstract
Evolutionary computation has enjoyed an incredible growth in recent years. This talk will highlight a few recent examples in evolutionary computation, including fast evolutionary optimisation algorithms, constraint handling techniques, evolutionary modelling of alloy materials, route optimisation for salting trucks, co-evolutionary learning of strategies, evolutionary learning and theoretical foundations. These examples show clearly the depth and breadth of the advances in evolutionary computation and its applications in recent years. They also illustrate the great potentials of evolutionary computation as a research field.

Biography
Xin Yao is the Director of The Centre of Excellence for Research in Computational Intelligence and Applications (Cercia) and a Professor of Computer Science in the School of Computer Science at the University of Birmingham. He is a Distinguished Visiting Professor at the University of Science and Technology of China and a visiting professor of three other universities. He joined the University of Birmingham from Australia as a professor of computer science in 1999. He is a fellow of IEEE, a Distinguished Lecturer of the IEEE Computational Intelligence Society, the editor-in-chief of IEEE Transactions on Evolutionary Computation, and the editor of the book series on "Advances in Natural Computation" from World Scientific Publishing Co. He has been invited to give keynote speeches speaker at more than 35 international conferences in 13 different countries. He has chaired/co-chaired over 30 international conferences. His work has won several awards, including the prestigious IEEE Donald G. Fink Prize Paper Award (2001). He has been awarded more than GBP5M external Grants for his research from research councils, government bodies and industry.

Xin Yao has long been involved in various real world applications. He was a consultant to the Royal Australian Navy MCCA (Manager Codification Cataloguing and Allowances) on an expert system project. He has filed two EU patents based on his joint work with Marconi and Honda. He has attracted funding from a number of major companies, including Marconi, Honda, BT, Thales, Severn Trent Water, etc. Some of the products have being used in the companies.