

INVITATION TO RESEARCH SEMINAR

RMIT Platform Technologies Research Institute and the School of Computer Science & Information Technology joint Seminar: **Some Thoughts on the Complexity of Real-World Problems** presented by Professor Zbigniew Michalewicz, Emeritus Professor at the School of Computer Science, University of Adelaide

Date

Friday 17 May 2013

Time

11:30 am - 12:30 pm

Venue

RMIT City Campus, 10.08.04

**About the presenter**

Professor Zbigniew Michalewicz is Emeritus Professor at the School of Computer Science, University of Adelaide. He completed his MSc at the Technical University of Warsaw in 1974 and received his PhD from the Institute of Computer Science, Polish Academy of Sciences, in 1981. He holds Doctor of Science (Habilitation) in Computer Science from the Polish Academy of Science (1997). In April 2002 he received the title of Professor from the President of Poland, Mr. Alexander Kwasniewski. From 1988 to 2004 he was Professor at University of North Carolina at Charlotte (USA). He also holds Professor positions at the Institute of Computer Science, Polish Academy of Sciences, at the Polish-Japanese

Institute of Information Technology, and a honorary Professor position at State Key Laboratory of Software Engineering of Wuhan University, China.

He is associated with the Structural Complexity Laboratory at Seoul National University and is a Fellow of the Australian Computer Society. In 2006 he was appointed a Business Ambassador for the State of South Australia.

His current research interests are in the field of evolutionary computation. Publications include books: "Winning Credibility: A guide for building a business from rags to riches", and "Adaptive Business Intelligence" and over 250 technical papers in journals and conference proceedings. He was one of the editors-in-chief of the "Handbook of Evolutionary Computation" and general chairman of the First IEEE International Conference on Evolutionary Computation held in 1994.

He has been an invited speaker and committee member at various international conferences and serves as associate editor on 12 international journals.

Professor Zbigniew was recently appointed Chief Scientific Officer at SolveIT Software, a technology company he co-founded with several world-renowned computer scientists. The company uses leading Computational Intelligence methods to address complex business problems for large corporations and government agencies.

About the presentation

It seems that the research community in general (and the evolutionary computation research community in particular) focuses on problems which are not relevant to real world situations.

Many researchers focus on benchmark problems which are fundamentally the same as 50 years ago in terms of their complexity, while the complexity of real-world problems is growing very fast. This talk will provide a personal perspective on a few current issues in the world of evolutionary computation, such as:

- *What are the practical contributions coming from the theory of evolutionary algorithms?*
- *Did we manage to close the gap between the theory and practice?*
- *How do evolutionary algorithms compare with operation research methods in real-world applications?*
- *Why do so few papers on evolutionary algorithms describe real-world applications?*
- *For what type of problems are evolutionary algorithms 'the best' method?*

This discussion leads to the conclusion that there is a need for a new class of benchmark problems that reflect the characteristics of modern real-world situations. A new more complex problem, called travelling thief, is introduced and discussed as a new challenge for the research community and as a potential way to bring evolutionary computation closer to real world problems.