



Workshop on Problem Understanding and Real-World Optimisation Chairs' Welcome



GECCO'13 has seen the joining of two related workshops to reflect the link between stronger methods in problem understanding and the significant importance of scientific approaches to tackling real-world optimisation problems. This joint workshop will address the wider topic of scientific methods for analysing and solving difficult and real problems currently faced by optimisation researchers.

In the first part workshop, we examine the gap between current state-of-the art optimization techniques emerging in the academic literature and the real concerns of those in industry who would like to use the techniques through a broad spectrum of papers and talks. From a commercial perspective, the problems addressed by academia are often too simplistic compared to those faced in the real-world, failing to embrace many real-world constraints. From the scientific perspective, there is a lack of advanced meta-heuristic techniques apparent in commercial software; this has been attributed in part to the academic community failing to demonstrate that their solutions are applicable to the needs of the commercial world, and in part to academics failing to impart their message the industrial community. The workshop includes a range of authors from both industry and academia -all have considerable experience of working with challenging real-world problems.

We are particularly pleased to have invited speakers from both industry and academia presenting their views on the subject. Mr Tim Pigden from Optrak Vehicle Routing Software will share his wealth of experience in developing software and algorithms that enables clients to save distribution costs and improve customer service and will discuss some of the real-world constraints currently missing from academic models. Dr Gabriela Ochoa is currently a member of the DAASE project that examines Dynamic Adaptive Automated Software Engineering, funded by EPSRC (UK) and will discuss some of the aspects of working with real-world problems from an academic perspective.

Following the 1st workshop on Understanding Problems (GECCO-UP), the second half of the workshop continues as a forum for discussing and exploring methods for the examination of optimisation problems through both theoretical and experimental methods. The workshop explores, through paper presentations and an invited speaker, work relevant to the field of Problem Understanding, which covers research into the identification, analysis, synthesis, classification and theoretical scrutiny of optimisation problems.

Given a renewed focus by some researchers on work analyzing optimisation problems, especially at GECCO, the workshop aims to build upon the previous GECCO workshop in addition to those focused on the linkage between problems and heuristics (such as VizGEC), providing a more problem oriented perspective. Indeed, optimization problems and our understanding of their landscapes underpins the success or failure of all optimisation methods. Through discussions dedicated to understanding the problems faced by the Evolutionary Computation community, the workshop continues to provide a setting for the advancement of this re-emerging field. Furthermore, within the scope of the wider joint event, the workshop caters not just specifically for the presentation of new methods related to problem understanding, but also an analysis of real-world optimisation problems. The continued the ethos of open debate was upheld in a discussion session that gave an opportunity for participants to discuss and present recently published research and position papers.

Emma Hart

*GECCO-Workshop'13 Chair
Edinburgh Napier University, UK*

Kent McClymont

*GECCO-Workshop'13 Chair
University of Exeter, UK*

Kevin Sim

*GECCO-Workshop'13 Chair
Edinburgh Napier University, UK*

Ed Keedwell

*GECCO-Workshop'13 Chair
University of Exeter, UK*

Workshop Organization

General Chairs: Emma Hart (*Edinburgh Napier University, UK*)
Kevin Sim (*Edinburgh Napier University, UK*)
Kent McClymont (*University of Exeter, UK*)
Ed Keedwell (*University of Exeter, UK*)

Acknowledgements: *Emma Hart and Kevin Sim gratefully acknowledge the support of EPSRC grant EP/J1021628/1 Real World Optimisation with Life-Long Learning for providing the support for the research that underpins this part of this workshop.*

Kent McClymont and Ed Keedwell acknowledge the support of the EPSRC project (Grant No. EP/K000519/1) in conjunction with Mouchel Ltd that motivated the section of the workshop on problem understanding