Special Session on Performance Assessment of Constrained / Bound Constrained Multi-Objective Optimization Algorithms @ CEC09, Norway, 18-21 May 2009

Optimization for multiple conflicting objectives results in more than one optimal solutions known as Pareto-optimal solutions. Although one of these solutions is to be chosen eventually, the recent trend in evolutionary multi-objective optimization studies have focused on approximating the Pareto front by a set of solutions. Such a set of solutions can collectively provide a good insight to the different trade-off regions on the resulting efficient frontier, thereby aiding a better and more confident decision making.

Evolutionary multi-objective optimization (EMO) methodologies have been suggested since the eighties for this task. Since then a number of performance assessment methods has also been suggested. After more than 20 years of research and development of efficient EMO algorithms, we realize that it is time to evaluate the existing EMO methodologies on carefully chosen test problems which are scalable with respect to the objectives, the decision variables and constraints with complex Pareto shape in the decision space. The comparisons will be made for a limited number of overall evaluations, so that the existing or new algorithms can be evaluated for different functional abilities:
i) convergence to Pareto front with diversity,
ii) to scale well on many objectives,
iii) to scale well on many variables,
iv) to perform well with bound and general constraints
v) able to tackle complex Pareto shape in the parameter space
vi) able to tackle varying degree of linkages among variables.

Following the successful organization of four previous special sessions and competitions held at CEC-05, 06, 07 and 08 (more details available at http://www3.ntu.edu.sg/home/EPNSugan/), during CEC-09, we shall organize this special session and competition on multi-objective optimization algorithms. We shall develop a set of scalable test problems with providing different kinds of complexities, a careful plan for execution of simulations and a presentation format for the results, so interested participants can test their already published or novel algorithms.

With this background, we now invite you to give your feedbacks / suggestions to us on developing a test suite with appropriate evaluation methods and would like to know if you would be willing to participate in this exercise. Any sort of search engine is allowed, including hybrids with mathematical programming techniques as well as different metaheuristics. Please could you kindly send an email to organizers with the following details?

Name:
Email:
URL:
Methods to be used: (a) EMO (b) Classical Generating Method (c) Hybrid
If you know of researchers who might be interested in participating in this session please kindly provide names, email addresses, etc. Thank you.

We request you to submit your details so that we can keep you informed of software updates, change in submission deadlines, etc. We hope to make available the test functions, software packages and associated technical report by early September 2008 from http://www.ntu.edu.sg/home/EPNSugan and http://cswww.essex.ac.uk/staff/qzhang/. Paper submission deadline is 1 November 2008 (http://www.cec-2009.org/)

Thank you,

Special Session Organizers:
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