

Special Session on Real-Parameter Optimization at CEC'05

Edinburgh, UK, 2 - 5 Sept. 2005

In the past two decades, different kinds of optimization algorithms have been designed and applied to solve real-parameter function optimization problems. Some of the popular approaches are real-parameter GAs, evolution strategies (ES), differential evolution (DE), particle swarm optimization (PSO), evolutionary programming (EP), classical methods such as quasi-Newton method (QN), hybrid evolutionary-classical methods, other non-evolutionary methods such as simulated annealing (SA), tabu search (TS) and others. Under each category, there exist a number of different methods varying in their operators and working principles, such as correlated ES and CMA-ES. In most such studies, a subset of the standard test problems (Sphere, Schwefel's, Rosenbrock's, Rastrigin's, etc.) is considered. Although some comparisons are made in some research studies, often they are confusing and limited to the test problems used in the study. In some occasions, the test problem and chosen algorithm are complementary to each other and the same algorithm may not work in other problems that well. There is definitely a need of evaluating these methods in a more systematic manner by specifying a common termination criterion, size of problems, initialization scheme, linkages/rotation, etc. There is also a need to perform a scalability study demonstrating how the running time/evaluations increase with an increase in the problem size. We would also like to include some real world problems in our standard test suite with codes/executables.

In a few weeks time, we plan on specifying a standard test suite and requirement on the simulation procedure and invite interested researchers to work on solving the problems till the CEC-2005 paper submission deadline in April 2005. Along with the papers, we would also optionally like participants to submit their codes and/or executables and we shall put it up on a web-site for anyone to try out. The submitted papers will be peer-reviewed by other authors and reviewers and selected authors will be invited to present their results during CEC-05. Later, we plan to put together an edited volume with more details, so that effective algorithms will be available in one volume with comparison results based on identical criterion and on identical test problems. We hope this exercise will help the real-parameter optimization researchers and may generate new ideas for progressing the research on real-parameter optimization forward. We hope to publish the edited volume as Springer's Lecture Notes in Computer Science after the conference.

With this background and our thoughts, we now invite you give your feedback on developing the test suite and would like to know if you would be willing to participate in this exercise. Please could you kindly send an email to both organizers with the following details?

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1. Name:
 2. Preferred email:
 3. URL:
 4. I am interested in participating in this special session: Yes/No
 5. I am interested in contributing to the edited volume: Yes/No
 6. My preferred procedure for real-parameter optimization: GA/ES/DE/PSO/EP/SA/TS/QN/

Others (please specify):

If you know of researchers who might be interested in making contribution(s), please kindly provide names/email addresses. Thank you.

We hope to have the test functions available by February 2005 from the websites given below.

We look forward to hearing from you.

With best wishes

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