Matlab Version of the GLOBAL Optimization Method

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Global optimization aims to find a solution point satisfying all given constraints and for which the objective function reaches its smallest value, the global minimum.

This talk presents the stochastic global optimization algorithm GLOBAL [3], as a derivative free version of the method of Boender et al. [2]. We introduce a new Matlab based implementation of the original Fortran and C code together with some algorithmic improvements. The latter include a new, BFGS local search procedure, a new Matlab implementation of the UNIRANDI local search method [6], an extended capability for larger dimensional problems, and further changes to improve the efficiency of the procedure. Special attention has been devoted to increasing the reliability, while keeping the low computational complexity of the original implementation.

We illustrate the efficiency of the method on a set of standard test problems as well as on hard global optimization problems [1, 7, 8] and compare the numerical results with the old version and with a new direct search procedure, C-GRASP [5]. The results [4] are encouraging, and the new Matlab version of the algorithm GLOBAL should be available soon for academic and nonprofit purposes at (`www.inf.u-szeged.hu/~csendes/reg/regform.php`).

References

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