

Tool for Observation, Comparison and Analysis of Advanced Search Algorithms

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The aim of this paper is to present a tool for observation and analysis of advanced algorithms such as Differential Evolution, Genetic Algorithm, Practical Swarm Optimization, Free Search and other evolutionary methods. Evolutionary techniques have a quite unpredictable output. In order to make scientific analysis without being lost in a sea full of numbers calculated by the millions every second or relying only on end results and time ratings you have to be able to visualize all the composite elements involved functions, population members, formulas, numerical values and other useful information. If this is left for the imagination to cope with there is a chance it might mislead you into false conclusions. This is where this tool comes into action with a few clicks it has the ability to customize the task to be observed and the elements to be shown. There is a detailed view of what exactly is going on population movement, mutation, current positions, goal reached and it can be paused at every point of interest. The tool is designed to work with some particular test functions of interest Michalewics, Five Hills, Step and Step Sphere, but can be extended to work with just any function that can be presented in three dimensions. With enough time and devotion I believe this tool can become a foundation for future research, analysis, education and with the ideas behind it and further future development a universal tool for visualisation of mathematical functions and algorithms. It can also help improving existing methods and developing new ones.