ABSTRACT

When applied to real world problems, the powerful optimization tool of Evolutionary Algorithms frequently turns out to be too time-consuming due to expensive fitness calculations often based on run-time-intensive simulations. Incorporating domain-specific knowledge by problem-tailored heuristics is a commonly used solution, but results in a problem-specific tool. This article describes the approach of combining the Evolutionary Algorithm GLEAM with general local search strategies to obtain the best of both procedures by avoiding their drawbacks: HyGLEAM, a robust, but never the less fast "general-purpose" optimization tool. The methods introduced can be applied to other Evolutionary Algorithms with minor modifications being required only. First experiments with test functions and a real world design optimization problem produced promising results.

Keywords: Optimization, planning, Evolutionary Algorithms, simulation-based optimization, "general-purpose" optimization.