Adaptive Bias Simulated Evolution Algorithm For Placement

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Summary

Simulated Evolution (SE) is a general meta-heuristic for combinatorial optimization problems. A new solution is evolved from current solution by relocating some of the solution elements. Elements with lower goodnesses have higher probabilities of getting selected for perturbation. Because it is not possible to accurately estimate the goodness of individual elements, SE resorts to a Selection Bias parameter. This parameter has major impact on the algorithm run-time and the quality of the solution subspace searched. In this work, we propose an adaptive bias scheme which adjusts automatically to the quality of solution and makes the algorithm independent of the problem class or instance, as well as any user defined value. Experimental results on benchmark tests show major speedup while maintaining similar solution quality