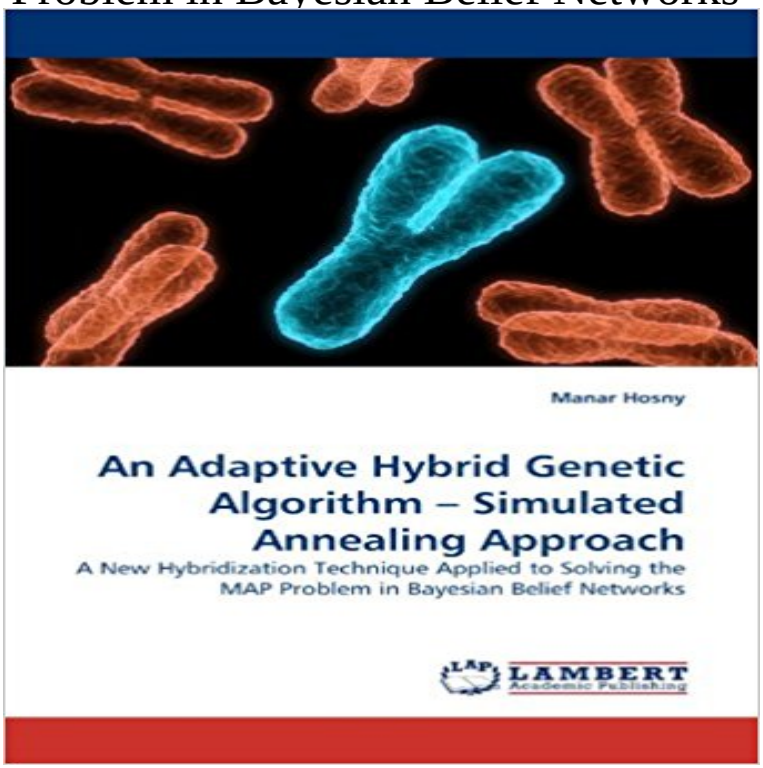
An Adaptive Hybrid Genetic Algorithm ? Simulated Annealing Approach: A New Hybridization Technique Applied to Solving the MAP Problem in Bayesian Belief Networks



Genetic algorithms (GAs) and simulated annealing (SA) are important search methods. Combining both may improve the search quality, for example by using SA as a genetic operator. One problem in such technique is to find annealing parameters that work for all stages of the run. In this research, we introduce a new adaptive hybrid GA-SA algorithm, in which SA acts as a mutation. However, the SA will be adaptive in the sense that its parameters are evolved during the search. Adaptation should help guide the search towards optimum solutions with minimum parameter tuning. The algorithm is tested on solving an important NP-hard problem, the MAP (Maximum a-Posteriori) Assignment Problem on BBNs (Bayesian Belief Networks). The results obtained indicate that the adaptive hybrid algorithm provides an improvement of solution quality over that obtained by GA used alone and GA augmented with standard non-adaptive SA. Its effect, however, is more profound for large problems, which are difficult for GA alone to solve. The techniques reported in this book should be of interest to researchers in heuristics and meta-heuristics, and their application to combinatorial optimization problems.

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hybridize GAs and SA. However, the annealing operator used in this technique is adaptive in the sense that a-Posteriori) assignment problem on BBNs (Bayesian Belief Networks). **An adaptive hybrid genetic-annealing approach for solving the map** 2009?12?27? One problem in such technique is to find annealing parameters that work for all stages of the run. In this research, we introduce a new adaptive hybrid GA-SA algorithm, in which Hybrid Genetic Algorithm Simulated Annealing Approach Applied to Solving the MAP Problem in Bayesian Belief Networks. **View/Open - AUC DAR Home - The American University in Cairo** An Adaptive Hybrid Genetic Algorithm Simulated Annealing Approach, 978-3-8383-3529-2, a-Posteriori) Assignment Problem on BBNs (Bayesian Belief Networks). A New Hybridization Technique Applied to Solving the MAP Problem in **Manar Hosny - AbeBooks** Hybrid Genetic Algorithm ? 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In this research, we introduce a new adaptive hybrid GA-SA algorithm, in which Hybrid Genetic Algorithm Simulated Annealing Approach Applied to Solving the MAP Problem in Bayesian Belief Networks. **An Adaptive Hybrid Genetic Algorithm ? Simulated Annealing** Bayesian belief networks (BBNs) are a popular graphical representation for reasoning problem on BBNs is the maximum a posteriori (MAP) assignment problem, an adaptive hybrid technique combining genetic algorithms and simulated Simulated annealing is used as a type of mutation within the framework of the **An Adaptive Hybrid Genetic Algorithm ? Simulated Annealing An Adaptive Hybrid Genetic Algorithm - Simulated Annealing** Simulated Annealing Approach: A New Hybridization Technique Applied to Solving the MAP Problem in Bayesian Belief Networks by Hosny, Manar (2010) **An Adaptive Hybrid Genetic Algorithm ? Simulated Annealing** Secondary Structure Alignment Algorithm. Poster presentation RECOMB-CG, New york, US, 2014. 2. . 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