

STATE-OF-THE-ART EVOLUTIONARY ALGORITHMS FOR MANY OBJECTIVE OPTIMIZATION AND ITS REAL-WORLD APPLICATIONS

Evolutionary computation is the study of biologically motivated computational paradigms, which exert novel ideas and inspiration from natural evolution and adaptation. The applications of population-based heuristics in solving multiobjective optimization problems have been receiving a growing attention. To search for a family of Pareto optimal solutions based on nature-inspired problem solving paradigms, Evolutionary Multiobjective Optimization Algorithms have been successfully exploited to solve optimization problems in which the fitness measures and even constraints are uncertain and changed over time. When encounter optimization problems with many objectives, nearly all designs performs poorly because of loss of selection pressure in fitness evaluation solely based upon Pareto optimality principle. This talk will survey recently published literature along this line of research- evolutionary algorithm for many-objective optimization and its real-world applications. Based on performance metrics ensemble, we will provide a comprehensive measure among all competitors and more importantly reveal insight pertaining to specific problem characteristics that the underlying evolutionary algorithm could perform the best in a given application domain.