Abstract

This paper presents a Multi-objective Quantum-inspired Hybrid Differential Evolution (MQHDE) for the solution of software requirements selection problem and its application on a real-world project. As the customer requirements change from time to time, often software products are developed in an iterative or incremental manner so as to deal with these changing requirements. The problem is to identify a set of requirements to be included in the next release of the software product, by minimizing the cost and maximizing the customer satisfaction. This problem is referred to as Multi-objective Next Release Problem (MONRP) in the jargon of Search-based Software Engineering (SBSE). The solution to the problem of MONRP has been studied by researchers using different metaheuristic search techniques. The efficiency of the proposed MQHDE is tested on a real-world application and the results are compared against the state-of-the-art multi-objective evolutionary algorithm NSGA-II, and found that the performance of MQHDE is promising and therefore can be used with confidence for the solution of real-world instances of MONRP.
Search-based Software Requirements Selection: A Case Study

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**Index Terms**

Computer Science  
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**Keywords**

Search-based software engineering  
Multi-objective optimization  
Multi-objective next release problem