

Harmony Search Based Test List Generator for Software Product Line with constraints support

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Abstract:

In software product line (SPL), selecting product's features is an issue to enable the manufactories to release new products earlier than others. Testing all the products' features (i.e. exhaustive testing) is impossible practically. In the literature, several SPL strategies have been proposed to generate the test list for testing purpose. However, most of the existing strategies do not guaranty to generate optimum test list for all cases. In this paper, a new Software Product Line Testing Strategy is developed based on Harmony Search algorithm (HS) with constraint support, called SPL-HS. SPL-HS generates minimum number of test cases that covers all of the features that need to be tested based on the required interaction strength (t). Experimental results demonstrate that, the performance of SPL-HS is able to compete with the existing SPL strategies in term of generated test suite size.

Keywords - Software Product Line; Harmony Search; Computational Intelligence; Combinatorial Testing Problem;