

Migrating Birds Optimization based Strategies for Pairwise Testing

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ABSTRACT

Exhaustive testing of all possible combinations of input parameter values of a large system is impossible. Here, pairwise testing technique is often chosen owing to its effectiveness for bug detection. For pairwise testing, test cases are designed to cover all possible pair combinations of input parameter values at least once. In this paper, we investigate the adoption of Migrating Birds Optimization (MBO) algorithm as a strategy to find an optimal solution for pairwise test data reduction. Two strategies have been proposed; the first strategy implements the basic MBO algorithm, called Pairwise MBO Strategy (PMBOS) and the second strategy implements an improved Pairwise MBO strategy, called iPMBOS. The iPMBOS enhances the PMBOS with multiple neighborhood structures and elitism. Based on the published benchmarking results, these two strategies offers competitive results with most existing strategies in terms of the generated test size. We also noted that iPMBOS outperforms PMBOS in several parameter configurations, especially when the test size generated is relatively small.

Keywords: *Pairwise testing; MBO Algorithm; iPMBOS; PMBOS*

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