

Self-adaptive Population Size Strategy Based on Flower Pollination Algorithm for T-Way Test Suite Generation

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ABSTRACT

The performance of meta-heuristic algorithms is highly dependent on the fine balance between intensification and diversification. Too much intensification may result in the quick loss of diversity and aggressive diversification may lead to inefficient search. Therefore, there is a need for proper parameter controls to balance out between intensification and diversification. The challenge here is to find the best values for the control parameters to achieve acceptable results. Many studies focus on tuning of the control-parameters and ignore the common parameter, that is, the population size. Addressing this issue, this paper proposes self-adaptive population size strategy based on Flower Pollination Algorithm, called saFPA for t-way test suite generation. In the proposed algorithm, the population size of FPA is dynamically varied based on the current need of the search process. Experimental results show that saFPA produces very competitive results as compared to existing strategies.

KEYWORDS: Meta-heuristic; Flower Pollination Algorithm; Self-adaptive population size; T-way testing

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