

SPLBA: An Interaction Strategy for Testing Software Product Lines using the Bat-inspired Algorithm

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ABSTRACT

Software product lines (SPLs) represent an engineering method for creating a portfolio of similar software systems for a shared set of software product assets. Owing to the significant growth of SPLs, there is a need for systematic approach for ensuring the quality of the resulting product derivatives. Combinatorial t-way testing (where t indicates the interaction strength) has been known to be effective especially when the number of product's features and constraints in the SPLs of interest are huge. In line with the recent emergence of Search based Software Engineering (SBSE), this article presents a novel strategy for SPLs tests reduction using Bat-inspired algorithm (BA), called SPLBA. Our experience with SPLBA has been promising as the strategy performed well against existing strategies in the literature.

KEYWORDS: software testing; bat algorithm; constrained testing; nature inspired meta-heuristic algorithms

DOI: 10.1109/ICSECS.2015.7333100