Abstract

Test case generation is a path to identify the solution in software testing. Adaptive random testing is an enhancement of random testing to improve the quality of fault-revealing. The research focuses on software adaptive random testing based on Matrix called Partitioned Block based Adaptive Random Testing. It compares the performance of PBART with the existing Adaptive random testing using random samples of test cases which are drawn from blocks of distinct partitions. Partition testing defines as a block of test cases partitioned into set of all test cases. Thereby it has prompted to investigate the performance of random testing that can be improved by taking the patterns of failure-causing inputs which utilizes the prior knowledge and the information of the test cases. The proposed algorithm PB–ART performs the testing of program structure and load the source code to matrix with scenarios, method flows and data values. In numerical experiments, the approach examines effectiveness of PB-ART with ordinary adaptive random testing. There exist three measures for evaluating the effectiveness of a testing technique namely P-measure, E-measure and F-measure. Moreover F-measure is intuitively more appealing to testers and more realistic and informative from a practical point of view. Therefore, F-measure is chosen for measuring testing techniques in this research work.


Index Terms
Computer Science
Software Testing

Keywords
Adaptive random testing  Partition testing  Test case generation  failure pattern  fault detection.