Firefly Combinatorial Testing Strategy

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Abstract—**Firefly Algorithm (FA) had been applied to solve many of optimization problems. One of the optimization problems is combinatorial optimization. This paper propose FA to be applied in solving combinatorial testing problem by implementing a Firefly Algorithm based Test Suite Generator (FATG). Combinatorial testing is an effective method to generate a test list to detect the defects may introduce due the interaction between the systems interfaces. However, the interactions between the system interfaces is very complex and very huge. Therefore, it is impractical to test all the interfaces interactions due to the time constraints. Based on that, there is a need to produce an efficient test list with minimum test cases address the required degree of the combination. By doing so, it can help to save a time in test execution to detect the defects. This proposed strategy is evaluated by comparative evaluation with existing combinatorial testing strategies. Through the experiments, this research shows that FATG able to work effectively by generating a nearly optimum result using shortest time compared to other strategies.**

Keywords— **Combinatorial testing, T-way testing, Firefly optimization algorithm, Computational Intelligence.**