**Generating Test Data for Software Structural Testing using**

**Parallel Particle Swarm Optimization**

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**Abstract.** Evolutionary structural testing is an approach to automatically generating test cases that achieve high structural code coverage. In recent investigations particle swarm optimization (PSO), an alternative search technique, often outperformed other meta-heuristic search techniques when applied to various problems. This paper proposes the approach of combination of static analysis program and Parallel Particle Swarm Optimization (PPSO) in order to generate test data simultaneously for each test path of the given program under test (PUT). The proposed approach is also applied to some PUTs of the given benchmark. Experimental results demonstrate that the proposed PPSO which can automatically generate suitable test data has higher structural code coverage than the previous one.

**Keywords:** Parallel Particle Swarm Optimization, automatic test data generation, evolutionary structural testing, structural code coverage