

RESEARCH**PROJECT****Fault-Injection Techniques for Teaching Testing**

STUDENTS

TBD graduate student.

GOAL

Investigate the family of fault-injection techniques -- error seeding, mutation testing, fault-inject (Voas) -- as the technique for generating software artifacts with known, intentional bugs. The *seeded* artifacts are problems used in the Test:ab *Arcade*.

IMPORTANCE

A systematic process is needed to generate TestLab *Arcade* problems that are traceable to the TestLab skill set being tested.

STATUS

START-UP.

TECHNICAL
ISSUES

Major activities:

1. Review literature on error-seeding, mutation testing, fault injection testing.
2. Apply techniques to TestLab artifacts (low complexity)
3. Integrate seeding with test case generation technique being used (e.g., seed errors in decision table → inject fault in corresponding code, etc).
4. Apply techniques to simplest TestLab artifacts.
5. Conduct simple experiments of problem presentation, solution acquisition, solution evaluation.

RESOURCES

Tools:

Data: TestLab.

Hardware: Sun Unix system.

REFERENCES

TO BE

SUBMITTED TO

- (1) ACM Southeast Conference
- (2) International Conference on Software Testing
- (3) Journal of Computing in Small Colleges.
- (4) Journal of Systems and Software Science.
- (5) Conference on Practical Software Testing Techniques.