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Software Testing, including regression testing, web testing, mobile testing, combinatorial testing, test suite prioritization, test suite reduction, and algorithms for test suite optimization

Research Group: Federal Funding; 8 Ph.D. Students



## Samples of Current Research Projects

### Mobile Testing

- Theory and application merged into projects that improve upon the state-of-the-art tools for Android Testing:
  - Real life system level context data integrated with GUI testing using machine learning
  - Test generation using reinforcement learning
  - GUI testing with combinatorial-based event and event sequence coverage

### Web Testing

- Theory and application merged into our CPUT tool for user-session-based testing, including features for combinatorial-based test suite prioritization and test suite reduction. (Funded by NIST with the algorithms published in several venues and the tool used by several companies.)

### Combinatorial Testing

- Expertise in algorithms for covering arrays for application to combinatorial testing, including applied research for higher strength coverage, seeding, and constraints.

Sample problem: Context driven systems pose new test challenges with the combinatorial explosion of context changes that are part of the mobile ecosystem.

We explore mobile application testing, but the solutions may scale much larger! i.e., IoT and autonomous vehicles.

