

Automated Software System Analysis and Testing

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Research projects

- Automated software testing
- Automated software analysis
- Model-driven software engineering and testing

Automated Software Testing

- Automated test data generation
 - ◆ Automated generation of test data that satisfy testing criteria
- Search-based software testing
 - ◆ Search methods that identify program properties, e.g., buffer overflow
 - ◆ Directed search techniques
 - ★ hill climbing
 - ★ genetic algorithms
 - ★ data-dependence based search
 - ★ ...

Automated Software Analysis

- Methods of automated detection of security threats in source code
 - ◆ Buffer overflow
 - ◆ Invalid memory access
 - ◆ ...
- Program slicing: a reduction technique
 - ◆ Static slicing: source code slicing
 - ◆ Dynamic slicing: program execution slicing

Model-driven software engineering and testing

- Model-driven development
 - ◆ Executable models
 - ◆ Model slicing
- Model-driven testing
 - ◆ Model-based testing
 - ◆ Model-based test prioritization