

Automated Test Case Generation

Monday, 28 September 2015 09:50 (30 minutes)

I would like to present the concept of automated test case generation. I work on it as part of my PhD and I think it would be interesting also for other people. It is also the topic of a workshop paper that I am introducing in Paris. (abstract below) Please note that the talk itself would be more general and not about the specifics of my PhD, but about the broad field of Automated Test Case Generation.

I would introduce the main approaches (combinatorial testing, symbolic execution, adaptive random testing) and their advantages and problems. (oracle problem, combinatorial explosion, ...)

Abstract of the paper:

Over the last decade code-based test case generation techniques such as combinatorial testing or dynamic symbolic execution have seen growing research popularity. Most algorithms and tool implementations are based on finding assignments for input parameter values in order to maximise the execution branch coverage. Only few of them consider dependencies from outside the Code Under Test's scope such as global variables, database values and subroutine calls as influences to the execution path. In order to fully test all possible scenarios these dependencies have to be taken into account for the test input generation. This paper introduces ITEC, a tool for automated test case generation to support execution environment resilience in large-scaled, complex systems. One of ITEC's corner stones is a technique called semi-purification, a source code transformation technique to overcome limitations of existing tools and to set up the required system state for software testing.

Availability

Both days

Will you need the training center (Workshops)?

No

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