Mutation-driven Generation of Unit Tests and Oracles.

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resumen:

To assess the quality of test suites, mutation analysis seeds artificial defects (mutations) into programs; a non-detected mutation indicates a weakness in the test suite. This talk introduces an automated approach to generate unit tests that detect these mutations for object-oriented classes. This has two advantages: First, the resulting test suite is optimized towards finding defects rather than covering code. Second, the state change caused by mutations induces oracles that precisely detect the mutants. Evaluated on two open source libraries, the muTest prototype generates test suites that find significantly more seeded defects than the original manually written test suites.

sobre Gordon Fraser:

Gordon Fraser received a M.Sc. in Computer Engineering (Telematik) in 2003 and a PhD in Computer Science in 2007, both from Graz University of Technology, and currently works as a post-doc at the chair of software engineering lead by Prof. Andreas Zeller at the Saarland University, Germany. His research interests include model-based testing, software testing, and verification. He regularly is member of program committees of international conferences and workshops (e.g., ICST 2009, TestCom/FATES 2009, ICST 2010), has chaired several workshops (A-MOST 2009, Mutation 2009, Mutation 2010, CSTVA 2010), and is program co-chair of the 4th International Conference on Tests and Proofs (TAP 2010) and Testing: Academic & Industrial Conference - Practice and Research Techniques (TAIC-PART 2010). Gordon Fraser is guest editor of a special issue on model-based testing for the journal Software Testing, Verification and Reliability (STVR), and a special issue on mutation testing for the journal Information and Software Technology (IST). He is a member of ACM and the IEEE Computer Society.