Software Engineering Seminar

Automated Repair with Specifications

– AUTOFIX-E –

Description

Recognizing an error in a software system may for example either be achieved by utilizing a test suite with the "right" set of test cases, or by attaching some kind of *formal specifications* to the system that is able to describe the control or data flow within the system. In the latter case, errors can be detected by ensuring that the specifications are not violated. Specifications can either be derived from the software system under consideration, or they can be specified by the user as a description (a model) of how the system *should* work.

This topic examines the tools AUTOFIX-E and AUTOFIX-E$_2$ which aim at finding fixes for Eiffel classes that are equipped with contracts (i.e. specifications/assertions).

References

[1] Yu Pei, Yi Wei, Carlo A Furia, Martin Nordio, and Bertrand Meyer. Evidence-Based Automated Program Fixing. (February):1–22, 2011.

[2] Yi Wei, Yu Pei, Carlo A Furia, Lucas S Silva, Stefan Buchholz, Bertrand Meyer, and Andreas Zeller. Automated Debugging of Programs with Contracts. *International Symposium on Software Testing and Analysis*, pages 61–72, 2010.

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