Software Engineering Seminar

Combined Spectrum Based Fault Localization

Description

Merely recognizing a bug does not suffice. Generally, the developer wants to know, where exactly the bug is located in the software system under consideration. One established technique for automated fault localization is *spectrum based fault localization (SBFL)*. In SBFL, program elements (e.g. lines, methods, files, ...) are ranked based on the likeliness of a bug being located in said program elements. The requirement for SBFL is an existing test suite, since the SBFL ranking is computed based on the coverage of program elements by the execution of test cases. Various formulae exist to compute the ranking scores, as well as techniques to combine these various SBFL formulae.

The goal of this topic is to examine approaches that combine *multiple SBFL techniques* in order to improve the generated rankings, as proposed in [2, 1]

References

[1] Lucia, David Lo, and Xin Xia. Fusion fault localizers. In *Proceedings of the 29th ACM/IEEE International Conference on Automated Software Engineering*, ASE '14, pages 127–138, New York, NY, USA, 2014. ACM.

[2] Jifeng Xuan and Martin Monperrus. Learning to Combine Multiple Ranking Metrics for Fault Localization. *2014 IEEE International Conference on Software Maintenance and Evolution*, pages 191–200, 2014.

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