



Software Engineering Seminar (WiSe 2020/21)

# Automated Summarization of Tests

## Description

Recent years, automated test case generation tools have been widely applied in software testing. Despite of the great success, the automated generated test cases still suffer from issues such as a) poor readability due to uninformative identifiers and variable names and b) poor comprehensibility due to lack of documentation [3]. This seminar targets mainly at the latter issue. Several approaches [1, 2, 3] have been proposed to tackle this issue by summarizing different aspects covered by the test cases (e.g. code portion [2] or methods [1] exercised by a test case ) at different levels (i.e. class-level, test-case-level, and statement-level).

In this seminar, the student is required to examine and discuss the state-of-art approaches that automatically summarize test cases. The student should compare different approaches and give insights into future research.

## References

- [1] Boyang Li, Christopher Vendome, Mario Linares-Vásquez, Denys Poshyvanyk, and Nicholas A Kraft. Automatically documenting unit test cases. In *2016 IEEE international conference on software testing, verification and validation (ICST)*, pages 341–352. IEEE, 2016.
- [2] Sebastiano Panichella, Annibale Panichella, Moritz Beller, Andy Zaidman, and Harald C Gall. The impact of test case summaries on bug fixing performance: An empirical investigation. In *Proceedings of the 38th International Conference on Software Engineering*, pages 547–558, 2016.
- [3] Devjeet Roy, Ziyi Zhang, Maggie Ma, Venera Arnaoudova, Annibale Panichella, Sebastiano Panichella, Danielle Gonzalez, and Mehdi Mirakhorli. DeepTC-enhancer: Improving the readability of automatically generated tests.

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