

Regression Testing With Non-Code Dependencies

Regression testing is a software development process in which test cases are rerun after changes to ensure no new bugs were introduced. With increasingly long test suites, it becomes infeasible to run all tests after every new change. **Regression test selection (RTS)** is a technique which reruns tests only if they are potentially affected by a recent change, i.e. if the test case executes code which has changed since the last test run. Most RTS techniques focus only on code changes while ignoring **non-code dependencies** (e.g., XML configuration files, UI templates, databases etc.), which can also affect the outcome of the tests [1].

Your main tasks will be:

- Study how common non-code dependencies are in the test suites of open source projects.
- Analyze the impact of non-code elements on the quality of a test selection.
- Develop an RTS approach to include change information of non-code files.

[1] A. Nanda, S. Mani, S. Sinha, M. J. Harrold and A. Orso, "Regression testing in the presence of non-code changes," 2011 Fourth IEEE International Conference on Software Testing, Verification and Validation, Berlin, Germany, 2011, pp. 21-30, doi: 10.1109/ICST.2011.60.

Feel free to contact me directly if you are interested in this topic!

Please include your current **CV** and **grade report**, as well as a short **motivation letter** and **when** you intend to start your thesis.

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