



Master Thesis – Automated Fault Classification through AI/ML Techniques

Background

Following conventional software ways of working, a significant amount of manual work is necessary to determine the cause of any test case failure. These efforts can be broken down as follows:

- Parsing test logs to determine why a failure occurred.
- Applying expert judgment and domain knowledge acquired over a longer period working with similar test suites or components.
- Engaging in discussions with colleagues who have encountered similar problems.
- Aggregating knowledge from historical data or similar failures.

These efforts may increase when the failure of a test is due to flakiness and makes no sense to the tester. Identifying the fault is one activity, but classifying it (fault of product, test, infrastructure, external library, etc.) and creating a trouble report / ticket are additional steps that add time and overhead before correcting the fault.

Thesis Description

The purpose of this thesis is to optimize testing using automated ways to identify and classify faults. Automatic identification and classification of faults will reduce manual effort and provide a comprehensive database with common faults, thus saving debugging time and effort of analyzing logs or error messages. We would also like to investigate how to create automated tickets with necessary and consistent information about the fault. Availability of such consistent information (product, build id, component, team name, fault text etc.) will enhance ways of working towards the ticket/fault resolution.

Qualifications

This project aims at students in computer science, computer engineering or similar. Background in software testing and AI/ML is preferred.

Extent & Location

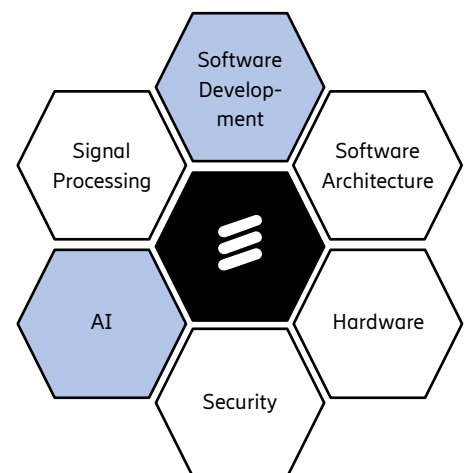
1-2 students, 30hp each at Ericsson AB Mjärdevi, Linköping

Preferred Starting Date

January 2025

Key areas and keywords

Software Development (programming, coding, testing, algorithms),
AI (Generative AI, reinforcement learning, machine learning, natural language processing, large language modelling)



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