Title: Using Machine learning to improve Safety Critical SW development

Abstract:

Static program analysis plays crucial role developing safety critical systems for transportation. One of the most often cited problems that comes with using a static code analyser is an overwhelming amount of its findings, which need to be reviewed to filter out false positives. In an effort to help the reviewer with their task, Parasoft has created a tool that utilises Machine Learning (ML) to prioritise and group violations reported by static analysers based on the likelihood of them being either a true error or a falsely reported correct line of code.

The ML model can offer significant help to the reviewer not only in the context of one project, but also when working with multiple projects that share either some part of the development team, or codebase, in a situation when some number of violations in one of the projects has already been reviewed. Our approach has shown significant reduction in effort required to review violations reported by static code analysers.

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