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Abstract

This report contains details relating to the compulsory industrial training that I have carried out as required for the Engineering degree at the University of New South Wales. It is written in the format provided by the UNSW Engineering Industrial Training Guideline. I have completed a total of 60 days (12 weeks) of industrial training over one full-time placement.

Chapter 1

Introduction

I completed my industrial training internship with the programming languages (PL) and formal methods (FM) team at Cog Systems Pty Ltd in Sydney. Cog Systems leads the industry in secure connected device implementations across world governments, defense organizations and corporate enterprises. They have adopted an embedded solution built on modularity, proactive security, trustworthiness, and adaptability to enable highly secure connected devices.

The PL and FM team at Cog Systems makes use of the latest academic research as well as industry practices to enable IoT components to be provably free of software bugs and of security vulnerabilities.

I worked with Kai Engelhardt, a senior principal engineer at Cog and also the leader of the PL and FM team. As a software engineering intern, I was given a wide variety of tasks and responsibilities to ensure that I have as much exposure to real world industry practice as possible. Some of these tasks included designing, building and testing backends of a domain specific language (DSL) compiler, a library for inter-process communication (IPC) as well as the implementation of an input/output primitive for the language. These tasks required predominently programming, debugging and testing as well as frequent discussions with my project lead and extensive research from academic sources and documentation.

I worked full-time between the 19th of November 2018 and 15th February 2019 (with a week worth of leave in between) for a total of 60 days.

Chapter 2

Engineers Australia Competencies

Chapter 3

Reflection & Conclusion

Chapter 4

Appendix