

Research Assistant position - Static Analysis of Framework-Based Java Web Applications.

Duration: 6 months

Timeframe: To commence between June & November, 2016

Supervisor: François Gauthier

A 6 month, full-time internship position is available in the Program Analysis group within Oracle Labs, Brisbane, Australia (<http://labs.oracle.com/locations/australia>).

The position is to commence within the period, June and November, 2016, with a duration of 6 months.

These positions are paid at the current industry rates and travel costs associated with overseas applicants will be reimbursed.

Static analysis of framework-based Java web applications is notoriously difficult due to the highly complex nature of frameworks and their heavy use of reflection. In practice, static analysis of large framework-based applications typically omits framework code at the expense of introducing imprecision. The aim of this internship is to explore strategies to improve the precision of "application-only" static analysis. The successful candidate will develop a prototype, using techniques such as data-flow analysis, points-to analysis and automated stub generation to improve the precision and scalability of an existing state-of-the-art web application analysis framework.

Oracle Labs is the research arm for Oracle, focusing on applied research that produces new technologies of interest to the company. Oracle Labs Australia, based in Brisbane, focuses on Program Analysis as it applies to a variety of domains, including bug-checking, security analysis, productivity tools, testing and more. The group is best known for its research on static code analysis that led to scalable and precise bug-checking algorithms embedded in the Oracle Parfait tool.

This 6 month internship is suitable for students who are currently enrolled in a PhD degree. Exceptional students enrolled in other research programs will also be considered. International research candidates are also welcome to apply.

These internships provide students with valuable industry experience whilst simultaneously allowing them to work on cutting edge research projects that have real world application.

Selection criteria:

- PhD student or Masters student enrolled in Computer Science, Software Engineering or a related area;
- Basic understanding in compiler construction or program analysis;
- Experience in C++/Java/Datalog will be an advantage;
- Demonstrable capacity to work independently and collaboratively.

To apply:

Please submit your resume (including Academic Transcripts) in PDF format, along with your publications and relevant experience to Juliette Hatton - juliette.hatton@oracle.com. Juliette will coordinate interviews and answer any general questions that you may have.