

Incremental Static Analysis

Raphaël Monat

raphael.monat@inria.fr rmonat.fr

Goal

Traditionally, automatic program analyses do not reuse results they have previously established, although program verification is theoretically simpler than program analysis [3]. A program (or a slightly patched program) may be analyzed multiple times, for example when it is validated through a continuous integration pipeline. The goal of this internship is to explore the reuse of previous results on a same program, where different analyses (with different precisions) may be used. A starting point could be a theoretical study of this approach on loops, with an experimental evaluation within the Mopsa static analysis platform [4] if time permits.

Useful Prerequisites

- Background in formal methods, especially static analysis and abstract interpretation.

Location

The internship is proposed within Inria's [SyCoMoRES](#) team, hosted in the CRISAL laboratory, near Lille.

References

1. [Decoupling the ascending and descending phases in Abstract Interpretation](#), Arceri, Mastroeni and Zaffanella
2. [Incremental Abstract Interpretation](#), Seidl, Erhard, Vogler
3. [Program analysis is harder than verification: A computability perspective](#), Cousot, Giacobazzi, Ranzato
4. [The Mopsa Static Analysis Platform](#)