

I declare that this thesis was composed by myself, that the work contained herein is my own except where explicitly stated otherwise in the text, and that this work has not been submitted for any other degree or professional qualification except as specified. Some of the material used in this thesis has been published in the following papers:

- [1] Philip Ginsbach, Lewis Crawford and Michael F. P. O'Boyle.

CAnDL: A Domain Specific Language for Compiler Analysis.

Proceedings of the 27th International Conference on Compiler Construction (CC), 2018

- [2] Philip Ginsbach and Michael F. P. O'Boyle.

Discovery and Exploitation of General Reductions: A Constraint Based Approach.

Proceedings of the 15th Annual International Symposium on Code Generation and Optimization (CGO), 2017

- [3] Philip Ginsbach, Toomas Remmelg, Michel Steuwer, Bruno Bodin, Christophe Dubach and Michael F. P. O'Boyle.

Automatic Matching of Legacy Code to Heterogeneous APIs: An Idiomatic Approach.

Proceedings of the 23rd International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS), 2018



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