CV: Ambrose Bonnaire-Sergeant *Last update on May 17, 2019*

abonnairesergeant[at]gmail.com   •   ambrosebs.com   •   github.com/frenchy64

Education

Indiana University Bloomington   Bloomington, Indiana
    Ph.D. in Computer Science   *2014 — 2019*
    Master of Science in Computer Science   *2014 — 2017*

University of Western Australia   Western Australia, Australia
    BSc in Computer Science with Honours   *2008 — 2013*

Employment

Software Developer (Remote Intern)   Sparkfund, *May 2017 — Febuary 2018*
Studied verification techniques used in practice (Clojure).

- enhanced interactive pricing estimation tools using ClojureScript and om.next
- produced internal pricing reports in collaboration with sales team using Clojure and Google Sheets
- parallelized the CI builds of several projects with a migration to CircleCI 2.0 Workflows
- completed company-wide upgrade to a version of Clojure with breaking changes

Research Assistant / Assistant Instructor   Indiana University Bloomington, *Fall 2014—Spring 2019*

- published peer reviewed papers about Typed Clojure and clojure.spec
- taught undergraduates introductory programming based on How To Design Programs (C211) and introductory data structures (C343)

Analyst Programmer   University of Western Australia, *2010 — 2011*

- conducted interviews of library staff to identify the format and location of research data
- set up VIVO semantic web software, utilizing Java, XSLT, bash, and Linux

Open Source Work

Crowdfunded Open Source work   Perth, Western Australia

    Automatic Annotations for Typed Clojure and clojure.spec ($8,621 USD raised by 69 backers)   *2016*
This campaign concentrated on automating the manual labor of type and spec annotations. It helped me attend multiple industry conferences to meet real users of Typed Clojure and clojure.spec to discuss the needs of the community.

    Gradual Typing for Clojure ($11,695 USD raised by 199 backers)   *2015*
These funds helped me design a *gradual typing* framework for Typed Clojure. It supports automatic contracts for global variables based on the typed-untyped boundary, as well as allowing arbitrary exporting of macros from typed namespaces—a shortcoming of previous systems.

Typed Clojure ($35,254 USD raised by 545 backers) *2013*
> These funds helped support me as I worked on improving and extending Typed Clojure's type system. $5,000 of these funds were used to commission further open source work on tools.analyzer, now an important Clojure library.

Google Summer of Code   Clojure organisation
Student   *2012, 2013*

I developed Typed Clojure, improving the support of Clojure idioms, supporting more expressive types, and adding documentation.

Mentor   *2014 (3 students), 2015 (2 students)*

I have mentored 5 projects, including several adding advanced type system features to Typed Clojure, and work towards a ClojureScript compiler using tools.analyzer as a backend.

Administrator   *2014, 2015*

My role as an administrator included proposing projects, preparing and reviewing application documents, and advertising for interested students.

Selected Open Source Contributions
core.typed   Lead Developer
> Designed, implemented, and maintain the main library of Typed Clojure.

core.match   Contributor
> Studied optimising pattern matching literature and collaborated on a pattern matcher for Clojure.

Clojure   Contributor
> Contributed several minor patches improving error messages, fixing bugs, and adding features to the core Clojure language.

ClojureScript   Contributor
> Converts the internal AST representation of ClojureScript's compiler to tools.analyzer format. Various bug fixes and performance enhancements.

Research Groups

PL Wonks   Indiana University Bloomington

Gradual Typing Group   Indiana University Bloomington

Conference Publications

Practical Optional Types for Clojure (ESOP'16) with Rowan Davies, Sam Tobin-Hochstadt

Theses

A Practical Optional Type System for Clojure   supervised by Rowan Davies
> Undergraduate Honours dissertation.

Selected Talks

Tool-assisted spec Development	Clojure/conj 2017
Practical Optional Types for Clojure	ESOP 2016
Typed Clojure: From Optional to Gradual Typing	Strangeloop 2015
Typed Clojure in Practice	Strangeloop 2014
Typed Clojure	Clojure/conj 2012
Introduction to Logic Programming	Clojure/conj 2011

Service

- Organizer of PL Wonks, Indiana University's weekly Programming Languages seminar (2017-2019)
- President of Indiana University Graduate Computer Science Association (2017-2019)