

# Ambrose Bonnaire-Sergeant Last update on April 26, 2019

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## Education

Indiana University Bloomington

Ph.D. in Computer Science

BLOOMINGTON, INDIANA

2014 — 2019

Master of Science in Computer Science

2014 — 2017

University of Western Australia

BSc in Computer Science with Honours

WESTERN AUSTRALIA, AUSTRALIA

2008 — 2013

## Employment

Software Developer (Remote Intern)

SPARKFUND, May 2017 — February 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.

<a href="#">core.match</a>	CONTRIBUTOR
Studied optimising pattern matching literature and collaborated on a pattern matcher for Clojure.	
<a href="#">Clojure</a>	CONTRIBUTOR
Contributed several minor patches improving error messages, fixing bugs, and adding features to the core Clojure language.	
<a href="#">ClojureScript</a>	CONTRIBUTOR
Converts the internal AST representation of ClojureScript's compiler to tools.analyzer format. Various bug fixes and performance enhancements.	

## Research Groups

<a href="#">PL Wonks</a>	INDIANA UNIVERSITY BLOOMINGTON
<a href="#">Gradual Typing Group</a>	INDIANA UNIVERSITY BLOOMINGTON

## Conference Publications

<a href="#">Practical Optional Types for Clojure (ESOP'16)</a>	WITH ROWAN DAVIES, SAM TOBIN-HOCHSTADT
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## Theses

<a href="#">A Practical Optional Type System for Clojure</a>	SUPERVISED BY ROWAN DAVIES
Undergraduate Honours dissertation.	

## Selected Talks

<a href="#">Tool-assisted spec Development</a>	CLOJURE/CONJ 2017
<a href="#">Practical Optional Types for Clojure</a>	ESOP 2016
<a href="#">Typed Clojure: From Optional to Gradual Typing</a>	STRANGELOOP 2015
<a href="#">Typed Clojure in Practice</a>	STRANGELOOP 2014
<a href="#">Typed Clojure</a>	CLOJURE/CONJ 2012
<a href="#">Introduction to Logic Programming</a>	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)