

Ambrose Bonnaire-Sergeant Last update on September 16, 2019

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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 — February 2018
Studied verification techniques used in practice (Clojure).	
<ul style="list-style-type: none">enhanced interactive pricing estimation tools using ClojureScript and om.nextproduced internal pricing reports in collaboration with sales team using Clojure and Google Sheetsparallelized the CI builds of several projects with a migration to CircleCI 2.0 Workflowscompleted company-wide upgrade to a version of Clojure with breaking changes	
Research Assistant / Assistant Instructor	INDIANA UNIVERSITY BLOOMINGTON, Fall 2014—Spring 2019
<ul style="list-style-type: none">published peer reviewed papers about Typed Clojure and clojure.spectaught undergraduates introductory programming based on How To Design Programs (C211) and introductory data structures (C343)	
Analyst Programmer	UNIVERSITY OF WESTERN AUSTRALIA, 2010 — 2011
<ul style="list-style-type: none">conducted interviews of library staff to identify the format and location of research dataset 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 <i>gradual typing</i> 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
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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)