

Ambrose Bonnaire-Sergeant Last update on December 7, 2016

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Summary

Programming language tooling developer, bringing academia to the masses.

I love delivering tools and lessons from academia to working programmers. My work in building optional type systems has been incredibly rewarding, and fulfills a need of mine to make a real impact on other people's lives.

My work on Typed Clojure is indicative of my approach. I created the optional type system for Clojure in 2011. Each subsequent year has taken a new direction based on the feedback of the community, using my expertise to match solutions to problems.

I love the communicating and marketing ideas. It is both rewarding and challenging. I have orchestrated crowdfunding campaigns that have collectively raised over \$50,000 to support my goals in open source development—supported by companies like Cognitect, Walmart Labs, Prismatic, and CircleCI.

I have given many talks in industry and academic conferences, including Strangeloop, Clojure Conj, Philly ETE, Lambda Jam Brisbane, Code Mesh, ESOP, and the International Lisp Conference. I also enjoy talking at local Clojure user groups.

Experience

Research Assistant

INDIANA UNIVERSITY BLOOMINGTON

Advisor: Sam Tobin-Hochstadt

Fall 2014 — Summer 2015, Spring 2016 —

We have worked to formalise and publish a paper on the fundamentals of Typed Clojure. We are also working towards extending Typed Clojure with gradual typing. More recently, we are developing a framework to infer type annotations for optional type systems based on [runtime instrumentation](#).

Assistant Instructor

INDIANA UNIVERSITY BLOOMINGTON

Instructor: Sam Tobin-Hochstadt

Fall 2015

Taught undergraduates C211, an introductory programming language course based on How To Design Programs. Conducted labs and office hours.

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.

Crowdfunding for Open Source work

PERTH, WESTERN AUSTRALIA

Typed Clojure

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, a now-important Clojure library.

Gradual Typing for Clojure

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.

Automatic Annotations for Typed Clojure and clojure.spec

2016

This campaign concentrated on automating the manual labour 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.

Analyst Programmer

UNIVERSITY OF WESTERN AUSTRALIA 2010-2011

I worked with the UWA library staff to gather information on the format and location of various University research data sources, and set up VIVO semantic web software. I used Java, XSLT, and bash, and administered several Linux machines.

Education

Indiana University Bloomington
Computer Science PhD student (In progress)
University of Western Australia
BSc in Computer Science with Honours

BLOOMINGTON, INDIANA
Fall 2014 –
WESTERN AUSTRALIA, AUSTRALIA
2008 – 2013

Research Groups

PL Wonks
Gradual Typing Group

INDIANA UNIVERSITY BLOOMINGTON
INDIANA UNIVERSITY BLOOMINGTON

Publications

Practical Optional Types for Clojure WITH ROWAN DAVIES, SAM TOBIN-HOCHSTADT
Presented at European Symposium on Programming (ESOP) 2016
A Practical Optional Type System for Clojure SUPERVISED BY ROWAN DAVIES
Bachelor of Computer Science Honours dissertation, University of Western Australia

Skills

Technical expertise: Experienced with open source development and maintenance, including Git, Github, and continuous integration. Enjoys building static program verification tools for dynamically typed languages. Experienced Clojure programmer. Some experience in Java and C.

Selected Open Source Contributions

core.typed LEAD DEVELOPER
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.

Selected Talks

Typed Clojure: From Optional to Gradual Typing (Video) STRANGELOOP 2015
Typed Clojure in Practice (Video) STRANGELOOP 2014
Practical Optional Types for Clojure (Slides) ESOP 2016
Introduction to Logic Programming (Video) CLOJURE CONJ 2011

Interests

Singing, guitar, clarinet, reading, teaching.