

Tristan Hume

Student Developer - University of Waterloo Computer Science

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Work

Jane Street Capital

Developer Intern, Fall 2016

- Wrote a `js_of_ocaml`-based debugging and exploration tool that reinterprets a rule matching language to find all possible paths given a set of constraints on the input.
- Implemented parsing and processing code for a low latency binary UDP market data feed with zero-allocation OCaml. Learned a lot about finance in the process.

UWaterloo HCI Lab

Undergraduate Researcher, Winter 2016

- Designed and developed a hands-free mouse alternative that combines the speed of an eye tracker and the accuracy of head tracking using [MAGIC](#).
- Developed high accuracy low-latency audio recognition algorithms for using various mouth noises (e.g lip popping) to perform actions like clicking.
- Combined knowledge from reading hundreds of academic papers on HCI techniques and eye tracking computer vision algorithms to develop an enjoyable to use system with speed and accuracy similar to a trackpad.

Shopify (Shipping Team)

Developer Intern, Summer 2015

Helped develop [Shopify Shipping](#). I fixed production disruptions, implemented package tracking and owned the development of the [unified fulfillment and label purchase form](#) now used by thousands of merchants every day.

Shopify (Stack Team)

Developer Intern, Summer 2014

Containerized deployment tools with Go, Docker and Chef.

Shopify (Apps Team)

Developer Intern, Summer 2013

Worked on Ruby on Rails projects and a new parser for [Liquid](#).

The Eclipse Foundation

High-school Co-op Developer, Fall 2012

Implemented features and fixed bugs in the Eclipse IDE.

Halogen Software

Student Software Developer, Summer 2012

Investigated web accessibility and automated a data entry process.

Selected Projects

Rate With Science

I extracted the link graph of Wikipedia into a 600MB binary file with a custom format designed for fast path finding in memory. I've rewritten the path-finding server in Rust, Nim and D for fun.

StashLine

An iOS app for long term personal finance simulation with 7000 users. Has a custom built UI that instantly updates a visualization of your entire life's financial future while you manipulate inputs.

The Open Turing Compiler

An LLVM based compiler for [Turing](#) as well as a Qt-based IDE and a simple drawing library.

PolyType

I built a working keyboard I designed in AutoCAD and put together with laser cut acrylic layers, Cherry MX switches, lots of soldering, and an ARM microcontroller.

Dayder

A Rust web app for finding spurious correlations in 390,000 time series data sets. I wrote custom optimized DOM, JS Canvas rendering, caching, correlation and [binary serialization](#) code for instantly responding to queries.

SmartGaze

I reverse engineered my [Eye Tribe](#) tracker's USB protocol by scripting LLDB to capture their USB messages and implemented a glint and iris tracker on the raw image feed suitable for high accuracy eye tracking.

About

I'm a highly passionate developer who has spent the last 10 years building dozens of projects using a large variety of languages and technologies. I'm also building a solid academic groundwork through my studies as a CS student, research work, and spending lots of my spare time reading.

Open Source

I've created dozens of open source projects with over 20,000 combined users (300,000 if you count web apps), all of which you can find on [my Github page](#).

I was also the [first contributor](#) and [long time](#) top contributor to [Spacemacs](#), a now quite popular configuration package for Emacs.

I once went on a 201 day long Github streak.

Languages Used

My strongest languages are Ruby, C++ and Javascript. I've written over 10,000 lines of code in each of these languages.

I also enjoy learning new languages: I've done projects in 22 different languages including Rust, Haskell, D, Go, and Scala.

