Brian **Ward**

New York based Software Engineer

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Experience

Software Engineer II — New York, NY

Flatiron Institute, Simons Foundation — June 2021 - Present (Promoted 2024)

- Maintained and developed the **`Stan`** language and compiler. Significant project: added tuple types, resolving a 6-year-old request and unblocking new features (**`OCaml`**, **`C++`**).
- Built high-level interfaces to multiple in-house libraries implemented in compiled languages (**`Fortran`**, **`C`**, and **`C++`**, with bindings in **`Python`**, **`OCaml`**, **`R`**, and **`Rust`**).
- Contributed back to the open source community, including maintaining the **`opam-cross-windows`** repository, improved auto-completion for the **`cmdliner`** package, and contributions to the **`CPython`** and **`Rust`** projects.
- Created https://stan-playground.flatironinstitute.org/, an online tool for using **`Stan`** without any local installation (**`React`**, **`Typescript`**, **`WASM`**).
- Managed **`Stan`**'s triannual release cycle, with over 1.8 million downloads since 2021.
- Mentored two undergraduate summer interns (**`Python`**).

MSP Intern — Remote

NASA Jet Propulsion Laboratory — May 2020 - June 2021

- Developed software to interpret simulated instrument data and compare to model output to assess scientific usefulness of proposed Mars orbiter with Leslie Tamppari, PhD.
- Developed, tested, and deployed a new Python framework for Aura satellite data analysis with MLS principal investigator Nathaniel Livesey, PhD. Created new tools to track anomalous behavior and confirm consistency of existing datasets.

Teaching Assistant — Chestnut Hill, MA

Boston College Computer Science Department — August 2019 - May 2021

Evaluated student work throughout the semester. Educated students on technical and conceptual content of courses in Java, Python, and OCaml.

Technician, Programmer, and Designer — Chestnut Hill, MA

Robsham Theatre Arts Center — September 2017 - May 2021

Designed and executed shows to specifications of user groups, ranging from lectures to comedy events and dance showcases. Developed and implemented standards for the programming, operation, and broadcast of shows to ensure quality. Created software and hardware solutions for venue-specific problems.

Education

Boston College — Chestnut Hill, MA

B.A. in Computer Science and Theatre — August 2017 - May 2021

Summa Cum Laude, Phi Beta Kappa Member, **3.981** Cumulative GPA

Significant Courses: Compilers, Programming Languages, and Computability and Complexity.

Honors Thesis: *A Validated Parser for Stan*, supervised by Joseph Tassarotti and Jean-Baptiste Tristan

Presentations

An Experimentalist Approach to Software Testing — USRSE 2025

Slides (with Jeff Soules) — October 8, 2025

Stan without installing Stan? How (and why) to sample inside your browser — StanCon Oxford

Video — September 10, 2024

Introduction to BridgeStan — Oklahoma Data Science Workshop/NYC Bayesian Data Analysis Meetup

VIDEO

February, 16 2024/January 26, 2024

Introduction to Foreign Function Interfaces

Flatiron Wide Autumn Meeting

VIDEO

October 19, 2023

Bayesian phase retrieval for image reconstruction using FFTs in Stan

StanCon St. Louis

SLIDES

June 6, 2023

Skills

Programming Languages	**OCaml**, **C++**, **Python**, Rust, Java, Coq/Roq, Typescript
Collaboration Tools	**Git**, **GitHub**, Google Suite, Microsoft Office

Hobbies

- I am an avid baseball fan and help maintain software for monitoring real-time scores on tiny LED scoreboards at home.
- I have developed and maintained several personal software projects for over 11 years, including several public projects downloaded over **14 million times** in aggregate.
- I have served as the lighting designer or assistant designer for over a dozen shows of various disciplines.