# 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)

- Primary maintainer of the **Stan** language and compiler. Significant project: implemented 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**, **Julia**, **Typescript**, **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.
- Built https://stan-playground.flatironinstitute.org/, an online tool for using **Stan** without installation (**React**, **Typescript**, **WASM**).
- Managed **Stan**'s triannual release cycle, with over 1.8 million downloads since 2021 across all major platforms.
- 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

V<small>IDEO</small>

October 19, 2023

**Bayesian phase retrieval for image reconstruction using FFTs in Stan**

StanCon St. Louis

S<small>LIDES</small>

June 23, 2023

## Skills

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|---|---|
| **Programming Languages** | **OCaml**, **C++**, **Python**, Rust, Java, Coq/Rocq, Typescript |
| **Operating Systems** | **Linux**, **Windows** |
| **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 **17 million times** in aggregate.
- I have served as the lighting designer or assistant designer for over a dozen shows of various disciplines.