

Rebecca Turner

becca.000 — 637275@gmail.com — (571) 643-5466

- Sophomore computer science BS, mathematics BA, and east-Asian studies minor at Brandeis University
- Preferred title: Software Engineer Intern
- Available early May through late August

Professional experience

Computer Science Department, Brandeis University

Systems Administrator

February 2019–

Western Jihadism Project, Brandeis University

Lead Software Engineer

September 2018–January 2019

- Migrated legacy software and databases (Django, PostgreSQL, Python) to current versions.
- Improved server uptime and reliability by integrating server applications (Redis, uWSGI, Apache); automated a lengthy, undocumented, and error-prone manual start process. (Shell script.)
- Reduced server response times by delegating static assets to an Apache instance.
- Improved security by removing known-insecure language features from the codebase. (Python.)
- Rewrote documentation and migrated from a single file to a more logically organized web-based book format. (Markdown, mdBook.)
- Recovered from legacy source code losses by manually repairing an internal database table and regenerating schema changes. (Python, PostgreSQL.)
- Rewrote and hosted documentation to increase ease of access to process information.

Iridium

Engineering intern

May–August 2018

- Authored tools to detect anomalies within satellite configurations by searching for mismatches between satellites and unexpected changes within a satellite's configuration. Resolved satellite configurations with a recursive import system. Specialized HTML and plain-text reports for interfacing with already-in-place data manipulation tools. Worked with engineers to schedule the tool to run daily and deploy it system-wide. Migrated several components into libraries to encourage code reuse. (Python, Perl, HTML, shell script.)
- Created a post-processing command-line tool to colorize plain-text error reports and worked with operators to create coloring schemes that allow at-a-glance analysis of data. (Perl.)
- Created a tool to analyze memory dumps to simplify identifying and correcting memory errors. (Python.)
- Created an interactive MongoDB query builder. Provided rich input for fields of different data types and specialized existing input for domain-specific needs (e.g. durations are often an even multiple of orbits rather than a more common unit like hours). (C++, Qt.)
- Modified an internal library for requesting satellite-metadata to make the API more intuitive and increase debuggability. (Python.)

Education

Brandeis University (Waltham, MA)

Computer science BS, mathematics BA, east-Asian studies minor

August 2017–May 2021

GPA: 3.577 / 4.00

Courses include calculus, linear algebra, physics (mechanics / electricity and magnetism), operating systems, advanced programming techniques, and data structures.

The New School of Northern Virginia (Fairfax, VA)

Honors Diploma in computer science

June 2017

GPA: 3.89 / 4.00

Software

Extensive experience: Java, Python, C, Javascript, PowerShell, LaTeX, PHP, HTML 5, CSS 3, Perl, Bash / shell scripting, Go, the Microsoft Office suite, Cinema 4D, the Adobe CC suite (notably Photoshop, Illustrator, AfterEffects, and Premiere Pro).

Moderate experience: Ruby, Rust, Wolfram Mathematica, C++, Haskell, Racket, C#, F#, and the .NET API.

I have developed a number of independent software projects.

- *I C the Light* a distance-estimating ray marcher designed to render images of quaternion Julia sets. Paper: becca.000/i-c-the-light.pdf (Written in C, GitHub: [9999years/i-c-the-light](https://github.com/9999years/i-c-the-light))
- *juliaplotter* a script to render cells or grids of arbitrary Julia sets, to overcome difficulties other renderers have in visualizing the many possible values of the constant c in the Julia set for a given rational function. (Python, GitHub: [9999years/juliaplotter](https://github.com/9999years/juliaplotter))
- *#wrap* an extension for Google Chrome to wrap Tumblr's hashtag interface to one line, addressing a widely-held annoyance with Tumblr's user interface. Three years after its publication, *#wrap* had retained 30,315 active users. (CSS, GitHub: [9999years/hashwrap](https://github.com/9999years/hashwrap))
- *becca.000/mandelbrot* an interactive web app to explore the Mandelbrot set and visualize incremental values of the underlying sequence at arbitrary points. (HTML 5 canvas, Javascript.)
- *Twitter bots* such as *@gardensbot*, which posts grids of plant and animal emoji in virtual "gardens" every other hour, and *@goodwordsbot*, which generates fake but plausible English words from Latin and Greek roots. (PHP, GitHub: [9999years/twitter-bots](https://github.com/9999years/twitter-bots))
- *The Daily Report* a highly-customizable framework for generating daily agendas for use with receipt printers. Capable of reading and processing Google calendars, outputting weather forecasts, countdowns, to-dos, daily news, and other useful information. Currently running on a Raspberry Pi interfacing with a Star thermal receipt printer. (Python, GitHub: [9999years/daily-report](https://github.com/9999years/daily-report))
- *becca.000/fox* a program to simulate and visualize the interactions of plant and animal populations in a virtual ecosystem. (HTML 5 canvas, Javascript.)
- *becca.000/integral* an interactive web app to visualize integral approximations. (HTML 5 canvas, Javascript.)

Graphic design / motion graphics

I have experience with Adobe CC suite software, and Cinema 4D across a variety of fields — I have created vector illustrations, manipulated photos and videos, and created motion graphics from scratch.

A WIRED article (*11 Beautiful, Psychedelic GIFs Created by a Math Whiz*) linked to a directory of GIF artists I curate, gifartists.tumblr.com. Motion graphics reel available at becca.000/reel

Publications

Co-author of "Proposal to add characters from legacy computers and teletext to the UCS" (L2/19-025, 2019), accepted at UTC 158 "for a future version of Unicode."