Rebecca Turner

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I am a sophomore computer science student enrolled at Brandeis University passionate about software engineering and art, including graphic design and motion graphics. I'm looking for an internship in software development where I can contribute meaningfully and learn real-world development practices.

Professional experience

Western Jihadism Project, Brandeis University

Lead Software Engineer   September 2018–

— Migrated legacy software and databases (Django, PostgreSQL, Python) to newer 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.)

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)   August 2017–May 2021
Computer science BS   GPA: 3.526 / 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)   June 2017
Honors Diploma in computer science   GPA: 3.89 / 4.00

Software

Extensive experience: Java, Python, C, Javascript, PowerShell, LaTeX, PHP, HTML 5, CSS 3, Perl, Bash / shell scripting, Go, and the Microsoft Office suite. Moderate experience: Ruby, Rust, Wolfram Mathematica, C++, 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.ooo/i-c-the-light.pdf` (Written in C, GitHub: `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`)

— `#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`)

— `becca.ooo/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`)

— `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`)

— `becca.ooo/fox` a program to simulate and visualize the interactions of plant and animal populations in a virtual ecosystem. (HTML 5 canvas, Javascript.)

— `becca.ooo/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 (namely Photoshop, Illustrator, and AfterEffects), 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.ooo/reel`