

Brian Joseph Fults

Programming Languages: Java, Clojure, (J)Ruby, some Javascript, learning Rust

Work Experience: **Senior Software Developer:** Toast, Boston, MA

February 2016 - Present

- Updated mock printer from a naive loop to actually simulate a printer's state machine
- Replace database event log with Elasticsearch index
- Identified and eliminated numerous race conditions, memory leaks, and other safety issues
- Improved interview processes, including designing a new interview question which led to the deprecation of a previously existing question.
- Move payment processing workflow from asynchronous, in-memory tasks to a persistent job queue
- Implemented support for embedding amounts in barcodes
- (Hackathon) Automated product mix importing for menu configuration
- (Hackathon) Voice ordering using the Amazon Echo
- (Hackathon) Automated uploading of log files from devices

Software Development Engineer: Amazon, Boston, MA

April 2012 – January 2016

- Helped launch the Amazon Echo, implementing storage solutions for language and speech data.
- Rewrote synchronous, single-request workflow to incorporate AJAX requests, which significantly increased throughput for generating transcriptions and annotations
- Designed and implemented a real-time monitoring framework for a system for creating sample speech data from real spoken phrases
- Designed and implemented a highly scalable aggregation service which groups data in a secure, distributed store in near real-time

Programmer Analyst Professional: CSC, Dahlgren, Virginia

May 2009 – April 2012 (including internships, fulltime from January 2011 on)

- Implemented a system to compare tactical decision-making to specification using logfiles
- Created a language parsing system for gathering information from English emails and automatically dispersing pertinent details to various contacts
- Built a proof-of-concept for serializing objects among different languages in a multi-platform environment using CORBA and the JNI and worked on a product based on the prototype
- Provided documentation and software support for several AEGIS baselines

Undergraduate Teaching Assistant: CS Dept, Blacksburg, VA

August 2009 – December 2010

- CS 2114: Software Design and Data Structures
 - Tutored students in office hours
 - Lead lab sessions
 - Graded homework assignments, tests, and projects
- CS 2104: Problem Solving
 - Managed attendance
 - Assisted with grading and office hours as necessary

Education: **B.S., Computer Science, December 2010**

Virginia Polytechnic Institute and State University, Blacksburg, Virginia

Overall GPA: 3.66/4.0 Major GPA 3.80/4.0

Projects:

- **crochet-alignment:** Uses simulated annealing and Quil to visualize placing squares of different sizes within a grid to minimize the total distance between them: <https://github.com/blandflakes/crochet-alignment>
- **f-utility:** In collaboration with Harvard Medical School researchers, implemented interactive visualizer of Next-Generation Sequencing to identify genes in MRSA conferring resistance to a panel of antibiotics (used Javascript, d3.js)
- **Connoisseur:** a React application that procedurally generates tasting notes: <http://blandflakes.github.io/connoisseur/>
- **echo-stopwatch:** A stopwatch written in Clojure for the Amazon Echo
- **echo-chamber:** A Clojure SDK for developing voice applications for the Amazon Echo

Independent Research:

- Developed a search space for testing an intelligent agent framework
- Developed a test harness for observing different types of agents and gathering results
- Worked to research methods of making large state spaces more easily represented within memory constraints by segmenting the search space without losing information provided by a full representation