Brian Joseph Fults

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https://blandflakes.github.io/

Programming Languages: Java, Clojure, (J)Ruby

Technologies: Git, Amazon Web Services (AWS), Linux, Relational Databases, NoSQL Stores, Message Queues, MapReduce, Alexa Skills Kit

Work Experience:

Team Lead: Toast, Boston, MA
June 2017 - Present
- I lead a team of 6 engineers developing Front of House features for restaurant wait staff management
- As team lead, I am responsible for design and breakdown of features and bug fixes
- I provide career mentorship and technical feedback to junior engineers

Senior Software Developer: Toast, Boston, MA
February 2016 - June 2017
- I focused mainly on implementing robust infrastructure to support building and operating our mobile application which aims to streamline restaurant operations.
- Rewrote mock printer, which is used in our testing infrastructure to act like a printer without requiring physical interaction, from a naive loop to actually simulate a printer's state machine
- Replace database event log with a NoSQL ElasticSearch index
- Identified and eliminated numerous race conditions, memory leaks, and other code 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, allowing payments to survive app crashes
- Implemented support for embedding amounts such as weight or price 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
- I implemented storage solutions for all language and speech data, supporting launch of several voice enabled systems, including the Amazon Echo, the FireTV, and the Dash.
- 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. This system was used to avoid errors in recording system configuration that would prevent the collection of data.
- Designed and implemented a highly scalable aggregation service which groups data in a secure, distributed store in near real-time for use in research
- Built tooling to aid speech scientists in validating training data, training and testing models

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 for the purposes of identifying discrepancies when deciding which ship should take action to shoot down an incoming missile
- Created a language parsing system for gathering information from natural language security disclosure emails and automatically dispersing remediation steps to contacts on affected platforms

Undergraduate Teaching Assistant: CS Dept, Blacksburg, VA
August 2009 – December 2010
- CS 2114: Software Design and Data Structures
  - Tutored students in office hours
  - Led 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:
- f-utility: In collaboration with Harvard Medical School researchers, implemented interactive visualizer of Next-Generation Sequencing data to identify genes in MRSA conferring resistance to a panel of antibiotics (used Javascript, d3.js, converted analysis logic from Matlab and Python)
  - This work supported research resulting in the following publications:
    - Rajagopal et al. Multidrug Intrinsic Resistance Factors in Staphylococcus aureus Identified by Profiling Fitness within High-Diversity Transposon Libraries. 2016. mBio.
    - Santiago et al. Genome-wide mutant fitness profiling predicts the mechanism of action of a Lipid II binding antibiotic. 2017. Nature Chemical Biology: In review.
  - Publically available at https://f-utility.hms.harvard.edu/
- 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
- Connoisseur: a React application that procedural 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

Undergraduate Research:
- Collaborated with Walter Lasecki, now assistant professor of Computer Science at University of Michigan, 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
  - Develop a test harness for observing different types of search algorithms and gathering results