Charles Lai

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Education

B.S. Computer Science — Graduation: **2016**
Cornell University — GPA: **3.62**

Experience

YELP — San Francisco
Incoming Software Engineer — *June 2016 - Present*
- Back-end software engineer on the Consumer Team.

DATADOG — New York, NY
Software Engineering Intern | hackNY Fellow — *May 2015 - August 2015*
- Created REST API endpoints that allow users to programmatically create embeddable graphs and retrieve user data.
- Implemented OpenID 2.0 authentication flow for AppDirect SSO and patched XSS/SQL injection vulnerabilities.
- Restructured SVG avatar pattern instantiation which improved dashboard load times by 5-10%.
- Completely automated blacklisted domain verification with Amazon Route 53 and boto.
- Updated Python/Ruby API wrapper libraries, developed test suites, and handled live client support tickets.

VERIZON — Irving, TX
IT Intern — *June 2014 - August 2014*
- Created a Python naive Bayes classifier on a 2GB dataset to analyze textual sentiment patterns in Salesforce Chatter.
- Analyzed and reported the international, end-to-end business metrics of an automated marketing tool to the CIO.

GTA INFORMATION TECHNOLOGY — Shenzhen, CN
Software Development Intern — *June 2013 - August 2013*
- Developed technical indicator based trading algorithms in Matlab (MACO, MACD, support/resistance, oscillator, etc).
- Consistently outperformed the CSI300/HKSI yielding 15+% annualized returns on backtests of historical data.

Academia / Project Teams

CORNELL UNIVERSITY — Ithaca, NY
Teaching Assistant — *August 2014 - December 2015*
- CS 1300: Introduction to Web Design and Programming (Fall 2014)
- CS 2300: Intermediate Web Design and Programming (Spring 2015)
- CS 3410: Computer Organization and Systems Programming (Spring/Fall 2015)
- Held office hours, taught lab sections, developed slide decks, graded assignments, and revamped course materials.

CORNELL DATA SCIENCE CLUB — Ithaca, NY
Research Assistant — *August 2015 - December 2015*
- Created Python/Flask server that runs a precompiled classifier on scraped ESPN data to predict NBA game outcomes.
- Provisioned the Tornado backed server on DigitalOcean which exposes API endpoints to a Javascript web app.
- Final gradient boosted decision trees classifier converges to 68-71% accuracy on validation datasets.

REIMAGINATION LAB — Ithaca, NY
Research Assistant — *February 2014 - December 2014*
- Helped develop Achieve, a mobile goal achievement application that utilizes social accountability and team support to boost motivation using Node and Express. White paper at http://dl.acm.org/citation.cfm?doid=2559206.2581325

CORNELL CONCRETE CANOE — Ithaca, NY
Logistics Chair — *September 2012 - May 2014*
- Worked on an automated Gantt chart, sponsor acquisition, tournament planning, scheduling, and budget management.

Selected Projects

- **Bitr:** Swift/Node/iOS application that allows users to up-vote and down-vote arbitrary locations and objects as well as check-out cool events on a globally shared map. Won the Clusterpoint prize and 3rd place at Angelhacks Manhattan.
- **Venmo Dash:** Venmo web application adding analytics, recurring payments, and future payments features using Node. Won the Braintree/PayPal sponsor prize at Major League Hacking's season finale: Hack the Planet.
- **Gomoku Bot:** Javascript AI utilizing multi-level Negamax trees and alpha-beta pruning to play Gomoku (5-in-a-row).
- **MIPS Processor:** Logisim-based fully pipelined, five-stage processor that implements the MIPS32 RISC ISA.
- **Image Scissors**: C++ application that crops images automatically using gradient kernel convolution and Dijkstra's.
- **Panorama Stitcher:** Python panorama generator leveraging spherical warping and homography calculation via SVD.
- **Distributed PR:** Java/Hadoop MapReduce framework that computes page rank of 600,000 nodes on Amazon EMR.

Skills

[**Proficient**: Python, Java, Javascript, HTML/CSS, SQL] [**Familiar:** C/C++, MIPS, OCaml, PHP, Matlab, bash, MongoDB]