Charles Lai

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Education

B.S. Computer Science

Cornell University

Graduation: **2016** GPA: **3.62**

Experience

YELP **Software Engineer** San Francisco, CA

July 2016 - Present

Back-end engineer on the Consumer Team.

New York, NY

Software Engineering Intern | hackNY Fellow May 2015 - August 2015

- Created a REST API endpoint that allows users to programmatically create embeddable graphs and retrieve user data.
- Updated Python/Ruby API client libraries, developed test harnesses, and remedied XSS/SQL injection vulnerabilities. Restructured instantiation of SVG avatar patterns which improved dashboard load times by 5-10%.
- Implemented OpenID 2.0 authentication and login flow in Pylons to support AppDirect SSO.

VERIZON Irving, TX IT Intern June 2014 - August 2014

Utilized bash, sed, and Python to parse 2GB of raw Salesforce Chatter feeds into an indexable dataset.

- Trained a Python naive Bayes classifier on this dataset to analyze textual sentiment, patterns, and trends in Salesforce.
- 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 2014 - August 2014

- Developed demo automated trading algorithms using Matlab, XML parsing, and proprietary APIs.
- Implemented moving average, MACD, stochastic oscillator, volume, and support/resistance based strategies.
- Consistently outperformed the CSI300/HKSI yielding 15+% annualized returns on backtests of historical data.

Academia / Project Teams

CORNELL UNIVERSITY

Ithaca, NY

August 2014 - December 2015

- **Teaching Assistant** 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 Tornado backed service on Digital Ocean 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 September 2012 - May 2014

Developed an automated Gantt chart that keeps track of tasks and goals among all five sub-teams.

Worked on sponsor acquisition, tournament planning, scheduling, and budget management.

Selected Projects

Logistics Chair

- 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 Al 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