Gary Cheng

2455 Hilgard Ave, Apt 11, Berkeley, CA 94709 • www.garycheng.me • garycheng@berkeley.edu

---

EDUCATION

University of California, Berkeley   **GPA: 4.0**

B.A. Computer Science | Anticipated Graduation: May 2019

- *Relevant Coursework*: Machine Learning, Probability in EE, Optimization Models, Algorithms, Data Structures, Discrete Math & Probability, Computer Architecture, Real Analysis, Linear Alg. & Diff. Eq.

EXPERIENCE

Teaching Assistant – Algorithms (CS170)   **Aug '17 – Dec '17**

Berkeley Computer Science, Berkeley

- Teaching a section of ~30 students every week about the following topics: Dynamic Programming, Linear Programming, Streaming Algorithms, Divide and Conquer, and NP-Completeness
- Helping the professor develop exam/homework questions, holding office hours to help students learn

Software Development Intern   **May '17 – Aug '17**

Amazon.com

- Full stack developer on the Forecasting team in Supply Chain Optimization, used data analysis techniques to analyze runtime and success rates for the Forecasting Workflow Service Platform
- Implemented longest path in a directed graph and other graph algorithms to give insight into the longest running components of forecasting calculations, created new Java APIs and integrated them into a Ruby on Rails front-end, researched customer usage patterns to determine the most useful metrics to develop

Research Assistant   **Aug '16 – Present**

Jean Walrand, BLISS Lab, Berkeley Computer Science

- Working with Professor Walrand to optimize surgery room scheduling, aiming to minimize idle and wait times by altering when patients arrive at the hospital
- Implementing a stochastic gradient descent with infinitesimal perturbation analysis on a non-convex cost function to determine optimal notification times for patients in an online scheduling system

Teaching Assistant – Data Structures (CS61b)   **Jan '17 – May '17**

Berkeley Computer Science, Berkeley

- Teaching a section and lab of ~30 students every week, preparing supplemental discussion slides to aid student understanding in learning about data structures, working in office hours to resolve student issues
- Working on the Data Analysis team, finding trends in office hour, grading, and survey data to optimize the course

---

PROJECTS

Google Trends predicts the Stock Market *(github.com/garyxcheng/stock-prediction)*

- Using Python, TensorFlow, Pandas DataFrames, and Google Trends data to predict the movements of the S&P 500. Used autocorrelation plots and log return data to determine predictive value of a searched term. Trained a neural net with 2 hidden layers over a 3-year dataset.

CS61b data analytics

- Used Piazza data, office hour queue data, and grading data to analyze connections between student data and exam performance. Found slight correlations between number of questions asked on Piazza/Office hours to grade. Currently implementing a binary classifier to determine whether students get a 3.30 GPA

Taxi Cab Markov Chain *(github.com/garyxcheng/pafnutys-taxi)*

- Used Python, Pandas DataFrames, Numpy to model NYC taxi cab movement/fares as a Markov Chain, Used k-means algorithm and elbow method to generate state space of Markov Chain. Found steady state distribution of the graph as well as the locations in NYC that maximize profit for taxi cab drivers.

LANGUAGES

Proficient: Python, Java, C, SQL, Scheme, Swift (iOS)

Familiar: Ruby on Rails, HTML, CSS, JavaScript, Node.js