Mathew T. Joseph

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EDUCATION

University of California, Berkeley | B.A. Computer Science — May 2017

Honors Regents' and Chancellor's Scholar Finalist (top 1.5% of applicants to UC Berkeley)
Cal Alumni Association Leadership Award Finalist (awarded to 150 students out of over 4,500 applicants in the incoming freshman class)

Coursework Structure and Interpretation of Computer Programs, Data Structures and Advanced Programming, Discrete Mathematics and Probability Theory, Machine Structures, Artificial Intelligence, Efficient Algorithms and Intractable Problems, Linear Algebra and Differential Equations

John Jay High School | Regents Diploma with Honors — September 2009-May 2013

Honors In top 5% of graduating class
AP Scholar with Distinction

EXPERIENCE

CS61B Undergraduate Staff | Lab Assistant — Spring 2015 – Present

- On the staff for the course titled "Data Structures and Advanced Programming," with around 1225 students enrolled
- Assisted students in lab and co-ran tutoring sessions and discussion sections

Course Coordinator | Artificial Intelligence — January 2016 – Present

- Working with professors and graduate students to prepare material such as exams, homework problems, and projects for next semesters offering of Artificial Intelligence

Affinion Group | Intern — June 2014 – August 2014

- Worked with PhD statisticians to understand response trends and provide marketing recommendations to businesses
- Assisted with building and ranking linear regression models using SAS to predict response trends based on demographic, geographic, and consumer economic data

SOFTWARE PROJECTS

Pacman Learning Agent — December 2015

- Solved various Pacman-related search problems by implementing search algorithms (A*, DFS, UCS, Minimax, Alpha-Beta) and optimizing heuristics
- Later added handling for Markov Decision Processes to develop an Approximate Q-Learning Pacman agent that had a near 100% win rate in any Pacman map (old or new) after 50 training episodes

Digit Multiclass Linear Classifier — November-December 2015

- Implemented multiclass classification via a one-vs-rest classifier using regression-based binary classifiers
- Added feature extraction for digit recognition by analyzing pixels using various graph traversal methods such as DFS
- Used the multiclass classifier to recognize hand-written digits, achieving 85% accuracy on a testing data set

Convolutional Neural Network Optimization — June 2015-July 2015

- Took a pre-trained 11 layer Convolutional Neural Network written in C (able to classify 32x32 images), and increased performance by up to 8x
- Used tools such as OpenMP and Single Instruction Multiple Data (SIMD) instructions to get significant optimization

Checkers Game with AI — December 2014

- Built a simple, fully functional checkers game with GUI and an AI using minimax from scratch, placing fourth at local Hackathon

TECHNICAL STRENGTHS

Computer Languages Java, Python, Swift, C, Objective-C, JavaScript, SQL, MIPS, SAS
Tools & Frameworks Xcode, Git, OpenMP, Apache Spark, Logisim, NetBeans, Microsoft Office
Software Sublime, Vim, Emacs, SAS Visual Analytics