Mathew T. Joseph

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EDUCATION



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| **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

**Daily Fantasy Basketball Optimal Lineup Automator** January 2016

* Used BeautifulSoup HTML reader to automatically extract data from multiple websites to rank players based on day-to-day matchups
* Used the simulated annealing algorithm to implement Integer Linear Progamming (an NP-Hard problem) to calculate the highest fantasy point output for a certain salary cap
* Adjustable to any fantasy sport, can use any ESPN data table to extract any information needed

**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 using OpenMP and SIMD instructions

**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, Ruby

**Tools & Frameworks** Xcode, Git, OpenMP, Apache Spark, Logisim, NetBeans, Microsoft Office, Rails

**Software** Sublime, Vim, Emacs, SAS Visual Analytics