Jason Keung

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EDUCATION

University of California, Berkeley **August 2018 - May 2022**

- B.A. in **Computer Science** **CS/Math GPA: 3.6**
- B.A. in **Applied Mathematics**, concentration in Computer Science
- Relevant Coursework: Machine Learning*, Artificial Intelligence, Optimization Models, Algorithms, Data Structures, Machine Structures, Operating Systems*, Probability and Random Processes, Real Analysis*, Numerical Analysis, Discrete Math and Probability Theory, Abstract Algebra, Linear Algebra, Multivariable Calculus ** - Planned for Spring 2021*

PROFESSIONAL EXPERIENCE

Amazon | Software Development Engineer Intern June 2020 - August 2020

- Machine Intelligence and Decision Analytics for Search - **first SDE intern** in a state of the art machine learning team founded in Q4 2018
- Built AWS Step Functions pipeline for Amazon search bar behavioral feature dataset expansion, handling **hundreds of millions of rows**
- Improved runtime of sparse matrix creation of this dataset by **8 - 14x** using PySpark + AWS Elastic MapReduce, from ~**8 hrs to 35 min**
- Experimented with EMR cluster configuration to optimize memory and parallelism for Spark job to avoid having to use a larger machine
- Adapted AWS Lambda Python function to also get the latest frequent search queries from AWS S3 to prioritize for dataset expansion
- Prepared a trained regressor to scale inference outputs to appropriate scores and augmented the current dataset with tail/missing entries
- Created score regressor training set and wrote Python scripts to merge pipeline output and augment current behavioral feature dataset
- Presented to my team and Amazon Search, describing global customer impact with more relevant products and next steps for production

Computer Science Mentors | Senior Mentor September 2019 - Present

- Host weekly meetings to manage and advise Junior Mentors in teaching their own sections
- Lead weekly sections of 4-6 CS students, reteach core concepts, and work through custom worksheets, **overall student rating: 4.849**
- Provide inclusive academic/mental support for students, especially those underrepresented in CS at Berkeley

UC Berkeley EECS Department | Academic Intern January 2019 - August 2019

- Taught 20+ students object oriented programming, recursion, data structures, and graph traversals in sections and office hours
- Structure and Interpretation of Computer Programs (CS 61A) - Spring ‘19, Summer ‘19, Data Structures (CS 61B) - Summer ‘19

PROJECTS

Chess Knight’s Tour Algorithm Demonstration | Java, Java Swing

- Wrote a Knight’s Tour heuristic-based algorithm using Warnsdorff’s rule and shows a knight piece visiting all 64 squares of the board
- Used heuristic to prioritize square with least degree among 8 choices, choosing squares that may not be accessible in the future first
- Implemented control for moves per second and a display of the sequence of moves on a chess board

Algebra Worksheet Generator | Java, Java Swing

- Designed algorithm to procedurally generate random six-problem worksheets of one-variable equations
- Implemented adding new students with an assigned difficulty, creating unique student worksheets, and inputting graded worksheet scores
- Saves student progress and adjusts the difficulty of future worksheets generated according to past scores and difficulty

Feedback Form | React.js, Bootstrap, HTML/CSS/Javascript *(https://jasonkeung.me/feedback-form-frontend)*

- Constructed fields with form validation using regex and a live character counter controlled component; makes POST request to a url
- Built to learn React and improve front-end skills with a widely common feature of modern websites

SKILLS

AWS Developer Tools: Amazon Simple Storage Service (S3), Elastic MapReduce, Lambda, Step Functions/State Machines, Batch
Big Data/Distributed Computing: Apache Spark/PySpark Resilient Distributed Datasets/Dataframes, Hadoop DFS, Sparse Matrices
Data Structures, Algorithms, Optimization

- Heuristic algorithms, advanced data structures, space/time complexity analysis, search algorithms over data structures and graphs
- Tree recursion, object oriented programming, functional programming
- Convex optimization, duality, quadratic and linear programs, support vector machines, singular value decomposition, least squares

UI Development: React.js, Bootstrap, Materialize, HTML/CSS/Javascript, Java Swing library
Python, Java, C++, C, Linux/Unix Environments, Git Version Control, Docker/Package Management, SSH