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, Probability and Random Processes, Real Analysis, Numerical Analysis, Discrete Math and Probability Theory, Abstract Algebra, Linear Algebra, Multivariable Calculus

PROFESSIONAL EXPERIENCE

SoFi | Contract Data Analyst/Consultant September 2020 - December 2020

- Perform competitive analysis on personal finance apps for SoFi, a financial technology unicorn company based in San Francisco
- Implement transaction graph prototypes and recurring transaction prediction using Pandas DataFrames and NumPy

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 for Discrete Math and Probability Theory September 2019 - Present

- Teach sections on graph theory, polynomial secret sharing, RSA encryption, and discrete/continuous probability; **overall rating: 4.849**
- Host weekly meetings to manage and advise Junior Mentors in teaching their own sections

UC Berkeley EECS Department | Academic Intern for CS 61A, 61B January 2019 - August 2019

- Taught 20+ students object oriented programming, recursion, data structures/algorithms, and graph traversals in sections and office hours

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 the degree among 8 choices, moves per second control and a display of the chess board

Algebra Worksheet Generator | Java, Java Swing

- Designed algorithm to procedurally generate random six-problem worksheets of one-variable equations for personal use as a math tutor
- Implemented adding new students with an assigned difficulty, creating unique student worksheets, and inputting graded worksheet scores
- Saved student progress and adjusted the difficulty of future generated worksheets according to past student scores and difficulty

Feedback Form | React.js, Bootstrap, HTML/CSS/Javascript

- 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 by implementing a widely common feature of modern websites: a feedback form!

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