Daniel M. Cheng

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EDUCATION

University of Chicago, Bachelor of Arts in Economics and Psychology, June 2014
GPA: 3.99/4.0, Phi Beta Kappa
Undergraduate: Algorithms and Data Structures in Computer Science, Linear Algebra, Statistics
Additional Coursework: Princeton Algorithms - **Overall Score 95%** on Coursera

SKILLS

Programming Languages: Java, Android, Python, JavaScript
Other: AWS, Linux, REST Services, Redshift, PostgreSQL, Tableau, SnapLogic, SAS

RECENT WORK EXPERIENCE

Consultant, Beghou Consulting, Inc., Emeryville, CA   Jul 2015 – present
- Cut costs of 20TB Redshift cluster in half and reduced space usage from 95% to 10% w/o query degradation
- Parallelized and tuned daily data pipelines to execute 4 times as fast as before
- Implemented failsafe lock mechanism to prevent concurrent attempted writes to the same Redshift table
- Wrote Linux scripts to automatically synchronize data between SFTP mount and S3 bucket
- Coded Slack integration to post success/failure, enabling team to easily monitor ETLs

- Wrote library of data pipeline functions used across the company to automate quality checks, convert between data types, and calculate the transformation sequence between two datasets
- Doubled speed of fuzzy match algorithm using hash table implementation rather than sorting and merging
- Wrote BK-tree algorithm using Levenshtein distance to autocomplete user name searches
- Built Markov model to predict subsequent words based on historical user input

- Led technical work for 10-person Agile team building dashboards for national sales force of 3,000
- Managed 5-person team in running performant SQL analysis on 2TB+ of healthcare data each week

RECENT PROJECTS

Project Summary on GitHub: https://goo.gl/vJTasW
Wikiracer https://goo.gl/ty7Ti6   Nov 2017
- Built multithreaded REST service to find path between any two web pages
- Sped up performance by implementing bidirectional breadth-first search and multithreaded batch API calls

Automated Drone Photo Service https://goo.gl/4taYny   Sep - Oct 2017
- Built an automated end-to-end drone service to capture real-time photos for traffic monitoring
- Wrote custom Android app to enable SMS-triggered launch and automated drone flight
- Developed Python module to automate photo stitching and cleaning in OpenCV
- Deployed Flask App on AWS to host real-time images sent by the drone
- Guaranteed reliability of real-time photos by synchronizing and optimizing for the limited radio bandwidth

Scrabble AI (Greedy Search Algorithm) https://goo.gl/Y2wisi   Jul - Aug 2017
- Built AI Scrabble application with complete web play in Python and JavaScript
- Implemented greedy search algorithm using GADDAG data structure (a trie storing every reversed prefix)
- Doubled search speed by reducing branching factor (via backtracking and precomputing constraints)
- Compressed GADDAG data structure from 1.8 GB to 0.8 GB by merging all suffixes and shared edges