Kaushik Donthi

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Software engineer with neuroscience background, strong mathematical and programming foundation, and competitive experience in SQL, Java, Python, and C.

Experience

Building Blocks Technologies, Data Analyst/Backend Engineer

June 2020 - PRESENT

Created a tooling solution for ETH 2.0 Medalla blockchain validators to determine their profits from staking activities and currently working on algorithms for blockchain stock prediction and visualizations for attestor performance.

- Built a data pipeline using **Python/SQL** to map ~30k Medalla validator keys to their changes in balances and min., max., avg. ETH 2.0 exchange rate over every 6.4 minutes
- Developed a dynamic programming solution in **Java** to find the N most evenly spaced numbers in a set of numbers and reduce the complexity of stock market data in order to create better lines of fit/predictions
- Developed a metric to measure evenness for the dynamic programming project, "optimal distance error", the mean squared error of differences between successive sorted numbers and the "optimal distance", which I found was the (largest # - smallest #) / (N -1)

Penn State University, Researcher

Jun 2020 - Feb 2021

Did research work to mathematically prove how changes in connectivities and initial firing rates, potential causes of attention deficit disorder (ADD) or uncontrolled movements (in Parkinson's), affect long-term neural behavior and visualize neurons working together in the zebrafish brain with the support of Dr. Carina Curto.

- Proved the convergence of firing rates of two neurons with no connectivity to 3 different areas on the graph, which serves as a starting point for future proofs of larger amounts of neurons and confirmed visualization of teammate
- Developed movies in MATLAB of Zebrafish neurons firing over space and time to better understand the clustering by a PCA & ProMAX method, understand location patterns in neurons that work together, and identify common neurons between clusters

Juni Learning, Computer Science Instructor

Dec 2019 - May 2020

Introduced the fundamental concepts of computer science to students (ages 5-18) through weekly one-on-one instruction.

- Guided students in lessons in Python about variables, loops, graphics, and general algorithms
- Developed an instructive program for students to understand the Python "range()" function and for loops

Education

University of California, Los Angeles (UCLA) — *B.S. Neuroscience*

Sep 2015 - *Aug* 2019

Computer Science Coursework

Introduction to Computer Science from Harvard

Machine Learning from Stanford (Cert.)

Linear Algebra, Multivariable Calculus, Calculus II, and Discrete Structures from UCLA

Projects

Customer Retention Database

Measured the retention of customers grouped by their ISO start week by creating a PostgreSQL database, to understand that the retention of successive cohorts decreased.

Command-Line Calculator

Developed an optimized program in C to solve mathematical expressions through insertion into an Abstract Syntax Tree

Handwritten Digit Classifier

Built machine learning algorithms, including backpropagation, and gradient descent, to classify 5000 handwritten digit images with ~95% accuracy.

Languages/Frameworks

Java, C/C++, Python, MATLAB, SQL (PostgreSQL, SQLite3), Unity