Fnu Kalkin

(408) 625-7285 | fkalkin@ucsd.edu | linkedin.com/in/kalkin953 | github.com/kalkulator413

Education

University of California San Diego — La Jolla, CA
B.S. in Computer Engineering, Mathematics - 3.97/4.00 GPA — *September 2022 – June 2025*

- Relevant Courses: Machine Learning (Graduate), Deep Learning, Systems Programming, Probability and Statistics, Extremal Graph Theory and Combinatorics (Honors), Discrete Math, Intro to Data Science, Analog Circuits, Signals and Systems, Advanced Data Structures, Real Analysis I (IP), Optimization (IP), Linear Systems (IP)

Experience

Incoming Software Engineering Intern — June 2024 - September 2024
Roblox — *San Mateo, CA*

Undergraduate Researcher — April 2023 – Present
University of California, San Diego - Scripps Institute of Oceanography — *La Jolla, CA*

- Building a recurrent neural net to predict trajectories of Argo floats in order to to make the best use of the $70 million of annual U.S. government funding allocated towards this observing system
- Wrote open source scripts for downloading sea surface height data and individual Argo float trajectories
- Wrote a script to download and parse all monthly extensions to the Roemmich-Gilson Argo Climatology and calculate the empirical orthogonal functions of the temperature and salinity profiles
- Reduced the dimensionality of temperature and salinity data by 93% while capturing 99.9% of the varaiance

Undergraduate Instructional Assistant — April 2023 – Present
University of California, San Diego - Halıcıoğlu Data Science Institute — *La Jolla, CA*

- Tutored undergraduate students in a data structures class and facilitated learning by proctoring exams, conducting weekly office hours, answering ∼100 questions on the online class forum, and developing and grading assignments
- Helped students gain proficiency in Java, debugging, and the process of writing unit tests in weekly office hours
- Developed three homework assignments and a script to calculate improved grades via homework redemption

Projects

UCSD GPA Visualization | *Python, Pandas, Selenium, HTML, CSS, JavaScript, D3.js*

- Developed a front-end web application using D3.js, HTML and CSS to display GPA and enrollment data for all courses at UCSD, contains tooltips that show additional details for each course on hover
- Scraped and cleaned over 65k rows of data using Selenium and Pandas to make the bubble chart
- Hosted the website on Github Pages and received over 1300 cumulative views

Music Analysis Bot | *Python, PostgreSQL, Pytorch, Spotify API, Last.fm API*

- Created a Discord bot that uses a PostgreSQL database to keep track of user IDs/statistics and OpenCV to generate graphical charts, integrated with a feed-forward neural net to predict genres of user-provided songs
- Used Last.fm and Spotify API calls to compare statistics between users and retrieve data for music charts
- Wrote a RateYourMusic scraper to find over 6,000 songs of 5 different genres to train the neural net
- Used spotipy to vectorize each song into its feature values and acheived 66% classification accuracy on the neural net through an MLP, compared to 62% with linear regression and 60% with K-Nearest Neighbors

Gitlet | *Java, Git, io*

- Developed a version control system like Git that allows users to create, track, and manage multiple versions of files
- Implemented core features such as commit, branch, checkout, merge, and reset using object-oriented programming
- Stored the system's data in a file-based structure that used serialization to save commits and blobs
- Wrote merge conflict resolution algorithms that allow for automatic and manual resolution of merge conflicts

Technical Skills

Languages: Java, Python, C, C++, SQL
Tools/Libararies: JUnit, Git, Regex, Linux, LaTeX, Pandas, Numpy, PyTorch, OpenCV, StdDraw
Awards: AIME qualifier, USACO Silver Medalist, Provost Honors (Dean's List), MSJHS Valedictorian