Henry Kroeger

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Education

University of Southern California, Viterbi School of Engineering May 2022
B.S. Computer Science & Computer Engineering *GPA: 3.9 / 4.0*
Honors: Mork Full-Tuition Academic Scholarship, Viterbi Research Fellowship, Honors Degree
Relevant Coursework: Data Structures & Algorithms, Object-Oriented Design, Computer Systems Organization

Security Clearance

Top Secret Active

Experience

Market Prophit May 2021 — Present
Lead Software Engineer

- Resurrected a dormant FinTech startup that uses a natural language processing engine built in Java to predict the price movements of more than 3,500 stocks and cryptocurrencies using Twitter data.
- Built tools in Java to collect and process data from 2.5M cryptocurrency-related tweets per month before storing the aggregated results in a MySQL database.
- Managed the refactoring and deployment of a large-scale Java application, PHP back-end, and web front-end.

Northrop Grumman June 2021 — August 2021
Software Engineering Intern

- Developed a software tool using Python to automatically generate verbose documentation for over 2,000 flight commands, saving verification engineers 30 hours of documentation editing per release.
- Programmed data verification tools using Python to automate the processing of 2.3M memory locations dumped from the spacecraft computer, reducing the number of memory locations that needed manual review by up to 100%.
- Created flight software tests that led to the discovery of a critical memory error in the spacecraft computer.

USC Integrated Medical Electronics Lab October 2018 — May 2020
Research Engineer

- Led a team of 3 undergraduates to design, build, and test a universal backend system for commercial and in-house brain-computer interfaces.
- Built a custom test suite in C to verify the operation of the brain-computer interface and simulate neural signals.
- Contributed to the programming of a FPGA using Verilog to control neural recording microchips and process digitized neural impulses from an array of 32 electrodes.

Projects

Office Light Sensor IoT System | *Python, C++, Riot OS, IoT*

- Constructed an IoT system using battery-powered sensor nodes and a centralized server to determine overhead light usage in an office.
- Deployed multithreaded real-time operating system light sensors to record changes in room lighting and publish the results to a remote server using MQTT messaging in C++.
- Created a backend web server on a Raspberry Pi using Flask in Python to access the light data remotely using a REST API.

Diabetes Prediction Model | *Python, Keras, scikit-learn*

- Created a neural network using scikit-learn and Keras that predicts the likelihood of an individual developing diabetes given data about their health and community.
- Created a Jupyter Notebook to visualize and share my results.

Technical Skills

General: C++, Python, Java, C, Verilog, Bash, LaTex
Data: MATLAB, NumPy, Keras, TensorFlow, scikit-learn, CUDA
Web: SQL, HTML, CSS, PHP, JavaScript, TCP/IP, Flask
Technologies/Methodologies: Git, Unix/Linux, Docker, Jupyter, Agile