JUNSOO KIM

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EDUCATION

University of Southern California Los Angeles, CA
Bachelor of Science in Physics/ Computer Science August 2023-Present
GPA: 3.89/ 4.0
Relevant Coursework: Advanced Learning Python, Discrete Math, Linear Algebra, Introduction to Programming(C++)

EXPERIENCE

University of Southern California Los Angeles, CA
Undergraduate Research Assistant November 2023-June 2024

- Collaborated with 5+ graduate students on advanced quantum physics experiments, gaining deep expertise in quantum mechanics and its applications
- Presented original research on numerical methods in quantum physics at Weekly Conferences, effectively communicating findings to an audience of 8 graduate students
- Developed a C++ program to efficiently calculate standard deviation for over 5,000 data points of N-V centers, significantly streamlining lab data analysis processes
- Utilized Mathematica to calculate detection and practical volumes from research papers, enhancing the accuracy of experimental results

California State University East Bay, CA
High School Researcher December 2020-February 2021

- Assisted Professor Rosario in research funded by the United States Geological Survey, contributing to the project's success
- Converted experimental data into graphical formats using Fourier Transform in MATLAB, aiding in data interpretation and analysis
- Co-authored a published paper in *Elements* as the third author, demonstrating significant involvement in the research process.

PERONAL PROJECTS

College Professor Web Scraper | Python, PostgreSQL

- Designed, developed, and co-created a web scraper using Python, BeautifulSoup4, and Psycopg2 to collect and manage professors' educational backgrounds
- Utilized BeautifulSoup4 for effective HTML parsing and data extraction, handling web structures and content
- Implemented PostgreSQL for robust data storage, retrieval, and management, optimizing database performance for large datasets using complex queries

HandSignalCV | OpenCV, Mediapipe, Hdf5, Cohere, Tensorflow

- Designed and developed a project using OpenCV, Mediapipe, Tensorflow to create ML Code detect and translate American Sign Language (ASL) into spoken sentences
- Extracted hand landmarks using Mediapipe and captured 200 images per alphabet, totaling 5,200 images, ensuring high accuracy across multiple users
- Organized the dataset into training, validation, and test sets, storing images in HDF5 format for efficient access during ML training
- Trained a Deep Neural Network (DNN) with convolutional layers and ReLU activation functions using the Adam optimizer in Jupyter Notebook, achieving a 99.5% accuracy rate (MSE)
- Integrated Cohere API for grammar checking to enhance the communication quality of translated sentences

SKILLS

Languages: Python, C/C++, HTML, CSS, Node.js, React.js, PostgreSQL
Developer Tools: Git, Docker, Visual Studio, PyCharm,
Data Library: NumPy, Pandas, Matplotlib, Seaborn, BeautifulSoup4, Psycorg2, Scikit-learn, H5py
Awards: J. Jayne Bissell Memorial Scholarship, Academic Achievement Award, 2 x Dean's List