Derek Hua

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Education

- **University of California, Los Angeles (UCLA)**
- Bachelor of Science, Computer Engineering — Expected June 2024
- **GPA**: 3.75
- **Honors**: Fast Track to Success, Dean's List

Technical Skills

- C/C++, Java, Python, PyTorch, JavaScript, Node.js, React, Firebase, ROS, MATLAB, Git Source Control
- x86-64 architecture, Nvidia Jetson platform, STM32Cube platform
- SolidWorks, Eagle, Soldering, 3D Printing, Laser Cutting

Work Experience

Networked & Embedded Systems Laboratory, UCLA

Undergraduate Researcher — June 2021 - June 2022

- Created multimodal sensor fusion nodes in C++ and Python on Linux edge devices to create digital twin of a real-world space
- Programed ROS pub/sub pipeline in C++ to transmit data from LiDAR, camera, and microphone sensors to edge devices
- Trained SVM classifier to detect vibrational states of various household appliances using UWB radar sensors

Abbott Diabetes Care

Research and Development Intern — July - September 2020

- Analyzed glucose sensor data and error codes using pandas and NumPy, revealing root causes of sensor failures
- Developed visualization tool to present sensor failure timeline using Matplotlib in Python to communicate findings effectively

Product Quality Engineering Intern — June - August 2019

- Designed and executed experiments to replicate LCD cracking issue to determine the root cause of failure
- Inspected sensor PCB boards to search for defects and corrosion detailing findings for product improvement

Relevant Experience

Cooking Ingredient Classifier — June - August 2022

- Created application to recognize vegetables using machine learning and recommend a recipe containing the ingredients
- Designed CNN from scratch in PyTorch to detect 36 different fruits and vegetables with 96% test accuracy

Bruinfessions - Anonymous Confessions App — March 2022

- Launched web app allowing users to post, like, and favorite posts with UCLA Google Sign-in using React and Node.js
- Engineered backend using Firebase Realtime Database, allowing real time storing and syncing of user and confession data

Micromouse - Autonomous Maze Solving Robot — October 2020 - May 2021

- Developed autonomous control system on STM32 microcontroller using IR sensors and optical encoders
- Implemented flood fill maze solving algorithm by creating a queue in C to solve for an optimal path through the maze

FIRST Robotics Competition - Team Captain — June 2019 - June 2020

- Pioneered robotics curriculum for a class of 50 students resulting in LA Regional finalists and Championship semifinalists
- Engineered multiple integral mechanisms of robots with rapid prototyping utilizing CAD with SolidWorks