Weifan Ou

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Education:

University of California, San Diego, B.S. Computer Engineering, 4th Year **2017.09 ~ 2021.07 (Expected)**
University of California, San Diego, M.S. Computer Engineering (Admitted) **2021.09~2023.07 (Planned)**

Cumulative GPA: 3.874 **Major GPA (Comp. Eng.):** 3.942 **Minor GPA (Mathematics):** 3.850

Coursework:

- **Software Related:** Object-Oriented Programming, Algorithm Design & Analysis, Data Structures, Operating System, Computer Networks, Embedded System, Computer Graphics, Computer Security, Computer Architecture, Reinforcement Learning
- **Hardware Related:** Analog Circuit, Digital Circuit
- **Mathematics:** Calculus, Differential Equations, Probability & Stats, Linear Algebra, Discrete Math

Technical Skills:

- **Languages:** Java, C/C++, Python, Assembly, Verilog HDL
- **IDEs:** Visual Studio, Android Studio, IntelliJ IDEA, Intel Quartus
- **Web-related:** React.js, HTML, CSS, Docker, Firebase, SQL
- **Others:** TCP/IP, OpenGL, Modelsim, Linux
- **Productivity:** Markdown, LaTeX, Solidworks, Autodesk Inventor, MS Office, Adobe Ps, Adobe Pr

Course Projects:

Triton OneStop Website Design, Full Stack Web Application Design (CSE 110) **2019.09 ~ 2019.12**

- Worked in a student-only project team to design a web portal intended for freshmen at UCSD.
- Implemented a navigation bar that contains login authentication via Firebase.
- Designed the overall visual appearance of the web application. Implemented various UI effects using CSS.

Web-Based JetBot Controller Application, Full Stack Web App Design (ECE 140A) **2020.01 ~ 2020.03**

- Implemented a web application accepts HTTP commands from an React.js frontend, and stores commands in an SQL database.
- Implemented an application on a robot car that fetches commands from the server and executes them.
- Implemented a basic collaboration between multiple robot cars using MQTT.
- Trained a learning model using PyTorch and used it to implement self-driving and collision avoidance.

SAM D21 Microcontroller Programming, Embedded Software Design (CSE 190) **2020.01 ~ 2020.03**

- Programmed an ARM Cortex M0+ microcontroller using Memory Mapped I/O.
- Implemented drivers for peripherals including charlieplexing LED array via GPIO, timer, I^2C, accelerometer.
- Implemented a lost-preventing tag using above peripherals plus Bluetooth Low Energy and power management.

Simple Instruction Set Architecture Design, Architecture Design & Testing (CSE 141L) **2020.01 ~ 2020.03**

- Designed Swing, a general-purpose Instruction Set Architecture working on 9-bit fixed length instructions.
- Implemented a single cycle CPU based on Swing architecture using Verilog.
- Tested the CPU with Modelsim simulation to perform division and square root.

Experiences:

Makeblock Co, Ltd., MakeX Robotics Competition Organizer Internship **2017.06 ~ 2017.08**

- Built test robots to verify the rules of the company's robotics competition.
- Designed and built the robots using parts provided by the company. Programmed autonomous mode and manual control using C.

LaundrySucks.io Inc. at HAX, Full Stack Software Engineer Internship **2019.07 ~ 2019.08**

- Worked in a start-up company to develop a shared laundry machine using pressurized steam.
- Developed an Android based user interface with user behavior analytics results stored in Google Firebase.
- Developed some part of Arduino control of motors and steam valve. Tested via Bluetooth communication to the Android UI.

Formula SAE, Triton Racing, Electrical Subgroup Lead **2018.05 ~ Now**

- Worked in the electrical subgroup of a student engineering team that builds racecar.
- Modified stock Yamaha motorcycle harness for formula racecar usage.
- Set up a data acquisition system for tuning, design validation, and driver training purposes.
- Designed and manufactured a formula style, ergonomic steering wheel with 3D printing and waterjet aluminum plate.
- Designed an Arduino-based dash display that shows real time data from the data acquisition system via serial communication.

UCSD, Existential Robotics Lab, Research Internship **2020.06 ~ Now**

- Designed a program that helps a robot find its path to a destination while exploring in an unknown environment with Python. Process contains LiDAR sensing, occupancy grid mapping, A* search, and OpenCV image processing.
- Tested the program in PyBullet physics engine simulation using a dot robot model.
- Presented path planning project at Summer Research Conference 2020 at UCSD.
- Currently working on a research project related to reinforcement learning in the realm of robotics coverage.