AMIN MAHJOUB

Aliso Viejo, CA • (949) 295-5112 • mahjoub@usc.edu • www.linkedin.com/in/amin-mahjoub

Education

University of Southern California – Los Angeles, CA **Expected Graduation May 2022**

Bachelor of Science in Electrical and Computer Engineering

- *Honors: Curve Fellow,* GPA: 3.83

PROFESSIONAL EXPERIENCE

Microsoft Devices **May. 2021-August 2021**

EE Intern, *BLE enabled Case with External Display*

- Designed and developed a board containing: ESP-32 MCU, Solar Charger, USB-UART Bridge, External Crystal Oscillator, External RTC, switching Boost Circuit, 24-pin FPC to drive display, Designed Antenna, Battery Charger & Battery Charger
- Created schematics using Allegro OrCAD, generated a BOM and PCB Layout
- Developed Bring Up Plan to verify the accuracy of signal integrity, power disruption of Assembled PCB during using test equipment: multimeter, oscilloscope resulting in 95% accuracy
- Organized meetings and schedules for the team of 4 interns and 6 mentors to ensure completion of the project

Cyber-Physical Systems Verification Laboratory **Aug. 2020–Present**

Research Assistant

- Researched and tested a RL DQN agent in various Open-AI environment to understand the architecture and training of the Neural network in Pytorch focusing on autonomous driving
- Implementing Mixed Integer Linear Programing methods using Python Gurobi to linearize layers the DQN Network to then run it through verification models to ensure the agent will not go to any catastrophic states

EXPERIENCE

USC Rocket Propulsion Laboratory **Aug. 2019–Oct.2020**

Avionics PCB team

- Created various footprints of ICs and produced schematics on Altium for the newly created power and sensor boards to increase efficiency of the Avionics unit on the space2 rocket.
- Resolved bugs with the Space 2 Rocket Schematic to replace the 5V and 3.3 V power regulator to smaller ICs to increase the amount of space on the power board
- Integrated SPI serial communication between ZED-F9P IC and CPU to speed up the communication and to decrease latency between GPS and processor

Dubbed Video Chat **Jan. 2021 – Present**

Personal Project, MERN WebRTC Translation Project

- Direct a team of four to create a group video chat application utilizing WebRTC for peer-to-peer communication, aiming to solve language barriers for remote work and business ventures
- Implement server real-time translation with Microsoft Azure API and client audio parsing with react-speech and WebSockets, enabling communication in 36 different languages
- Formulate a translated text chatting service bar using socket.io and styling with Material-UI
- Devise a backend server with Express.js, Node.js, and MongoDB, as well as frontend user interface with React.js and Material-UI styling

Self-Driving Car **Mar. 2020–Present**

Personal Project

- Designed a Computer Vision algorithm using Python to detect lane-lines and determine a path to follow, and integrated embedded software of the car's code to turn from -90 to 90 degrees based on the estimated path calculated
- Implemented a CNN algorithm to determine the path to follow based which ensure better autonomous driving capabilities with a validation accuracy of 93%
- Managed and scheduled deadlines for a five-member team to ensure project completion

SKILLS AND COURSES

- **Circuit Design:** Altium, Eagle CAD, LTspice
- **Electrical:** Experience with test equipment: oscilloscope, multimeter, wave-form generator, soldering, spectrum analyzer
- **Embedded Systems:** Proficient experience with Arduino, RaspberryPi, FPGA
- **Programming Languages***:* Python, C/C++, MATLAB, Pytorch, TensorFlow, SQL, ReactJS, C#
- **Interests:** Surfing, Soccer, Basketball, DIY projects