

## Dominic K. Olson

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### EDUCATION

**University of California, Los Angeles (UCLA)** B. S. Electrical Engineering, GPA 3.95 10/2020 - expected 06/2024  
Relevant Coursework: Signal Processing, Communication Systems, Microwave Systems, Electromagnetics, Antennas, Analog Circuits, Machine Learning, Digital Design, Data Structures, Computer Architecture, Statistics

### EXPERIENCE

#### Nuro | Radar Software Engineering Intern

06/2022 - 09/2022; 06/2023 - present

- Developed features for datapath to output and log data from radars on autonomous delivery vehicles
- Researched, implemented, optimized, and evaluated various radar detection algorithms
- Increased raw data collection speed to evaluate radar hardware and signal processing algorithms
- Created interactive tools to calculate and visualize range, velocity, and azimuth from radar data
- Wrote firmware in C, onboard software in C++, and utilities in C++ and Python

#### Digital Microwave Lab at UCLA | Undergraduate Researcher (PI: Yuanxun Ethan Wang, PhD) 01/2023 - present

- Designed low noise amplifier for electrically small antennas using Keysight ADS

#### IEEE at UCLA | Projects and Lab Manager, 05/2022 - 06/2023; Micromouse Project Lead, 05/2021 - 05/2022

- Managed lab space including electronic components and tools, placed parts orders
- Assisted in developing projects and workshops, provided feedback on hardware designs and curriculum
- Taught 70+ students PCB design, embedded programming, control algorithms, sensors, SMD soldering
- Created a sample Micromouse PCB and reviewed schematics and board layouts for 20 PCBs
- Hosted work sessions, lectures, trainings, and lab hours to assist club members and officers

### PROJECTS

#### Wireless Communication System | IEEE at UCLA WRAP Hardware and DSP Team Member 10/2022 - 06/2023

- Designed amplifiers, oscillators, mixers, and filters, simulated in LTSpice, assembled and tested PCBs
- Simulated BPSK communication system with PLL, timing recovery, and packet detection in MATLAB
- Wrote embedded software in C to implement the system on a pair of STM32 microcontrollers.

#### Micromouse | Collaborated with a partner to create small autonomous maze-solving robot 10/2020 - 05/2021

- Designed, manufactured, and soldered breakout PCBs for motor control and IR sensing
- Implemented PID control and the Floodfill maze solving algorithm in C on an STM32 microcontroller
- Improved the Micromouse by adding a gyroscope and bluetooth module
- Won first place at IEEE at UCLA's All America Micromouse Competition in May 2021

#### Treasure Tracker | Compass that points to coordinates set by the user, first place at IDEA Hacks 2022 01/2022

- Wrote code to control servo motors and interface a microcontroller with a GPS module and 9-DoF IMU
- Prototyped and soldered circuit and collaborated with an interdisciplinary team

#### Digital Audio Visualizer | Real-time sound spectrum visualizer on Altera FPGA

10/2021 - 05/2022

- Designed and tested modules in SystemVerilog for Fast Fourier Transform and VGA screen controller
- Completed projects while learning programmable logic design: alarm clock, stopwatch, calculator

#### Budgie | Wireless shaker rhythm game for music education, BruinLabs Honorable Mention 06/2021 - 08/2021

- Developed embedded code to process gyro data and send to phone using Bluetooth Low Energy
- Designed hardware, assembled and tested physical prototype, and collaborated remotely with a team

### SKILLS

C | C++ | Microcontrollers | Python | MATLAB | ADS | LTSpice | SystemVerilog | Git | Linux | PCB Design