

# Dominic K. Olson

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## EDUCATION

**University of California, Los Angeles (UCLA)** B. S. Electrical Engineering, GPA 3.96 10/2020 - expected 06/2024  
Relevant Coursework: Communication Systems, Signal Processing, Microwave Systems, Electromagnetics, Circuit Theory, Digital Design, Data Structures, Computer Organization, Semiconductors, Probability & Statistics

## EXPERIENCE

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

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

**Nuro | Radar Software Engineering Intern** 06/2022 - 09/2022

- Developed features for datapath to output and log data from radars on autonomous delivery vehicles
- 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

**IEEE at UCLA | Projects and Lab Manager, 05/2022 - present; 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 WRAP Hardware and DSP Team Member** 10/2022 - present

- Designed amplifiers, oscillators, and mixers, simulated in LTSpice, assembled and tested PCBs
- Simulated BPSK communication system and phased locked loop in MATLAB with non-ideal channel

**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

**Line Following Car | Completed path fastest out of 107 Intro to EE students** 05/2021 - 06/2021

- Implemented IR sensor fusion, quadrature encoders, and PID to program a small robot to follow a path

## SKILLS

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