Dominic K. Olson

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EDUCATION

University of California, Los Angeles B. S. Electrical Engineering, GPA 4.0 *Oct 2020 - Jun 2024*

Relevant Coursework: Systems and Signals, Digital Logic Design, Intro to EE, Intro to CS I&II, Intro to IoT Design

SKILLS

PCB Design | Breadboarding | Microcontrollers (STM32, ESP32, Arduino) | C | C++ | Python | SystemVerilog

ENGINEERING PROJECTS/EXPERIENCE

IEEE at UCLA - Micromouse Lead | Teaching and mentoring 70+ Micromouse students *May 2021 - present*

- Taught topics including PCB design, control algorithms, motor control, sensors, C, SMD soldering
- Designed a PCB for use while learning with voltage regulation, motor control, and IR sensing

IEEE at UCLA - Digital Audio Visualizer Project | Digital design project using FPGAs *Oct 2021 - present*

- Completed several small projects in SystemVerilog on an Altera FPGA: stopwatch, buzzer “piano”

Budgie | Bluetooth connected shaker rhythm game for music education *Jun 2021 - Aug 2021*

- Designed the circuit to control vibrational motors and LEDs and connect the different components
- Wrote code for the ESP32 Microcontroller to interpret gyroscope readings and send to phone using BLE
- Collaborated remotely with a team and assembled and tested the physical product
- Received the Honorable Mention award at the UCLA BruinLabs 2021 Demo Day

IEEE at UCLA - Micromouse | Remote collaboration to create a small maze-solving robot *Oct 2020 - May 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 mouse by adding a gyroscope and bluetooth module
- Won first place at UCLA’s All America Micromouse Competition in May 2021

Line Following Car | Intro to EE Final Project, completed path fastest out of 107 students *May 2021 - Jun 2021*

- Implemented IR sensor fusion and PID control to program the small robot car to follow a curved path
- Wrote a C++ library to use quadrature encoders to distinguish forward and backward motor rotation

Handwriting Recognition with EmbeddedML | Internet of Things Design Final Project *Feb 2021 - Mar 2021*

- Used machine learning to identify six different handwriting motions on a STM SensorTile

IDEAHacks 2021 | Hardware hackathon hosted by IEEE at UCLA *Jan 2021*

- Designed a WiFi connected checklist that reminds the user to take breaks, improving productivity
- Prototyped using ESP32 microcontroller with IR sensors, OLED and 7 segment displays, piezo buzzer

Digital Effects Pedal | Embedded DSP with Faust workshop at Stanford’s CCRMA *Jul 2019*

- Used a Teensy microcontroller to process an audio signal using the Faust language
- Wrote Arduino code to control digital effects with four knob potentiometers and a button

Trumpet MIDI Controller | Designing Physical Interactions for Music workshop at Stanford’s CCRMA *Jun 2019*

- Designed an electronic musical instrument using a Teensy microcontroller to send MIDI messages over USB to my computer based on input from a wind sensor, soft potentiometer, and a set of three buttons

UCLA ACM TeachLA | **Instructor and Curriculum Developer** *Oct 2020 - Jun 2021*

- Created curriculum and taught Python at middle schools in Los Angeles

WORK EXPERIENCE

Mathnasium of Redwood City | **Lead Instructor***, Aug 2019 - Jan 2021;* **Instructor***, Jun 2018 - Aug 2019*

- Instructed students and designed customized learning plans tailored to each student’s needs
- Led training on math concepts for our instructor team and planned social events