Andrew Salustio Hovis

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Skills

Programming - C++, C#, HTML, SQL, VHDL, Assembly, MASM, Python, SystemVerilog
Embedded Systems - Arduino, Raspberry Pi, ESP32, 68HC11, ATMEL, UART, I2C, SPI, Interrupts, PWM
Hardware - Digital Logic, Oscilloscope, PCB Design, FPGA Design, Circuit Analysis, Soldering,
Software - LabVIEW, MATLAB, Linux, Xilinx Vivado, SOLIDWORKS, Unity, VMWare, KiCAD, Eagle

Experience

CSULB Research Foundation Internship, Long Beach June 2025 - December 2025

- Led development of an immersive VR electronics laboratory in Unity using C# and Meta Interaction SDK to enable natural hand tracking for interaction with virtual lab instruments.
- Simulated realistic behavior of an oscilloscope, power supply, signal generator, and multimeter with real time waveform visualization and measurement tools.
- Designed a guided tutorial system and assessment module to teach oscilloscope operation of a simple circuit.
- Deployed system to Meta Quest headsets for the ET101 Introduction to Engineering Technology course at CSULB.

Crew Member, Trader Joe's August 2022 - March 2025

- Engaged in exceptional customer service while managing store operations efficiently
- Maintained inventory accuracy performing regular stock checks to ensure product availability.
- Collaborates with crew members to optimize store layout and enhance the customer shopping experience.

Projects

Analog FPV Surveillance Ground Drone **Python, KiCAD, SOLIDWORKS, Linux**

- Integrated a Raspberry Pi microcontroller using BLE/WiFi to receive wireless control inputs from a Steam Deck in Python
- Designed a drive system using brushless motors, ESCs to generate PWM motor drive signals for omnidirectional input.
- Integrated analog FPV video transmission system using 5.8Ghz VTX transmitter using a USB receiver for live feed.
- Developed custom power delivery system powered by 11.1 LiPo under a 5V regulator to stabilize power to components.

DSP Adaptive Noise Reduction and Filtering **TI TMX-C5515, Code Composer, C, Assembly**

- Implemented an adaptive noise reduction system on the C5515 DSP platform to remove white noise from input signals.
- Programmed an LMS adaptive filter in C and assembly to dynamically adjust filter coefficients to minimize signal error.
- Designed an audio processing pipeline that captures microphone input, applies filtering, and sends output to a speaker.

Embedded Web Control System **Arduino, SPI, HTTP, PWM**

- Implemented an embedded HTTP web server using Arduino/SPI interfacing to enable browser-based hardware control.
- Developed embedded C++ request handling logic to decode HTTP GET requests and map network inputs.
- Integrated I/O hardware with Ethernet networking to validate reliable remote device control a local IP interface\.

LabVIEW Photoresistor Speed Controller **LabVIEW, NI 6008 DAQ, TIP102**

- Interfaced a photoresistor voltage divider to read analog voltage for control input from light levels.
- Calibrated potentiometer thresholds for reliable actuation of the 12V DC motor driver stage circuit.
- Developed a VI using a DAQmx configuration and relay logic to read sensor input to generate motor control commands.

FSM Combination Lock **VHDL, Vivado, QuestSim, Artix7 FPGA**

- Designed a Moore FSM in VHDL on the Artix7 FPGA to validate a multi button input sequence for lock/unlock status.
- Verified RTL behavior in QuestSim creating clock, reset, and input waveforms to verify code entry sequences.
- Mapped logical ports to Basys3 switches and LEDs through XDC constraints using LVCMOS33 standards in Vivado.

Education

Bachelor of Science (B.S.) in **Computer Engineering -** *Cum Laude* FALL 2025
California State University, Long Beach

Publications

"Development and Pilot Evaluation of a VR Oscilloscope Learning Module." *Hovis, A. Khoo, I.*
ASEE Zone IV Conference, 2026