

Yanai Avila

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<https://yanaiavila.github.io/>

Education

University of Nevada, Las Vegas, 2020-2024

Bachelor of Science in Computer Engineering

Honors: Cum Laude (GPA: 3.59/4.00)

Work Experience

Junior Electronics Technician for Pololu Robotics and Electronics

June 2023 – Present | Las Vegas, NV

- Design and develop PCBs, including a negative pull-down tester board for fault pin testing, a quad op-amp breakout board configurable in any mode, and a LM74x00-based reverse voltage protection and ideal diode board, incorporating feedback from engineers.
- Lead full PCB development processes, including board layouts, routing, panelization, designing test fixtures (schematic, wiring, and code), and validating functionality.
- Assemble and wire over 10 test fixtures for newly developed electrical components, including current sensors, motor drivers, voltage regulators, reverse voltage protectors, I2C isolators, and ideal diodes, gaining proficiency in soldering and schematic interpretation.
- Validate and characterize electronic boards and components by measuring and graphing continuous current, instantaneous current, quiescent current, dropout voltage, and efficiency.

Engineering Tutor for UNLV Academic Success Center Tutoring Labs

Nov 2023 – May 2024 | Las Vegas, NV

- Used collaborative learning strategies and questioning techniques to engage 5+ students per week in Computer/Engineering, Computer Science, and Physics concepts.
- Worked closely with a diverse student population and tutoring team to create a supportive, inclusive, and productive learning environment.
- Guided students in problem-solving and critical thinking, helping them develop effective study habits and deeper conceptual understanding of engineering principles.

Casino Game Developer for the UNLV Center for Gaming Innovation

May 2022 – May 2023 | Las Vegas, NV

- Developed 2 demos for casino table games in C using the Unity game engine to show to casino game companies in Las Vegas interested in purchasing the game concepts IP.
- Collaborate with colleagues to discuss how game demos can be improved to maximize performance and ensure desired statistical outcomes

Other Leadership and Outreach

STEM Ambassador for UNLV Tech Trekker

Dec 2020 – Present | Las Vegas, NV

- Develop activities and kits that educate K-12 students about various STEM concepts to motivate and inspire them.
- Participate in school visits and local events across southern Nevada to provide engaging STEM demonstrations and connect UNLV with the local community, reaching over 5000 students yearly.

Program Manager for Student Interactions with STEM (SISTEM)

Sept 2021 – Dec 2024 | Las Vegas, NV

- Handled program logistics such as recruiting STEM speakers and high school participants, ordering food, handling evaluation surveys, creating schedules and icebreakers, and providing important information to participants via email and Discord
- Managed a small team of undergraduate students who assisted during events.

Undergraduate Mentor for the Las Vegas STEM Lab Summer Camp

Summer 2023/2024 | Las Vegas, NV

- Mentored and assisted a team of 4 middle school students in developing a project for entertainment and hospitality applications using microcontrollers, sensors, motors, LEDs, Tinkercad, Arduino, and object-oriented C/C++.
- Provided lessons and guidance on Tinkercad, Arduino, microcontrollers, and object-oriented C/C++, helping students troubleshoot and refine their projects.
- Prepared students for their final presentation, ensuring they could effectively demonstrate their work while also supervising and supporting them during lessons and site visits.

STEM Intern for the DRI STEM Educator And Student Partnership Program

Jan 2024 – May 2024 | Las Vegas, NV

- Collaborated with my intern partner and educator to design, develop, and implement a STEM education product for 5th-grade students at Gwendolyn Woolley Elementary School to tackle the STEM education gap in CCSD.
- Communicated with Desert Research Institute staff to ensure needs were met and proper assessments were made.

Projects

- **HoloTouch Interactive Hologram:** Utilized the MediaPipe framework for real-time hand gesture recognition and Python APIs for computer control to project a user's real-time computer interaction onto a 3D holographic display.
- **2-player Competitive Mini-Game:** Implemented a mini-game on a UNLV 328P board that resembles the arcade game called Cyclone in which each player needs to press their designated button when a certain LED on the board is lit up. This game was implemented using C and uses timers, interrupts, and USART.
- **Plant Health Alert System:** Implemented an environmental monitoring and alert system designed to ensure optimal plant health in indoor setups. It monitors 2 environmental conditions that are important to the health of a plant: light levels and soil moisture.
- **Band-pass and Band-stop Filters:** Designed and simulated both passive and active band-pass and band-stop filters using LTspice. Resistor and capacitor values were calculated to filter out/ leave in desired frequencies.
- **Random Card Match Game:** Designed and implemented a game using SystemVerilog in which a player tries to guess a sequence of cards that will be randomly generated. This game was designed to be played on an Altera DE2 2 Cyclone board.
- **Color Match RNG Game:** Designed and implemented a game using VHDL in which a player tries to guess a sequence of 4 colors that will be randomly generated. This game was designed to be played on an Altera DE2 2 Cyclone board.
- **Heat Transfer Simulation:** Created a PhET-inspired simulation that teaches students how heat is transferred through different materials. The simulation was created using the Unity game engine and implemented using C.
- **BJT Amplifiers Comparisons:** Simulated, hand calculated, and implemented on a breadboard 3 different BJT amplifiers (common emitter, common base, and common collector) and analyzed their differences.

Skills

- **Software/Tools:** Altium, KiCad, Quartus, LTspice, VCS, Unity Game Engine, Microchip Studio, ROS, ModelSim, MediaPipe, Multisim, Adobe Photoshop, Microsoft Office, Ubuntu, WordPress, SolidWorks, Git
- **Languages:** C, C++, C#, Python, VHDL, Verilog, SystemVerilog, AVR Assembly, RISC-V Assembly, Bash, HTML, CSS
- **Hardware:** Soldering, PCB design/layout, microcontrollers, Altera FPGAs, test fixture development, circuit design, electrical component characterization
- **Soft Skills:** Leadership, teamwork, problem-solving, organization, adaptability

Honors/Awards

- Cum Laude, Bachelor of Science in Engineering (Fall 2024)
- University Honors (Fall 2024)
- Howard R. Hughes College of Engineering Dean's Honor List (Fall 2024, Spring 2024, Fall 2023, Spring 2022, Fall 2020)
- UNLV Excellence Scholarship (Fall 2020 – Spring 2024)
- Millennium Scholarship (Fall 2020 – Spring 2024)
- Differential Fees Undergraduate Scholarship (Spring 2024 – Fall 2024)
- NAWIC Open Major Scholarship (Spring 2024 – Fall 2024)