Lonoehu Wacasey

lonoehuwacasey@gmail.com | https://github.com/dominothedomino | (903)-738-7985

Education

University of Texas at Austin Expected May 2028

Bachelor of Science in Electrical Computer Engineering / Minor in Semiconductor Science and Engineering - GPA: 3.89/4.00

Projects

Cycle-Accurate Game Boy Emulator (C++) Apr 2026 - Jun 2026

- Implemented CPU in C++ with a complete 512-opcode instruction set, cycle-accurate timing, interrupt handling, and hardware register emulation across a fully mapped memory bus.
- Engineered a pixel-accurate PPU and 4-channel APU supporting scanline-based background, window, and sprite rendering alongside pulse wave, wave table, and LFSR noise synthesis with real-time SDL3 video and audio output.
- Validated emulator accuracy by passing multiple CPU instruction test ROMS and achieving stable, playable performance across a range of commercial Game Boy titles.

Automated Aquaponic Monitoring and Control System (Python) Sep 2025 - Apr 2026

- Collaborated with Environmental Engineering Club to design an automated aquaponics system to address and automate water flow, temperature, pH, and device timing issues.
- Researched existing aquaponics designs, evaluated pump and sensor options, and planned the electrical and water-flow architecture used for the first prototype.
- Engaged in weekly team meetings to share findings and troubleshoot cross-disciplinary issues such as device compatibility, optimal nutrient cycling, and power distribution.

Hybrid Analog-Digital Waveform Synthesizer (C) Sep 2025 - Dec 2025

- Designed and prototyped square, triangle, and sawtooth waveform generators using analog circuit topologies researched online and used LTSPice to verify expected output before breadboard prototyping.
- Documented and captured schematics in KiCad for eventual PCB implementation, including filtering stages, frequency tuning controls, and waveform-combination networks.
- Integrated the oscillation network using a MSPM0 microcontroller to visualize output signals on an LCD using ADC sampling with AC coupling, producing a functioning hybrid analog-digital synthesizer that can be used as a personal music tool.

Google Dinosaur Embedded Video Game System (C/Assembly) Mar 2025 - May 2025

- Designed, soldered, and tested a custom PCB utilizing an MSPM0 microcontroller, on-board DAC, multiple slide pots, joystick input, and user-interface buttons.
- Programmed the system in ARM Assembly and C and used interrupts, an FSM, FIFO queues, and UART to support real-time graphics and sound playback.
- Developed a faithful recreation of the Google Dinosaur game on a complete standalone embedded gaming console capable of rendering real-time graphics with synchronized audio on custom hardware.

Experience

Supplemental Instructor, Sanger Learning Center at UT Austin Jan 2025 – Present

- Led an Intro to Computing support section and developed structured lessons to strengthen understanding of basic logic design and programming concepts.
- Managed communication, scheduling, and instructional content for sessions attended by 15-20 students.
- Refined lesson plans using feedback from students and supervisors to improve clarity and engagement.
- Achieved a 49% increase in student confidence in knowledge of course content, according to semester surveys.

Assistant Manager, City of Longview Parks and Recreation Department July 2023 – Aug 2025

- Supervised 10 lifeguards and supported daily operations serving 115+ patrons, addressing safety concerns and maintaining facility readiness.
- Performed hourly chemical tests, documented compliance data, and assisted with community outreach events.
- Increased safety consistency and reduced operational issues through structured training and leadership.

Skills

Technical Skills: KiCad, Git, Oscilloscope, Multimeter, Circuit Debugging, Microsoft Office

Interpersonal Skills: Communication, Adaptability, Critical Thinking, Desire to Learn

Programming Languages: C++, C, Verilog, Python, ARM Assembly