Arion Stern
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Education

University of Florida – Herbert Wertheim College of Engineering
B.S. Computer Engineering · Expected Graduation: May 2028 · GPA: 4.00 · Credits: 69
Scholarships & Honors: University of Florida Distinguished Scholar Waiver, UF Dean's List (Fall 2024, Spring 2025)
Relevant Courses: Microprocessor Applications, Digital Logic & Computer Systems, Data Structures & Algorithms, Advanced Programming Fundamentals, Discrete Structures, Calculus II–III, Physics II, Differential Equations
Currently Taking: Signals and Systems, Applied Machine Learning, Computer Organization
Pascack Hills High School – Montvale, NJ (2020-2024) 4.75/4.00 (W/UW)
Honors: AP Scholar with Distinction, High Honor Roll (all years), National Honor Society, Vice President of Senior Class, Dr. Michael Weinthal Memorial Scholarship Recipient

Technical Skills

- **Hardware:** FPGA (DE10-Lite), ATxmega128A1U Microcontroller, Arduino, Breadboarding, Oscilloscope, Soldering
- **Tools:** Quartus Prime, ModelSim, Microchip Studio, Git, WaveForms
- **Languages:** Assembly (G-CPU & AVR), VHDL, Python, C++, C, Java
- **Concepts:** Embedded Systems, CPU Architecture, FSMs, Datapath/Control Logic, Instruction Set Design, Computer Vision

Projects

Computer Vision-Driven Color Detection System (Python, OpenCV, Arduino)
- Built a real-time color-detection pipeline using OpenCV (HSV space, noise-averaged ROI sampling) and streamed color data to an Arduino over serial. Designed an embedded UI with RGB LED modes (vision, rainbow, gator-theme), LCD display pages (RGB/HSV/history), and button-controlled interaction.

8-Bit Simple CPU (FPGA, Quartus/ModelSim)
- Built a CPU with 8 custom instructions, microprogrammed control, and memory-mapped I/O.
- Developed datapath (ALU, registers, PC), wrote assembly for branching and indirect memory access, verified via simulation and FPGA.

Microprocessor Applications (ATxmega128A1U, C & AVR Assembly, Microchip Studio)
- Programmed embedded systems integrating digital I/O, timer interrupts, and PWM to control RGB LED intensity and implement precise timing and event-driven logic on the µPAD and Switch & LED Backpack.
- Interfaced with an LSM6DSL accelerometer and gyroscope via SPI to stream real-time 3-axis data through USART, sampled light-sensor signals using the ADC for visualization, and generated DAC-based sine waveforms with DMA for an audio synthesizer.

Elevation Sort Visualizer (Python, Pygame)
- Created an interactive tool to animate sorting algorithms on NOAA elevation data.
- Implemented six algorithms (Bubble, Insertion, Selection, Merge, Quick, Heap) with real-time metrics, tooltips, and user controls.

Minesweeper Clone (C++/SFML)
- Developed a complete GUI game with recursive reveals, dynamic board loading, and debug tools.
- Handled sprite management, textures, and real-time event logic.

Drone Payload Deployment System (Arduino, Hardware Build)
- Designed a lightweight payload release mechanism with 3D-printed parts and Arduino-controlled servos.
- Integrated embedded logic for altitude-triggered deployment.

Elenco XP-720K Triple Output Power Supply (Circuits, Soldering)
- Assembled a linear AC/DC power supply kit from schematics; produced ±12V and 5V regulated outputs.
- Gained hands-on experience with soldering, rectifiers, filters, and regulators.

Leadership & Organizations

- **Swamp Launch** – Member, IREC Avionics & Payload Teams; assisting with flight sensor PCB design in Altium and learning I²C/UART communication for avionics integration. (2025–Present)
- **IEEE** - Member (2024-present)
- **Phi Kappa Tau Fraternity** – Member (2024-Present)
- **Volunteer**: Project Paterson, Montvale Baseball Clinic, Tri-Boro Food Pantry, Talbot Elementary STEM Outreach

Experience

Lifeguard Instructor – Flagship First, NJ · Summer 2023
- Taught rescue techniques, CPR, and supervised training simulations.

Camp Counselor – Park Ridge Recreation · Summer 2022
- Supervised and led activities for children, ensuring safety and engagement.

Video Auditor – Mr. Jeff LLC · 2020–2021
- Conducted loss prevention audits and reported findings in organized spreadsheets.

Career Interests: Embedded Systems · FPGA/Chip Design · Robotics · VLSI · IoT · Digital System Verification · Machine Learning