Eli Campos

Email: elicamposbusiness@gmail.com
Phone: (305) 712-0314
Linkedin: www.linkedin.com/in/eli-campos-9556b020b/
GitHub: www.github.com/elicampos
Devpost: www.devpost.com/elicamposbusiness
Personal: www.elicampos.com

Education

- **University of Florida** — Gainesville, Florida
  B.S. in Computer Engineering - GPA: 3.56/4.00 — *Expected Spring 2026*
- **Undergraduate Coursework**: Programming I and II, Digital Logic and Computer Systems, Data Structures and Algorithms, Computer Organization, Microprocessor Applications, Digital Design, Intro to Software Engineering, and Operating Systems
- **Memberships**: HSF Scholar, ColorStack, and IEEE

Projects

- **Reflexion (C++ and Circuits)**: Developed a wearable device using an ESP32 microcontroller to track athlete movement for physical therapy that won best MLH Hardware Project. Utilized flex sensors to capture joint angles, with data transmitted via Bluetooth Serial Communication to a web interface built with Angular and Python. Processed sensor data for real-time analysis, integrating Tune AI for personalized movement feedback, ensuring proper form and recovery during home exercises.
- **Echo Hand (RTOS, Circuits, and Serial Communication)**: Prototyping a VR glove that uses servo motors for haptic feedback and motion restriction, flex sensors for finger angle detection, and vibration motors for texture simulation. Designed around an ESP32 with Bluetooth/USB connectivity and integrated joystick/buttons for broad VR compatibility.
- **Custom CPU Design (Intel Quartus and VHDL)**: Designed and implemented a custom CPU from scratch using Quartus for hardware synthesis and VHDL for the controller logic. Utilized Karnaugh maps for optimization, state machines for control flow, and Read-Only Memory (ROM) for storing instruction sets.
- **Heap Management Simulator (C++, Makefiles, and Valgrind)**: Implemented a custom heap memory manager in C++ that simulates dynamic allocation (malloc/free), tracks free and allocated blocks, and supports best-fit and worst-fit allocation strategies.

Skills

- **Languages:** C++, Python, VHDL, C, and Assembly
- **Programs:** KiCad, Intel Quartus, Questa, Eclipse, Visual Studio, and MATLAB

Experience and Achievements

- **Part-Time Software Engineer (C++, Python, Git, and Digital Logic)** — Remote
  Lenovo — *August 2025 - Present*
  - Creating scripts to protect and modify regions of ROM memory for previous and upcoming server architectures.
- **Firmware Engineer Intern (C++, Python, Git, and Digital Logic)** — Durham, North Carolina
  Lenovo — *May 2025 - August 2025*
  - Contributed to the firmware tools repository by developing a C++ command-line testing application for Linux driver–level peripherals (GPIO, SPI, I2C, I3C, MCTP, RGMII, RMII).
  - Improved code reliability and maintainability by using smart pointers for memory safety, implementing appropriate data structures for efficient data handling, writing unit tests with GoogleTest, and managing builds with the Meson build system to ensure consistency and scalability.
- **Embedded System Hardware/Firmware Engineer Intern (C++, C, and RTOS)** — Atlanta, Georgia
  Georgia Tech Research Institute — *August 2024 - December 2024*
  - Developed a FreeRTOS-based multi-threaded system on a microcontroller, where one task continuously read sensor data from an I^2C channel, another forwarded the data to a different address, and a third transmitted and received test packets via UDP.
  - Utilized FreeRTOS priority-based scheduling and mutexes to manage thread-safe access to a shared buffer used by all tasks.
  - Leveraged Wireshark, logic analyzers, and oscilloscopes to debug and optimize communication protocols, diagnosing timing issues and data inconsistencies in the system.
- **PennApps Hackathon (Flask, Firebase, Google Cloud Run, and Docker)** — Philadelphia, Pennsylvania
  University of Pennsylvania — *September 2023*
  - Official 3rd Place MLH Winner of overall coding competition.
  - Developed the back-end of StudyHedge using Flask, handling Docker deployment challenges, integrating the Twilio API for notifications, and leveraging the Canvas API to aggregate upcoming assignments and exams. Enabled users to input personal events and preferences, which the system used to generate a customized study schedule following the Eisenhower Matrix.
- **Data Structures and Algorithms Project Competition (HTML, CSS, and JavaScript)** — Gainesville, Florida
  University of Florida — *April 2023 - May 2023*
  - Co-developed a housing search prototype with a user-focused interface, using quick sort and merge sort to efficiently organize listings and provide dynamic search completion, delivering personalized recommendations based on users' preferences and budget.
- **Research Assistant for SurfLab (C++, Python, and Git)** — Gainesville, Florida
  University of Florida — *September 2022 - June 2024*
  - Contributed to a surgical simulation application built on the SOFA Engine, using Git extensively to manage version control, integrate engine updates, and coordinate contributions from research assistants.