Andrew M. Williams

andrewimwilliams@gmail.com | (954) 909-9291
linkedin.com/in/andrew-mwilliams | github.com/andrewimwilliams | andrew-williams.info

SUMMARY

Computer Engineering graduate with strong hands-on experience in embedded systems, backend development, and hardware/software integration. Proficient in C++, TypeScript, Linux, and MATLAB, with recent experience refactoring custom applications using SQLite and Sequelize ORM to improve data scalability and reliability. Demonstrated success in full-cycle development, from PCB design and firmware flashing to AI-driven simulations in Unreal Engine. Known for solving real-world problems through self-driven technical projects and improving system efficiency through custom tooling. Passionate about open-source hardware, mechanical keyboards, and modern database architectures.

EDUCATION

Florida State University, Tallahassee, FL *Bachelor of Science in Computer Engineering, May 2025*

Relevant Coursework: Computer Architecture, Data Structures, Advanced Microprocessors, Embedded Systems, Digital Logic Design, VHDL, Digital Communication Systems, Artificial Intelligence, Computer Networks, Cybersecurity

- Active Member of IEEE
  - Engaged in various Python projects with Raspberry Pi Pico

TECHNICAL SKILLS

Technologies & Platforms: C++, C#, Linux, JavaScript, TypeScript, MATLAB, VHDL, KiCAD, Git, VSCode, SQLite, Assembly
Interests: Robotics, Open-Source, QMK, Mechanical Keyboards, PCB Design, Rhythm Games, Bodybuilding, Nutrition

PROJECTS

Texas Instruments Low-Cost AI Based Driving Simulator *April 2025*

- Developed a driving simulator using Unreal Engine and C# by adding realistic collision feedback with steering wheel haptics and implementing multiple artificial intelligence platforms to train new drivers in common driving scenarios.
- Implemented ChatGPT-3.5 Turbo and ElevenLabs to output driver training feedback both audibly and visually.
- Utilized CADMAPPER, Blender 4.4, and Google Maps to accurately model the FAMU-FSU College of Engineering building and environment, and imported those assets into UE5, improving user realism and immersion.
- Designed visually appealing Start, Controls, and Pause menus that function with steering wheel controls, and packaged simulator into a standalone executable, optimizing accessibility and ease-of-use for new users.

3x3 Mechanical Macropad *February 2025*

- Built custom 3x3 mechanical macropad by designing a PCB in KiCAD, soldering switches, diodes, and Arduino Pro Micro onto the PCB, configuring the keymap using C, and flashing custom QMK firmware to the keypad.
- Forked QMK repository to create keymap, implemented custom macro functions, and contributed to open source QMK.

AI Detection for Object Manipulation *November 2024*

- Simulated a robotic arm in MATLAB and Simulink integrated with YOLO v4 algorithm trained with COCO dataset for object detection, accurately identified common objects and differentiated categories by placing them in separate bins.

Maze Navigation for TI-RSLK Max *April 2023*

- Implemented a bare-metal C++ algorithm on a TI-RSLK Max robot that uses light sensors to detect valid paths which successfully completed a predefined maze in under 60 seconds.

WORK EXPERIENCE

FAMU-FSU College of Engineering, Tallahassee, Florida

Service Technician *February 2021 – Present*

- Developed a custom TypeScript application named ITEM App that maintains data for over 5,000 devices.
- Improved ITEM App data reliability and scalability by replacing Microsoft Lists with a custom SQLite database and Sequelize ORM, enabling better backend performance and maintainability.
- Upgraded ITEM App by streamlining user interface, improving inventory efficiency by over 50%.
- Updated engineering software by cloning SSDs through system BIOS, improving overall system performance.
- Assembled workstations for students and faculty by promptly deploying desktops, displays, and other peripherals.
- Renovated lecture rooms by removing old hardware and installing new machines and AV wiring.