Tai A. Williams

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EDUCATION

University of Central Florida Expected Graduation: Dec 2027

Bachelor of Science in Computer Engineering **GPA: 4.00**

- Burnett Honors Scholar on Provost Scholarship

Florida State College at Jacksonville Graduated: May 2024

Associates of Arts Degree - High Honors **GPA: 4.00**

- Dual Enrollment

Relevant Coursework: Computer Science 1, Differential Equations 1, Physics 2, Engineering Analysis and Computation

SKILLS

Languages: Python, C, Verilog, C++, C#, HTML, CSS, MySQL
Software: Excel, Office, Git, APIs, Linux
Hardware: Microcontrollers, Sensors
Interpersonal Skills: Problem Solving, Critical Thinking, Adaptability, Time Management, Communication, Leadership, Research

WORK EXPERIENCE

Undergraduate Research Assistant *Jan 2025 - Present*

Laboratory for Interaction of Machine and Brain (LIMB)

- Working on research project to train an Unitree A1 robot dog to walk in a maimed state, i.e. missing a leg, using deep reinforcement learning starting in a simulated environment
- Adjusting project focus to incorporate multi-modal sensor integration to elevate the robot's fault tolerance given already made contributions in the field
- Using Python and ROS to develop different methods of training devising an effective policy balancing speed and stability

PROJECTS

CHIP-8 Virtual Machine *Jan 2025 - March 2025*

Personal Project

- Developed C-based virtual machine for simulating microprocessor running a variety of CHIP-8 ROMs using SDL2
- Implemented multiple systems running in parallel to process and execute commands from loaded memory
- Adapted project to be used as basis for simulation/visualization of future projects by increasing the modularity of the virtual environment I have developed

Autonomous Drone *Aug 2024 - Present*

ACM Project | Embedded Systems Division Lead

- Developing videography drone using computer vision while performing obstacle avoidance with variety of sensors
- Collaborating with the hardware team to integrate 30+ LiDAR and ultrasonic sensors with our ESP32 development board to intake the drone's surroundings for path generation.
- Will converge with flight design team to integrate AI-generated flight path with object avoidance to complete project

Task Management App *Dec 2023 - Mar 2024*

Personal Project

- Created a Python based application allowing users to add, delete, and manage a multitude of tasks effectively
- Utilized file management and built graphical user interface to hold hundreds of tasks with future plans to expand
- Personally used to organize projects and scholarships into a schedule enabling me to complete as many as possible, leading to a claim of $18000 in scholarships

Shadow Drop *May 2023 - Dec 2023*

Personal Project

- Designed a working 3D video game prototype based in Unity utilizing C# to develop modules for future use
- Controlled a character object through the use of a hierarchical state machine to create a modular system with increased efficiency and scalability
- Created all visual elements of project including 3D models, animations, UI, and graphics starting from little experience

PROFESSIONAL AFFILIATIONS

Institute of Electrical and Electronics Engineers (IEEE) *Aug 2024 - Present*

- Participate in meetings, projects, and workshops alongside hundreds of electrical and computer engineers
- Collaborate in technical workshops to learn and collaborate with others

Association of Computing Machinery (ACM) *Aug 2024 - Present*

- Serve as an active member participating in meetings and networking among others in the field
- Transform prior project experience to expedite projects and cultivate knowledge

Junior Civitan *Aug 2021 - May 2024*

- Served as vice president with a primary mission of helping children with developmental disabilities
- Organized biweekly club meetings, community service events, fundraisers, and social events across a 50+ person organization and leadership board.
- Performed over 120 hours of community service, raised hundreds of dollars, and collected approx. 100 donations for children and the homeless