William Moulton

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EDUCATION

The University of Central Florida | Orlando, FL
B.S. in Computer Science | Accelerated B.S. to M.S Program | GPA: 3.8/4.0
B.S. Expected: Fall 2025 | **M.S. Expected:** Fall 2026
Relevant Courses: Computer Organization, Data Structures and Algorithms, System Software, Discrete Structures

TECHNICAL SKILLS

Programming Languages: Java, Python, C, C#, C++, Swift, HTML, CSS, JavaScript
Technologies: Azure, Unity, Visual Studio, GitHub, Git, SQL, MongoDB, Node.js, React, Firebase, NVIDIA Omniverse

PROJECTS

PRECISION VR | Virtual Reality Shooting Game (Unity, C#) **Fall 2024**

- **Developed in Unity (C#):** Solely designed and implemented the **Free-for-All** and **Speed Test** game modes, incorporating a countdown timer, interactive targets, real-time scoring, and game-over conditions.
- **Scene Transitions & UI (C#):** Programmed the portal-based scene transition system, enabling seamless movement between the hub world and individual game modes using interactive triggers and visual effects.
- **Game Mode Management (C#):** Developed a dynamic game mode management system, including **UI elements** for starting/stopping game modes, adjusting audio settings, switching scenes, and exiting the game.

DIGITAL TWIN VISUALIZATION & WEB INTERFACE | IST Research Project **Fall 2024 - Present**

- **Built with SQL, Python, and React:** Developing an interactive simulation environment that mirrors real-world machine states by integrating live data pipelines with simulated data in sync with Omniverse, leveraging SQL for real-time data storage, querying, and updates to ensure accurate state representation and system synchronization.
- **Web Viewer Development (React, JavaScript, Vite):** Creating a real-time interactive interface for the digital twin stream, allowing users to view live system updates, interact with the scene via control buttons, and monitor machine states through a dynamic data table.
- **Core Features (JavaScript, Python, SQL):** Implementing key Web Viewer functionalities, including a start/stop demo feature for simulation playback, clickable data points for zooming into specific machines, dynamic data tables for machine state analysis, and interactive waypoints for exploring the digital twin scene.

PROFESSIONAL EXPERIENCE

R&D Intern – AI, XR, & Digital Twins | Institute of Simulation and Training | On Site **May 2024 - Present**

- Optimized PyTorch CNN architectures for facial recognition by implementing transfer learning, improving real-time emotion classification accuracy by 33% on the university's ARCC cluster.
- Leveraged lung CT scans and pre-existing cancer detection models from MonAI to develop a pipeline that generates a 3D digital twin of a lung in VR using ChimeraX, highlighting detected cancerous growths within the displayed scans.
- Developed a Unity XR environment with a custom UI enabling users to ask medical questions via speech-to-text (Whisper) and receive text-to-speech responses (GPT-4), leveraging prompt engineering for accurate, context-aware answers in VR.
- Designing and implementing a digital twin visualization pipeline, integrating SQL databases, Python data processing, and React for interactive simulation environments, ensuring seamless synchronization with Omniverse.
- Collaborated with a team of researchers using Agile methodologies and Git for iterative development.

Programming Instructor | iD Tech | Remote **April – August 2023**

- Provided educational assistance to young learners aged 8-17 in a range of STEM subjects, including coding languages and game design.
- Taught Lua, Java, and Python, mentoring students in Minecraft and Roblox game development.

LEADERSHIP EXPERIENCE

Vice President | Black and Gold Analytics | UCF - Main Campus **Jan. 2023 – Present**

- Organized workshops and training sessions to empower over 100+ members with SQL and Python skills, fostering a dynamic learning environment within the club.
- Led project ideation and execution, collaborating with club members to formulate data-driven initiatives.
- Provided strategic leadership and direction for the club, overseeing project selection, team formation, and execution to ensure alignment with the club's mission and objectives.