

Henry Mack

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EDUCATION

University of Central Florida

Orlando, FL

Bachelor of Science, Mechanical Engineering | Minor, Data Science | GPA: 3.7

Expected May 2028

– Walt Disney World Co. Design & Engineering Endowed Scholarship | Burnett Honors College

EXPERIENCE

Ludwig Maximilian University of Munich - DAAD Rise Germany

Munich, Germany

XR Education Research Intern

May 2026 – August 2026

- Adapting a physical solar system model into a motorized apparatus for physics education research, synchronizing its mechanical state with an iPad AR application in real time.
- Implemented closed-loop stepper motor control and built a Python UDP server on Raspberry Pi to stream live motor position to Unity (C#)
- Developed the AR layer in Unity using AR Foundation and ARKit image tracking to register virtual orbital data to the physical model.
- Integrated Philips Hue lighting over the CLIP v2 API to dim room lighting to match planetary transits.
- Designed custom motor mounts, drive adapters, and a control PCB in SolidWorks and KiCad to fit new hardware into the existing model.
- Supporting user studies with 30+ student participants to evaluate how immersive tools affect physics learning outcomes.

GE Aerospace

Cincinnati, OH

Manufacturing Engineering Co-Op

January 2026 – May 2026

- Developed an automated run-report and data analysis system in Python, used during (RCA) root cause and corrective action review following a process incident.
- Built a scan historian integrating a FARO 3D scanner (CMM and LiDAR) with a SQLite database, logging point cloud data over time to track dimensional wear trends across production parts.
- Interpreted piping and instrumentation diagrams to trace system architecture, signal flow, and process interlocks, supporting troubleshooting and design decisions on industrial control systems.
- Troubleshoot and optimized production equipment in an active manufacturing environment with rapidly changing workflows.

Institute for Simulation and Training, University of Central Florida

Orlando, FL

Software Development Intern

December 2024 – May 2026

- Developed a VR glovebox training simulation in Unity for nuclear material handling procedures, in collaboration with the U.S. Department of Energy and the Oak Ridge Enhanced Technology & Training Center.
- Led development of interactive Sony Spatial Reality Display demonstrations shown at I/ITSEC across military, healthcare, and scientific visualization applications.

NASA Kennedy Space Center

Merritt Island, FL

Modeling and Simulation Intern

June 2025 – August 2025

- Developed a real-time MetaHuman avatar system in Unreal Engine (C++) using inverse kinematics and motion capture for technician training simulations.
- Designed, fabricated, and programmed a wearable ESP32 haptic glove with custom 3D printed hardware, then integrated it into a VR interaction system for force feedback.

SKILLS

Programming: C#, C++, Python, SQL, MATLAB

Real-Time & XR: Unity, Unreal Engine, AR Foundation, ARKit, visionOS, AR/VR/MR, Motion Capture, MetaHuman, Haptic Systems, Digital Twins

Controls & Hardware: Allen-Bradley PLCs, Ladder Logic, FactoryTalk HMI, FactoryTalk Echo, Stepper Motor Control, UDP Networking, ESP32, Raspberry Pi

CAD & Fabrication: SolidWorks, Siemens NX, KiCad, Blender, FARO 3D Scanning, 3D Printing, Rapid Prototyping

Tools: Git, Docker, Linux