Edwin Baker Herrin

(904) 687-6441 - bakerherrin2@gmail.com - www.linkedin.com/in/bakerherrin - https://github.com/abubake

EDUCATION

Master of Science in Mechanical Engineering University of Florida - Gainesville, FL (GPA: 3.48/4.0) **Bachelor of Science in Electrical Engineering**

University of Florida - Gainesville, FL (GPA: 3.56/4.0)

Robotics Coursework: Linear Controls, Control Theory, Nonlinear Control, Optimal Estimation & Kalman Filtering, Robot Geometry 1 & 2, Sensor-based Path Planning, Analytical Dynamics, Autonomous Robotics, Stochastic Methods ML Coursework: Physics-Informed ML, Applied ML Systems, Fundamentals of ML

TECHNICAL SKILLS

Programming Languages: Python, Embedded C, C++, MATLAB/SIMULINK, VHDL, ARM assembly, LABVIEW/Teststand

AI/ML Architectures: Transformers, Neural Radiance Fields (NeRF), Gaussian Splatting (3DGS)

Libraries and Tools: PyTorch, Git, MMDetection3D, ROS2, Gazebo, Omniverse Code, Blender, Altium

WORK EXPERIENCE

Graduate Research Assistant

University of Florida - APRILab: Gainesville, FL

- Developed ROS2-based perception and planning systems on embedded Linux (Jetson Nano, Raspberry Pi), using ROS2 and real-time ML inference.
- Mentored undergraduate teams on system identification, PCB design, and hardware/software integration for autonomous underwater vehicles.

Applications Engineering Intern

Texas Instruments: Dallas. TX

- Modified BEVFusion deep learning architecture for multi-camera inference in MMDetection3D Python framework on Ubuntu Linux, validating system performance with the NuScenes dataset.
- Wrote internal documentation with Git-linked change tracking and system diagrams to support scalable deployment and debugging.

Validation Engineering Intern

Texas Instruments: Dallas, TX

- Automated hardware test flows using Python, LabVIEW, and TestStand; documented issues using Jira and Git.
- Validated I2C, and CAN/LIN transceivers against ISO specs with PXIe systems, and standard bench devices such as MSO58 scopes.

PROJECTS

Underwater Action Recognition for Diver-Robot Collaboration

University of Florida: Gainesville, FL

- Developed ROS2 dynamic gesture recognition system for diver-robot teaming, using a PyTorch transformer-based model trained on NVIDIA RTX 3070 and deployed via tether connection to a BlueROV2 with Raspberry Pi5.
- Integrated vision and control using ROS2 Humble; conducted open-water scuba validation and system debugging for IROS conference submission.

Robust AI Test Event (RAITE) 2024

University of Florida: Gainesville. FL

- Built MLOps pipeline with PyTorch for robust object detection for UAV and UGV tracking; tracked metrics and reproducibility using Weights & Biases and REST API integrations
- Deployed models in real-world testing scenarios to evaluate AI system robustness and performance degradation.

PUBLICATIONS

E. Baker Herrin et. al, "SGD11: A Diver Gesture Recognition Dataset for Underwater Human-Robot Collaboration," in Proc. ICRA 2025 AQ2UASIM Workshop, Atlanta, GA, USA, May 2025.

E. Baker Herrin et. al. "Lessons from RAITE: Real-World Evaluation of Robust Multi-Modal Target Detection and Tracking Under Adversarial Attacks," in Proc. SPIE Defense + Commercial Sensing, Orlando, FL, USA, Apr. 2025. Presented by author.

E. Baker Herrin et. al, "Modularis: Modular Underwater Robot for Rapid Development and Validation of Autonomous Systems," in Proc. OCEANS 2023 Gulf Coast, Biloxi, MS, USA, Sep. 2023. https://doi.org/10.23919/OCEANS52994.2023.10337059 Presented by author.

June 2022 - August 2023 (Summers)

September 2024 - November 2024

January 2025 - March 2025

July 2024 - August 2024

August 2022 - Current

December 2021

December 2024