Regan Willis

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Experience

Research Assistant — Aphasia Lab Aug 2025 - present

- Comparison of response error types between a language model and human aphasic patients towards further understanding of how aphasia affects the language centers of patients.
- Comparing fMRI data with a language model using topological data analysis to understand similarity between brains and LLMs and reveal geometry of common LLMs towards explainability.

Research Assistant — HeRC Lab Aug 2024 - present

- Created a novel spice-like syntax for converting an electrical testbed to a graph representation for power flow analysis.
- Supported optimization of electrical load distribution with mixed integer linear programming.

Senior Software Engineer — Integer Technologies, LLC. Dec 2024 - present

- Led continued development of our perception system software including integration of sensor drivers, computer vision algorithms, and surrounding system software.
- Refined object detection algorithms for application to the open world.
- Presented research to stakeholders, including quarterly presentations to the Office of Naval Research.

Machine Learning Engineer — Integer Technologies, LLC. July 2022 - Dec 2024

- Led development of software for distributed data acquisition system with multiple synchronized sensors and conducted many data collection events in the field.
- Led development and testing of a visually based naval navigation product, including applying a segmentation model for object detection and a novel geometric range-finding method using Python, ROS, PyTorch and other tools.
- Led a summer software engineering apprenticeship program partnered with local HBCUs leading to two full-time offers and a national recognition of one apprentice from the Department of Labor for her participation in the program.

Research Software Engineer — ASSET, LLC. Jan 2020 - May 2021

- Created a network for gait identification, from data collection tool to training an MLP with PyTorch.
- Built Python system software supporting automated fall detection powered by gyroscopic floor sensors for healthcare applications.
- Built and installed on-site an OpenCV system that saves video from their cameras with faces blurred.

Education

exp. 2026 M.S. in Computer Science at **University of South Carolina** (GPA: 4.0/4.0)
2021 B.S. in Computer Information Systems at **University of South Carolina**

Outreach

Benedict College Computer Science and Engineering Advisory Board Aug 2023 - present