

Davelle Carreiro

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Boston, MA

WORK EXPERIENCE

MIT Lincoln Laboratory, Lexington, MA

April 2023-Present

Software Engineer - Advanced Undersea Systems and Technology - **Secret Security Clearance (DoD)**

- Developed AI/ML pipelines for object detection and classification
- Designed and implemented multiple full-stack GUI applications (webpage and desktop applications)
- Developed user-friendly tools to streamline workflows
- Performed feature extractions, data cleaning, and transformations of raw sonar data for AI/ML applications
- Applied a range of signal processing techniques to sonar data to enhance signal quality
- Experience benchmarking/debugging on HPC clusters for data-intensive workloads

Raytheon Technologies, Marlborough, MA

June 2020-April 2023

Software Engineer II - Protected Satellite Communications - **Secret Security Clearance (DoD)**

- Assisted in the creation of the pytest framework/python virtual environment used for SWIT testing
- Assisted in the creation of setting up nightly automated regression tests to run with Jenkins
- Experience with debugging embedded systems in a lab environment using a variety of analyzers
- Six Sigma Black Belt Certification

Knolls Power Atomic Laboratory, Niskayuna, NY

June 2019-August 2019

Technical Intern - **Secret Security Clearance (DoE)**

- Embedded C work on low voltage hardware -- SWIT testing
- Record and analyze data outputs

EDUCATION

Western New England University, Springfield MA

2016-2020

Bachelor of Science Degree Major: Computer Engineering GPA: 3.3

Relevant Courses:

RT Embedded Controls/Kernels

DSP/Signal Processing

AC/DC Power & Electronics

Digital Design

Software Engineering

Computer Architecture

Data Structures in C/C++

Microprocessors I&II

Internet of Things

COMPUTER SKILLS

Python

MATLAB

VsCode

C/C++

Jenkins/Jira/Collaborator

JavaScript

Windows/Linux OS

Git/ClearCase

SQL

Bash

Docker/Podman

Flask/PyQT

Publications

- Mohammadi, A., **Carreiro, D.**, et al., "Histogram-based Parameter-efficient Tuning for Passive Sonar Classification" **Under Review**
- Atharva Agashe, **Carreiro, D.**, et al., "Neural Edge Histogram Descriptors for Underwater Acoustic Target Recognition" in IEEE OCEANS, 2025, in Press. doi: arXiv:2503.13763.
- Mohammadi, A., et al., "Investigation of Time-Frequency Feature Combinations with Histogram Layer Time Delay Neural Networks" in IEEE OCEANS, 2025, in Press. doi: arXiv:2409.13881.
- Mohammadi, A., et al., "Cross-Domain Knowledge Transfer for Underwater Acoustic Classification Using Pre-trained Models" in IEEE OCEANS, 2025, in Press. doi: arXiv: 2409.13878.

PROJECTS

- **Microprocessor Design II** **Micro II** **April 2019**
 - Fabricated an embedded, real-time, interrupt based microprocessor using Atmega8515 in C. Created address and data bus to connect to off board 8255 and RAM, also interfaced with SPI and EEPROM. Utilized RS232 to display results through UART to PC using Putty.
- **Space Invaders Project** **Embedded Kernels** **April 2019**
 - Created a mini space invaders game in C. SysTick Timer, ADC, enum types, TIVA Launchpad C Series, Nokia 5110.
- **Microprocessor Design I** **Micro I** **November 2018**
 - StopWatch in Assembly for ATmega328p; interrupt driven device drivers for timers, USART, ADC Converter, and EEPROM.