

# William Fairman

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## EDUCATION

### **Florida Atlantic University**      **Boca Raton, FL**

PhD in Electrical Engineering – GPA 4.00

**Expected Aug 2025**

MS in Electrical Engineering – GPA 4.00

**May 2023**

### **Olin College of Engineering**      **Needham, MA**

BS in Electrical and Computer Engineering – GPA 3.87

**December 2021**

## EXPERIENCE

### **Harbor Branch Oceanographic Institute** Graduate Research Assistant

**January 2022 – Present**

#### • **Robotic Systems for Aquaculture**

- Leading the development of a waterproof coaxial drone that can land in and takeoff from a body of water.
- Created a pipeline for data acquisition and visualization using custom sensors, LoRa radio modules, Python, and Google Firebase.
- Designed a drone-mounted, waterproof winch and control system that utilizes a homing switch and encoded motor to control the speed and position of attached objects.

#### • **Sensor Development**

- Designed a dissolved oxygen, pressure, and temperature sensor that communicates over Bluetooth LE. Utilized KiCad to create custom circuit boards and Fusion 360 to create a waterproof housing.
- Designed a macro-algae biomass sensor for recirculating aquaculture systems that measures the reflectance of light from an infrared laser. Wrote firmware for a custom circuit board based around the Atmega32U4 that allows for months-long operation on battery power.

### **Florida Atlantic University** Marine Renewable Energy REU Intern

**Summer 2021**

- Researched, designed, and successfully tested an automated drone charging platform that is controlled by a custom designed circuit board created using KiCad.

### **Intel** SoC Pre-Silicon Validation Intern

**July 2020 – December 2020**

- Used the Verdi Coverage tool to provide Verilog coverage analysis for a System on Chip (SoC) IP.

### **Kuva Systems (MultiSensor Scientific)** Electrical and Computer Engineering Intern

**Summer 2019**

- Developed software for an infrared camera module to interface with a variety of sensors, ARM microcontrollers, and a FPGA using C, Python, and Verilog.

### **Olin Electric Motorsports - FSAE Electric** Sensors Lead

**September 2017 – June 2019**

- Designed and tested printed circuit boards for high and low voltage systems. Wrote embedded firmware for AVR chips (Atmega16M1 & 328P).

## PROJECTS

### **Wireless Communication through Lightbulbs**

**Fall 2019**

- Developed a wireless 4-QAM communication system with error correcting Hamming code using an off-the-shelf lightbulb at a distance of 25 inches and data rate of 80 Kbits/s

### **Rock-Paper-Scissors Convolutional Neural Net**

**Fall 2019**

- Wrote, trained, and tested a neural net using PyTorch to detect in real time using computer vision whether a hand represented a rock, paper, or scissors in the classic game.

## SKILLS

**Software/Programming:** Python, KiCad, C, Matlab, Verilog, Git, Fusion 360 Solidworks

**Machinery:** Basic machinery, CNC Router, 3D Printer, Laser Cutter