

# Furdeen Hasan

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## EDUCATION

### University of Delaware

**B.S. Computer Engineering; Minor: Computer Science & Cybersecurity**

**GPA:** 3.439/ 4.0

**Dean's List:** Spring 2021, Fall 2022, Fall 2024, Spring 2025

Newark, DE

Feb 2021 – May 2025

## EXPERIENCE

### University of Delaware

Newark, DE

*Researcher - Trustworthy Artificial Intelligence Development*

Feb 2024– May 2024

- Created models to categorize underwater terrain and sonar reflections using Explainable AI (XAI).
- Refined underwater mapping data with grid-based adjustments to improve accuracy.
- Conducted experiments using PyTorch library to evaluate model applicability across different datasets.

*Department of Mathematical and Office of Academic Enrichment - Tutor*

May 2023 – May 2025

- Provided one-on-one and group tutoring in math, engineering, and writing courses.
- Led tutoring for Calculus, engaging up to 30 students in interactive learning and worksheet discussions.

### US Army DEVCOM Research Intern + Senior Design

Newark, DE

*Compact and Fast-scanning passive mmWAVE imager*

June 2024 – May 2025

- Designed a compact, passive imaging device that detects mmWave radiation for security screenings.
- Utilized a Raspberry Pi 5 and Python for control and scanning, incorporating a specialized Farran radiometer with motorized linear movement.
- Built a user-friendly interface in Python and integrated AI-powered analysis through a FastAPI backend.
- Advanced a senior design project at the University of Delaware, refining research, creating a final prototype, and preparing an academic poster and research paper.

*University of Delaware Residence Life & Housing – Senior Resident Assistant*

Aug 2022 – May 2025

- Oversaw college residence hall of 60 residents, providing 24/7 support and conflict resolution.
- Promoted to Senior RA to assist with staff training and lead social media outreach.

## PROJECTS

### FireGuard - Innovative Fire Safety and Detection

Python, HTML, Raspberry Pi

- Designed a fire detection system using a Raspberry Pi and thermal cameras, coded in Python.
- Programmed a GUI to monitor temperature in real time and send alerts via text messages.

### Bluetooth Low Energy (BLE) Security Enhancement

nRF52840-DONGLE, Mirage

- Led a team to improve Bluetooth security by identifying weaknesses and developing a new way to recognize devices without using encryption.

### Advanced IoT Accelerometer and Temperature Sensor

KiCAD, Arduino Uno, Adafruit IO

- Designed a custom printed circuit board with Arduino, combining motion sensing, temperature tracking, and a display for real-time data monitoring through Adafruit IO.

### AI Interview Coach - HenHacks 2025

JavaScript, FastAPI, React, Gemini API

- Created an interactive full-stack web application to help users improve public speaking skills by analyzing speeches and providing real-time AI feedback, using Gemini API.

### 4-Bit VLSI Arithmetic Logic Unit Design and Implementation

Cadence Design Systems

- Constructed a 4-bit Arithmetic Logic Unit (ALU) using Cadence Design System

### Advanced Path-Tracking Autonomous Robot

C, PIC32 Microcontroller, Adafruit IO

- Built a self-driving robot using specialized microcontrollers infrared sensors to navigate autonomously.

## SKILLS

**Languages:** C++, C, Python, Javascript, Typescript, MATLAB, html, Verilog, SQL, CSS, Shell, JSON/YAML

**Technologies:** Git, Fusion 360, Gemini, Cadence, Wireshark, LTSpice, Arduino, Docker, MongoDB, FastAPI, React, Kivy, Linux, OpenVAS, Autopsy