

# Adrian Halgas

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## EDUCATION

### Northeastern University

December 2025

M.S. Computer Science – *Khoury College of Computer Sciences*

### Cleveland State University

December 2023

B.S. Electrical Engineering – *Washkewicz College of Engineering*

**Technical Skills:** Python, Java, Matlab, C, C++, SQL, PyTorch, Tensorflow, NumPy, Scikit-Learn, Pandas, Git, Simulink, Circuit Design and Analysis, Power Systems, Signal Processing, Excel, Power BI

*Notable Coursework:* Programming Design Paradigm, Algorithms, Unsupervised Machine Learning and Data Mining, Artificial Intelligence, Natural Language Processing, Computer Vision, Machine Learning, Control Systems

## PROFESSIONAL EXPERIENCE

### Engineer II

January 2024 - Sept 2024

*FirstEnergy*

*Akron, OH*

- Created electrical layouts for high-voltage substations, including bus configuration, and interconnections.
- Utilized design software such as **AutoCAD** in order to develop single-line, three-line diagrams, and wiring diagrams.
- Conducted load flow, short circuit analysis, voltage drop calculations to ensure the reliability of substation designs.
- Performed site surveys to gather data and assess the feasibility of substation projects, along with inspecting existing substation equipment to identify areas for improvement or necessary upgrades.
- Developed project schedules and timelines to ensure timely completion of substation projects.

### Distribution Operations Intern

August 2023 - December 2023

*FirstEnergy*

*Akron, OH*

- Shadowed experienced operators to gain hands-on experience and practical insights into control center functions.
- Studied distribution systems, control center operations to enhance knowledge of power systems and electric grid.
- Collected and analyzed data related to power flow, load distribution, and system performance, identified trends and potential issues based on data analysis.

### Engineer Intern

June 2023 - August 2023

*NASA*

*Cleveland, OH*

- Supported the *Research in Orbital Angular Momentum Antennas* team in designing and setting up experiments to generate and test the purity of OAM modes generated and multiplexed via various methods.
- Used specialized equipment such as a **vector network analyzer** to perform characterization of RF components.
- Developed **MATLAB algorithm** to control a gimbal system for precise positioning and alignment of antenna.
- Integrated **control algorithm** with hardware to ensure smooth and accurate operation of the gimbal system, achieved precise positioning with an accuracy of 0.01 degrees.

## RESEARCH EXPERIENCE

### Terahertz Research Intern - Northrop Grumman

December 2022 - February 2023

- Worked for the disruptive technology business unit researching terahertz waves along with their commercial and defense applications, current state-of-the-art, risks, and ethical concerns.
- Conducted market analysis in order to gauge trends and opportunities for Northrop Grumman to help project revenue for each area of interest.

## PROJECTS

### Clinic Management System

- Java-based clinic management system, emphasizing **object-oriented principles** such as encapsulation, inheritance, and polymorphism. Employs the Model-View-Controller architecture for better maintainability and scalability.
- Utilizes a GUI using **Java Swing**, enabling user interaction with menus, dropdowns, and graphical representations of clinic rooms. Integrates file handling (JFileChooser) to allow users to upload and manage clinic data.
- Efficiently manages patients, staff, and rooms using structured data models. It includes recursive functions, **tree-based search implementations**, and structured collections to store and retrieve data dynamically.

### Adaptive Crowd Management AI

- Leverages the **Unity Engine** to create real-time simulations, integrated with Python-based reinforcement learning models (using **TensorFlow**) for adaptive path-finding and multi-agent behavior modeling.
- Implements **neural network**-based emotion and panic level analysis to predict crowd dynamics during emergencies, showcasing skills in designing, training, and fine-tuning AI models for complex, real-world scenarios.
- Combines a human-in-the-loop web dashboard (using **Flask/Django**) with interactive data visualization tools (D3.js) to facilitate real-time monitoring, post-simulation analytics, and intuitive user interaction across multiple platforms.