Matthew Garcia

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Portfolio Website: www.matthewgarcia.com

Education

Northeastern University | Boston, Massachusetts **December 2026**
Bachelor of Science Degree in Electrical and Computer Engineering, Minor in Mathematics *GPA: 3.71*

Relevant Coursework: Cornerstone of Engineering, Computing Fundamentals for Engineers, Fundamentals of Networks, Embedded Design, Circuits and Signals, Fundamentals of Engineering Algorithms, Linear Systems, Fundamentals of Digital Design

Activities: IEEE (President), SHPE (Treasurer), AI Club (Director of Education), Ortelian Society, NUHOC

Awards: NU-FIRST Robotics Scholarship, Honors Program, Dean's List, PEAK Base Camp Award, AJC Merit Research Scholarship

Technical Skills

Programming Languages: Python, C++, C, Matlab, R, Java, Javascript, Typescript, HTML/CSS, SystemVerilog, RISC-V
Software: Keras, TensorFlow, Pytorch, React, Next.js, Node,js, Arduino, Processing, Wireshark, AutoCAD, Solidworks, Blender
Hardware: Signal Generator, FPGA Analyzer, Oscilloscope, Soldering, Circuit Design

Experience

ZOR! | Back-End Developer | Boston, Massachusetts **May 2025 - Present**
- Designed and evaluated machine learning pipelines using **random forest, KNN, and LSTM** models to extract clinically relevant insights from user input and biosensor data in iOS-based seizure monitoring app
- Integrated Spezi framework for real-time Bluetooth data ingestion and connected **LLMs** to deliver personalized health insights and contextual query support

SINRG Laboratory | AJC Merit Research Scholar | Boston, Massachusetts **January 2025 - Present**
- Engineered embedded systems for XR/AI smart glasses using **Arduino**, integrating sensor inputs and microcontroller logic
- Developed backend infrastructure for companion mobile application, facilitating acoustic data exchange between embedded software in smart glasses and LLMs/Speech-to-Text using **Deepgram** and **Assembly AI** in **Python**

National Energy Technology Laboratory | Research Associate | Pittsburgh, Pennsylvania **June 2024 - August 2024**
- Characterized simulated acoustic signals using machine learning to develop early kick detection algorithm in offshore wells
- Incorporated Fourier transforms and **principal component analysis** to enhance feature selection and reduce dimensionality
- Implemented and optimized machine learning models, including **random forest**, **gradient boosting**, and **multilayer perceptron** for classification tasks, increasing test accuracy by **30%** after hyperparameter tuning

Mayflower Communications Company | Software Engineer | Bedford, Massachusetts **January 2024 - May 2024**
- Developed **C** software for implementation of digital signal processing algorithms in order to find directions of arrival of meaconing spoofers and generate weights that can null them, allowing planes to use GPS without interference from spoofers
- Implemented **residual neural network** (RNN) converted from **Python** to **C** to perform automatic modulation classification on signals being received from jammer for five different classes, achieving **88%** accuracy rate

MENTIS Laboratory | Undergraduate Researcher | Boston, Massachusetts **September 2023 - August 2024**
- Awarded Peak Base Camp Award to implement deep learning algorithm using **Pytorch** that was able to perform single-image super resolution in order to bring low resolution images to higher resolutions with data from lab's omnidirectional camera

Projects

Research Paper Extraction Tool **January 2025 - June 2025**
- Developed tool in **Python** that uses **YOLO** to identify and extract tabular data from scientific paper images
- Integrated front-end interface in **HTML** for users to upload papers and view analyzed results
- Enabled streamlined data parsing from visual research tables for further automated processing

Smart City Resource Allocation **September 2024 - December 2024**
- Designed and implemented a resource allocation system for smart cities using quick sort algorithms in **C++**, optimizing resource flow and allocation for various sectors and achieving efficient system performance and time complexity
- Processed CSV-based input data for resource characteristics and enabled real-time user inputs for enhanced usability

Mecha Mayhem | Project Lead **January 2023 - April 2023**
- Led team of four students to design and develop educational game for Boston Children's Museum that had players assemble laser-cut mecha components onto photoresistors to answer robotics related questions, garnering **95% satisfaction rate**
- Utilized **Arduino** and **Processing** software to connect electrical components with interface displayed on monitor screen