Matthew Garcia

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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 & Signals, Fundamentals of Engineering Algorithms, Fundamentals of Linear Systems, Fundamentals of Digital Design

Activities: IEEE (President), AI NU (Vice President), SHPE (Treasurer), URF Ambassador

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

Experience

ZOR! | Software Engineer | Boston, Massachusetts **May 2025 - Present**
- Led development of machine learning pipelines to extract clinically relevant insights from user input and biosensor data in iOS-based seizure monitoring app for a startup, deployed via **Python** based Azure web service with **40+ current sign ups**
- Created variety of insights including the use of correlations to find the relationship between health data and seizure frequency, **random forest generators** to find feature importance, and **LSTM** models to extrapolate trends and detect anomalies
- Used **PostgreSQL** tables to read data and and write back insights in appropriate template for both patient and clinician
- Integrated medication word correction, user feedback, and export reports to deliver personalized health insights in **Swift**

SINRG Laboratory | AJC Merit Research Scholar | Boston, Massachusetts **January 2025 - Present**
- Created BLE server for XR/AI glasses using **Arduino**, integrating microphone/speaker devices and microcontroller logic
- Developed Android application in **Kotlin** integrating multiple STT, LLM, and TTS models using Deepgram and OpenAI APIs for real-time processing of audio, images, and video captured by XRAI smart glasses
- Implemented audio streaming from glasses to mobile device, enabling on glass handling of AI responses with **95% consistency**
- Created gallery feature to store images and video with associated AI-generated captions through Wi-Fi sync
- Tested latency and throughput of voice/image transmission in Wi-Fi/bluetooth streaming, showing **50% latency improvement**
- Fine-tuned LLM with medical data to generate medical report for wound care based on images/audio from the glasses

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 generators**, **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**

Projects

Research Paper Extraction Tool **April 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

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