Emanuel Lugo Rivera

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Orlando, FL

Education

Bachelor of Science - Computer Engineering – UAGM Gurabo *January 2021 - May 2024*

- Cybersecurity Specialization (Graduate Courses)

Associate's degree - Computer Engineering Technology and Networking – UAGM Gurabo
January 2019 – December 2020

- Graduated Cum Laude - GPA: 3.6

Experience

AI & LLM Model Tuning Contributor - Contract *July 2025 (Onboarding) – Present*
Outlier AI - Orlando, FL (Remote) – *(Relocated from Puerto Rico in late 2024)*

- Built and refined React components through LLM-assisted code generation, using iterative prompt engineering and human-in-the-loop feedback to improve UI behavior, component structure, and developer tooling reliability.
- Created multimodal datasets for AI models by sampling color palettes and writing generative transformation instructions, supporting accurate style transfer, image-to-image alignment, and model behavior consistency.
- Contributed to AI system refinement by validating audio transcripts, generating high-quality instructions for visual and code-based tasks, and integrating these workflows into broader full-stack development practices.

Engineering Researcher Internship *January 2022 – June 2022*
Consortium of Resilient Energy Systems – UAGM Gurabo, PR

- Researched turbine development and prototyped energy-efficient microturbines for sustainable battery charging using rainfall capture.
- Used Arduino microcontrollers to collect sensor data and Python scripts to parse, normalize and visualize performance metric data from water sensors for the design of energy efficient turbines.
- Collaborated with other Engineering fields such as Mechanical and Environmental fields using Agile practices to ensure project delivery on time.

Backend Engineer Internship *June 2020 – March 2021*
Ticketera - San Juan, PR

- Automated reporting pipelines and SQL-driven data workflows using Python, cutting manual labor by 41% and increasing operational efficiency.
- Enhanced administrative dashboard with real-time scheduling features via PHP and Node.js, streamlining shift management.
- Executed functional testing and documented RESTful APIs, contributing to system reliability and streamlined DevOps with Git version control.

Full-Stack Web Developer *September 2018 – January 2020*
Freelance

- Designed and deployed secure, scalable web applications for small businesses and nonprofits, tailored to diverse user needs.
- Increased user engagement by 50% through front-end enhancements using React, TypeScript, and Bootstrap.
- Implemented cloud-based debugging solutions to optimize database queries, improving response time by 28%.

Projects

Halo Infinite Veto System *June 2025 – Present*
https://nettenz.github.io/veto-tsd/

- Engineered a Django REST API with a custom finite state machine (TSDMachine) enforcing HCS-style map/mode veto rules.
- Built RESTful endpoints for series setup, bans, and picks, with strict backend validation and automated test coverage.
- Developed a React + Tailwind frontend to guide teams through interactive veto sequences and preview finalized match layouts.
- Added export functionality to generate downloadable PDF series layouts and CSV game data, deployed API on Render for live use.

Interactive Web Audio Player *March 2025 – April 2025*
https://nettenz.github.io/web-audio-app/

- Built a dynamic, browser-based audio player with real-time waveform and volume visualization using the Web Audio API.
- Implemented audio metadata extraction with music-metadata-browser and designed responsive UI components in React and Tailwind CSS.
- Added interactive features including custom volume control, playback animation toggling, and restart functionality to improve usability.
- Deployed the app using Vite on GitHub Pages for optimized performance and static hosting scalability.

Hurricane Preparedness and Response System - (Capstone) *August 2023 – May 2024*
GitHub Demo

- Engineered a full-stack emergency response web application to track shelter status, weather conditions, and resource availability in real time.
- Built a resilient Django + HTMX backend with service workers for offline functionality during disaster scenarios.
- Integrated live data feeds from NOAA API, OpenWeatherMap, and Google Maps APIs for geo-targeted visualization.
- Led Agile sprints and user story mapping to accelerate development cycles and align with real-world emergency planning needs.

Visualizing Puerto Rico's Earthquake Activity *February 2025*
https://nettenz.github.io/earthquakes_pr.html

- Refactored a Jupyter Notebook into a browser-executable PyScript dashboard to visualize seismic activity across Puerto Rico during early 2020.
- Processed and filtered USGS earthquake data using Pandas, highlighting magnitudes above 4.5.
- Plotted geospatial trends on an interactive Folium map to provide contextual insights into regional tectonic behavior.