# Emanuel Lugo Rivera

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## Summary

Results-driven Software Engineer with a B.S. in Computer Engineering (Cybersecurity Specialization) and hands-on experience delivering end-to-end web and mobile solutions. Adept at automating SQL-backed data pipelines, RESTful APIs, and designing responsive front-end interfaces with React and Android. Proficient in Python, Java and C/C++ with a proven record of boosting performance, reliability integrating fraud-detection logic, and optimizing performance. Thrive in Agile/Scrum teams, ensuring code quality through test-driven development, peer reviews, and continuous deployment pipelines to deliver scalable, secure, and maintainable software solutions.

## Education

**B. S. - 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

**Engineering Researcher Internship**                           *January 2022 – June 2022*
**Consortium of Resilient Energy Systems** – UAGM Gurabo, PR
- Researched and prototyped energy-efficient microturbines for sustainable battery charging using rainfall capture.
- Gathered, parsed and visualized the data gathered from water sensors to design energy efficient turbines.
- Collaborated with other Engineering fields using Agile practices to ensure project delivery on time.

**Backend Engineer Internship**                           *June 2020 – December 2020*
**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

**Interactive Web Audio Player**                                      *March 2025 – April 2025*
[Live Demo](#)
- 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, 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*
[Live Demo](#)
- 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.

## Licenses and Certifications

**Crash Course on Python**
Grow with Google on Coursera | Credential ID: B5S5FTX5Y9HM
Google | Coursera

**Python Data Structures** | Credential ID: LUJ93XKUJ2ZC
University of Michigan | Coursera

**Python Programming: A Concise Introduction** | Credential ID: ZJ4YUSVM5E2D
Wesleyan University | Coursera