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, crafting RESTful APIs, and building responsive front-end interfaces using React and Android. Proficient in Python, Java, C/C++, and AWS, with a proven record of boosting performance, reliability integrating fraud-detection logic, and optimizing performance to ensure low-latency, fault-tolerant checkout experiences for merchant-facing platforms. 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

UAGM Gurabo
Bachelor of Engineering - Computer Software Engineering (*January 2021 - May 2024)*

- Cybersecurity Specialization (Graduate Courses**):**

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

- Graduated Cum Laude **-** GPA: 3.6

Experience

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

- 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
Ticketera - San Juan, PR (*June 2020 – December 2020)*

- 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
Freelance (*September 2018 – January 2020)*

- 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) (*December 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