

Joshua Alessandro Rivera Morales

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EDUCATION

University of Puerto Rico at Mayagüez, Mayagüez, PR

Expected May 2029

Bachelor of Science in Software Engineering

Relevant Coursework – Calculus I & II, Multivariable Calculus, Linear Algebra & Differential Equations

Certifications – CITI Responsible Conduct of Research for Engineers

RELEVANT TECHNICAL SKILLS

Programming Languages – Python, C++, Java

Tools & Frameworks – Git, GitHub, VS Code, FastAPI

Technical Concepts – Object-Oriented Programming, Data Structures & Algorithms, Machine Learning, Neural Networks

TECHNICAL EXPERIENCE AND RESEARCH

Business Computer POS, San Juan, PR — *Software Development Intern*

Jun 2026 – Jul 2026

- Developed and refined front-end components for a web-based application, improving usability, responsiveness, and visual consistency across user-facing views.

- Implemented responsive layouts and interface updates based on project requirements, usability, and team feedback.

- Tested and reviewed front-end code to identify bugs, improve functionality, and deliver a smoother user experience.

PandaHat Adversarial Research Group, Mayagüez, PR – *Co-Project Manager & Research Member*

Jan 2026 – Present

- Coordinating research planning, task assignments, recruitment, and advisor-meeting preparation for a multidisciplinary student research team.

- Preparing a research presentation under the mentorship of Dr. Nayda Santiago, selecting datasets and models and defining evaluation metrics and reproducible deliverables for studying invisible watermarks against facial deepfakes.

- Trained and evaluated convolutional neural networks on NDVI datasets using Python, developing reproducible workflows to compare model performance and document experimental results.

Loxodon – 1 Liquid Rocket Engine, Mayagüez, PR — *Avionics Division Team Member*

Mar 2026 – Present

- Developed Arduino-based thermocouple data-acquisition tools to measure and process temperature readings for liquid rocket engine testing.

- Researching LoRa communication hardware and protocols for long-range wireless transmission of telemetry data between the rocket and ground station equipment.

Advanced Programming Laboratory, Mayagüez, PR — *Laboratory Mentor*

Jan 2026 – Present

- Mentored 30 students in Object-Oriented Programming, recursion, debugging, and algorithms through hands-on programming labs.

- Guided students through C++ programming assignments by explaining core concepts, reviewing logic errors, and improving problem-solving strategies.

Introduction to Programming Laboratory, Mayagüez, PR — *Laboratory Mentor*

Aug 2026 – Present

- Mentored 30 students in Python fundamentals, including variables, arithmetic and logical operations, conditionals, loops, functions, and basic data structures.

- Guided students through hands-on programming exercises, helping them debug code, develop algorithms, and strengthen problem-solving skills.

PROJECTS

Mimi's Garden – Plant Health and Disease Classifier

Jun 2026 – Present

- Developing a full-stack machine learning web application that classifies plant health status and possible disease indicators from user-uploaded images.

- Building a FastAPI backend to process image uploads, run model inference, and return predictions with confidence scores and basic care suggestions.

- Designing a front-end interface for users to upload plant images, view classification results, and receive recommendations related to watering, lighting, and monitoring changes.

Loxodon – 1 Model Context Protocol Server

Apr 2026 – May 2026

- Built a Model Context Protocol server for the Loxodon – 1 codebase to provide structured access to project resources and support agent-assisted development.

- Streamlined code navigation, debugging, and integration tasks for avionics-related software development.

Parking Lot Management System

Apr 2026 – May 2026

- Led development of a Java Swing parking reservation system for managing student records, vehicle information, parking availability, reservations, cancellations, waitlists, and reports.

- Designed the user interface, application flow, and backend structure while coordinating team contributions through GitHub issues, pull requests, and feature integration.

Target Prioritizer

Dec 2025 – Jan 2026

- Built an object-oriented C++ system using classes, vectors, distance calculations, sorting algorithms, and custom comparator logic to rank targets by priority.

- Implemented randomized target generation and priority-based selection logic to strengthen algorithmic problem-solving and object management.

LEADERSHIP AND COMMUNITY ENGAGEMENT

ISA 2023 World SUP and Paddleboard Championship, Les Sables-d'Olonne, France - Athlete

Sep 2023 – Oct 2023

- Represented Puerto Rico among more than 200 athletes from approximately 30 countries.

- Achieved a top-15 world ranking in the technical race discipline.