

# Yahil Corcino Valdez

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## EDUCATION

### New Jersey Institute of Technology

Newark, NJ

*B.S. Computer Engineering, Minor in Applied Mathematics*

*Sep 2024 – Exp. May 2028*

- Relevant Coursework: Data Structures & Algorithms (C++), Object-Oriented Programming (C++), Digital Logic, Microprocessors, Circuits & Systems I/II, Differential Equations, Multivariable Calculus

## TECHNICAL SKILLS

**Languages:** C++, C, Python

**Embedded Hardware:** ESP32, STM32, Motor Control (Stepper/Servo), FreeRTOS, UART, I2C, SPI, PWM, ADC

**Robotics & AI:** Inverse Kinematics, TinyML, Computer Vision, Spatial Coordinate Mapping

**IoT & Cloud:** MQTT, LoRa, HTTP/REST APIs, Webhooks, Wi-Fi (TCP/IP), Zigbee, Supabase, AWS

**Development Tools:** Git/GitHub, Linux, KiCad, PlatformIO, STM32Cube, GDB, Serial Debugging

## PROJECTS

### Autonomous Waste-Sorting Robotic Arm | C++, TinyML, Motor Control, Inverse Kinematics

- Designed a 4-DOF robotic arm with DS3218MG servo joints and stepper base using motor drivers and PWM.
- Implemented custom inverse kinematics for end-effector positioning and coordinated multi-axis motion.
- Developed embedded firmware on ESP32-S3 for real-time motor sequencing, task control, and gripper actuation.
- Integrating camera and lightweight object recognition model for autonomous waste classification and sorting.

### Smart Trashcan Monitoring System | C++, ESP32-S2, AWS, Flask | ECE Dept. Showcase Nominee

- Built an autonomous, event-driven IoT system using ultrasonic sensors to detect fill levels and transmit telemetry.
- Integrated ESP32-S2 Mini with AWS-hosted Flask backend for monitoring across a campus-wide network.
- Improved power consumption by 550% from V1, extending projected battery life to 1.7 years.

### AI-Powered Data Center Optimization | Python, Optimization, ML | 1st Place – Claude Hackathon

- Modeled data center thermals as a constrained optimization problem, balancing capacity, cost, and failure risk.
- Developed predictive system with 94% accuracy in hotspot detection, reducing critical overheating events by 75%.
- Designed workload redistribution logic to proactively mitigate failures rather than reactively respond.

## EXPERIENCE

### Software Engineering Intern

Dec 2025 – Present

*Society of Hispanic Professional Engineers*

- Directed core system development for a production iOS/Android app, contributing 120+ hours during a 3-week sprint to deploy to 200+ users.
- Designed a Supabase backend integrating cloud APIs to securely manage authentication and user telemetry.

### C++ Tutor

Sep 2025 – Present

*New Jersey Institute of Technology*

- Provide one-on-one instruction in C++ focusing on data structures, memory, pointers, and algorithms.
- Develop targeted exercises & quizzes emphasizing time/space complexity and correctness under constraints.

### Computer Science Teaching Assistant

Jun 2025 – Aug 2025

*Educational Opportunity Program (EOP) – NJIT*

- Led twice-weekly recitations for a cohort of 36 students, teaching programming fundamentals and algorithmic problem solving through live coding.
- Provided **16+ hours/week** of one-on-one tutoring, reinforcing programming fundamentals and debugging skills.

### Data Analyst

Jul 2023 – Aug 2024

*Plot Pointe*

- Analyzed performance metrics across large-scale datasets to identify patterns and optimize content strategy.
- Applied statistical analysis to engagement data, driving **300M+** Instagram views in 6 months.
- Operated in a fast-paced startup environment, independently identifying problems and shipping solutions.

## LEADERSHIP & SERVICE

### Director of Outreach

Mar 2025 – Present

*IEEE – NJIT Student Branch*

- Lead outreach for technical workshops and industry events, increasing student engagement in ECE programs.
- Grew chapter membership by 130+ students while increasing average event attendance by 34%.