

# **Yahil Corcino Valdez**

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## EDUCATION

<b>New Jersey Institute of Technology</b>	Newark, NJ
<i>B.S. Computer Engineering, Minor in Applied Mathematics</i>	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

<b>Languages:</b> C++, C, Python
<b>Embedded Hardware:</b> ESP32, STM32, Motor Control (Stepper/Servo), FreeRTOS, UART, I2C, SPI, PWM, ADC
<b>Robotics &amp; AI:</b> Inverse Kinematics, TinyML, Computer Vision, Spatial Coordinate Mapping
<b>IoT &amp; Cloud:</b> MQTT, LoRa, HTTP/REST APIs, Webhooks, Wi-Fi (TCP/IP), Zigbee, Supabase, AWS
<b>Development Tools:</b> Git/GitHub, Linux, KiCad, PlatformIO, STM32Cube, GDB, Serial Debugging

## PROJECTS

<b>Autonomous Waste-Sorting Robotic Arm</b>   <i>C++, TinyML, Motor Control, Inverse Kinematics</i>
– 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.
<b>Smart Trashcan Monitoring System</b>   <i>C++, ESP32-S2, AWS, Flask</i>   <i>ECE Dept. Showcase Nominee</i>
– 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.
<b>AI-Powered Data Center Optimization</b>   <i>Python, Optimization, ML</i>   <i>1st Place – Claude Hackathon</i>
– 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

<b>Software Engineering Intern</b>	Dec 2025 – Present
<i>Society of Hispanic Professional Engineers</i>	
– 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.	
<b>C++ Tutor</b>	Sep 2025 – Present
<i>New Jersey Institute of Technology</i>	
– 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.	
<b>Computer Science Teaching Assistant</b>	Jun 2025 – Aug 2025
<i>Educational Opportunity Program (EOP) – NJIT</i>	
– Led twice-weekly recitations for a cohort of 36 students, teaching programming fundamentals and algorithmic problem solving through live coding.	
– Provided <b>16+ hours/week</b> of one-on-one tutoring, reinforcing programming fundamentals and debugging skills.	
<b>Data Analyst</b>	Jul 2023 – Aug 2024
<i>Plot Pointe</i>	
– Analyzed performance metrics across large-scale datasets to identify patterns and optimize content strategy.	
– Applied statistical analysis to engagement data, driving <b>300M+</b> Instagram views in 6 months.	
– Operated in a fast-paced startup environment, independently identifying problems and shipping solutions.	

## LEADERSHIP & SERVICE

<b>Director of Outreach</b>	Mar 2025 – Present
<i>IEEE – NJIT Student Branch</i>	
– 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%.	