Alexis Cruz-Ayala

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LinkedIn | Hackster.io | GitHub

EDUCATION

Duke University | Durham, NC | Graduation Expected in May 2025

- Majors: Electrical and Computer Engineering (B.S.E.), Computer Science (B.S)
- Minors: Machine Learning and Artificial Intelligence, Music
- Questbridge National College Match Recipient | Gates Scholarship Recipient
- **Relevant coursework**: Algorithmic Design, Operating Systems, Software Design & Implementation, Computer Systems/Architecture, Linear Algebra, Multivariable Calculus, Differential Equations

SKILLS

Software Development: SCRUM/AGILE Framework, Deployment Environments, API-First Development, Unit Testing, SOLID Principles, Test Driven Design
Hardware: Raspberry Pi, Arduino, Jetson Nano, Intel Realsense Cameras, FPGA, Verilog, KiCAD, Oscilloscopes, Vivado
Platforms: Linux, GitHub, Gitlab, GitExtensions, Unity Engine, Godot Engine
Programming: Java, C++, Python, C, MATLAB, C#, Node.js, JavaScript, Go, Simulink, Bash Scripting
Machine Learning: TensorFlow, Pytorch, Sklearn, Keras, OpenCV, Theano
Communication: Technical Reports, Software/Hardware Documentation, Presentations

WORK EXPERIENCE

McMaster-Carr | Systems Engineer Intern Chicago, IL | June 2023 – Aug 2023

- Engineered a company internal application for controlling the display of products and product attributes on the McMaster.com website.
- Leveraged JavaScript React and full-stack technologies to advance the application's data verification and mitigate risk of website failures.
- Explored enterprise code base development such as the AGILE framework and scalability tools for version control like Git.
- Implemented features that greatly improved user experience, as shown by UX metrics and user feedback.

Picasso Intelligence LLC | Research Assistant Raleigh, NC | Oct 2022 – May 2023

- Developed and programmed a bipedal humanoid robot, with advanced walking and self-balancing capabilities.
- Designed a PCB board in KiCAD tailored for the robot, integrating processors, sensors, and ports for peripheral devices.
- Collaborated with the team to implement efficient algorithms and motor controls, leveraging URDF and ROS C++ for simulation and development.
- The PCB board created has been used in various other projects and has found great success at other laboratories.

FIU Human Cyber-Physical Systems Lab | Robotics Engineer Intern Miami, FL | May 2022 – Aug 2022

- Derived and simulated an updated admittance control algorithm using MATLAB and Simulink for an exoskeleton used in nuclear waste management.
- Implemented the admittance control into a raspberry pi in C++ to operate Maxon motors through a CAN-bus, and integrated all I2C sensors to record human-computer interaction.
- Rapidly prototyped a fundamental exoskeleton system (operating in 1 DOF) for investigating future control algorithms and studying human-computer response using the simplest model possible. The setup is still in use today.

Matrix Labs | Embedded Systems Developer Intern Miami, FL | Jun 2019 – Aug 2019

- Created and documented an accessible API in C++ for using ESP32 capabilities on the company development boards.
- Built projects and made tutorials on Hackster.io using the Matrix devices with the above API, thus fostering community engagement and greater sales.
- Made tutorials on how to use the onboard FPGA of the Matrix Creator, as well as live-streams teaching others how to get started with Verilog and digital systems development.

ORGANIZATIONS

Diversity++ (Colorstack@Duke) **President | 2021 – Present**
Society of Hispanic Professional Engineers **Vice-President | 2021 – Present**
Alpha Phi Omega **Sergeant at Arms | 2022 – Present**
FIRST Robotics Competition **Team Captain | 2017 – 2021**