Christopher Morales

323-516-8252 Christopher.Morales@ngc.com linkedin.com/in/artorias961 github.com/artorias961 Portfolio

Technical Skills

Programming Skills: Python, C++, C, HTML/CSS/JS, Bash, Verilog, MATLAB, SQL, SQLite
Developer Tools: Docker, Redis, Windows Subsystem Linux, KiCAD, Virtual Box, Visual Studio Code
Technologies/Frameworks: Linux, GitHub, ROS, Zephyr RTOS, Next.Js, Node.js, Bun

Work Experience

Northrop Grumman | *Electrical Engineer* **Aug 2025 – Present**

- Designed and developed multiple connectors and adapters to ensure seamless system compatibility. Performed power output testing, noise analysis, and detailed documentation using oscilloscopes, DMMs, and technical datasheets
- Developed and implemented a Python GUI-based executable script to convert .xls files into .csv format, enabling data integration and improving compatibility across systems
- Reduced processing time by 30% through the development and implementation of a C++ computer vision multithreading solution, using OpenCV and Windows threading

Northrop Grumman | *Electronics Engineer* **Aug 2024 – Aug 2025**

- Technical lead in the lab environment, coordinating test activities, delegating tasks, and ensuring engineering processes are followed across multiple high-visibility programs
- Executed ATP testing using oscilloscopes, DMMs, and programmable power supplies, identifying faults and validating system performance against spec

Smart Program VR/AR/XR Tech for Virtual Learning Space | *Team Lead* **Jan 2024 - Aug 2024**

- Led a team of 23 interns to create a cost-effective AR system integrating generative AI, Unity, and LucidVR gloves
- Utilized Docker containers to host the Meta Llama 3 70B model, where input from an ESP32 board was used to detect user interactions, enhancing LLM assistance in an AR environment

NSF CREST Center for Advancement toward Sustainable Urban System | *Research Fellow* **Oct 2023 - Aug 2024**

- Developed a BLE-based system to track occupancy patterns, improving energy efficiency by 20%
- Taught foundational concepts of Zephyr RTOS and BLE to over 50 students using nrf52DK

Dept. of Electrical and Computer Engineering, Cal State LA | *Teaching Associate* **Aug 2022 - Aug 2024**

- Introduced students to the fundamentals of embedded systems using the Nucleo F401RE development board, covering microcontroller architecture, GPIO programming, and interfacing with sensors through practical hands-on exercises
- Guided students in analyzing various systems, such as linear and rotational, to determine their dynamic characteristics. Taught techniques to calculate and tune proportional, integral, and derivative gains for optimal system performance

Dept. of Electrical and Computer Engineering, Cal State LA | *Makerspace Assistant* **Aug 2021 - Aug 2024**

- Designed and led a workshop on computer vision, focusing on object detection and tracking techniques using OpenCV and implementing a algorithm such as YOLO
- Created a workshop for transfer students on PCB design, guiding participants through designing a circuit using a 555 timer chip to blink an LED and demonstrating the end-to-end PCB creation process

NASA/CaSGC Microcomputer and Robotics Internship | Robotics Engineer Intern **May 2019 - Aug 2019**

- Implemented Arduino microcontroller programming for the development of a hot wire CNC machine, as part of a Distance Learning STEM Course enhancing STEM education in community colleges

Projects

Robotic Dog | *Team Lead* **Jan 2023 - Present**

- Directed the development of an autonomous tour bot designed to assist individuals with disabilities
- Integrated LiDAR and computer vision on a LattePanda board for obstacle detection, using a ROS2-based SLAM model to achieve a 90% success rate in testing

Web Developer | *Full Stack Developer* **Dec 2022 - Present**

- Developed a responsive portfolio website using Next.js and Tailwind CSS, ensuring seamless performance across devices
- Configured APIs and server-side rendering capabilities within the Next.js framework

Localization and Tracking in ZigBee Bluetooth Mesh Networks | *Thesis* **Aug 2023 - Aug 2024**

- Implemented Zigbee mesh networks with Received Signal Strength Indicator, Angle of Arrival, and Time of Arrival techniques, integrating regression models (e.g., Random Forest, Ridge)
- Optimized system reliability by leveraging classification algorithms like Support Vector Machines and K-Nearest Neighbors for signal analysis and localization

Education

California State University, Los Angeles **Aug 2023 – Aug 2024**
Master of Science in Electrical Engineering, Biomedical and Computer Engineering specialization *GPA 3.90*

California State University, Los Angeles **Aug 2020 – May 2023**
Bachelor of Science in Electrical Engineering *GPA 3.30*