

Gaspar J. Montoya

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EDUCATION

University of Nevada, Las Vegas

Las Vegas, NV

B.S. Computer Engineering, Minor in Data Science & Artificial Intelligence

May 2027

NSF EPSCoR Pipe-UP Research Cohort

SKILLS

Software: Python, C++, C, SystemVerilog, RISC-V, Bash, Git, Linux, HTML/CSS

Robotics: ROS 2, SLAM, FAST-LIO2, Nav2, CycloneDDS, PX4, MAVLink, Livox Mid-360, Sensor Fusion

Hardware: Fusion 360, 3D Printing, Soldering, Custom Wiring, UAV Assembly, Pixhawk, Raspberry Pi, Arduino

Machine Learning: PyTorch, TensorFlow, OpenCV, YOLO, NumPy, Pandas

Languages: English (Native), Spanish (Native)

WORK EXPERIENCE

Undergraduate Research Assistant

January 2025 – Present

UNLV Dept. of Electrical & Computer Engineering

Las Vegas, NV

- Building a three-camera autonomous UAV for NSF-funded wildfire monitoring with thermal, multispectral, and RGB payloads on a custom airframe
- Deployed a LiDAR-inertial SLAM stack on a Unitree Go2 quadruped, fusing Livox Mid-360 scans with IMU data to map unstructured field sites in 3D

Engineering Student Senator

July 2025 – January 2026

Consolidated Students of UNLV

Las Vegas, NV

- Represented 4,300+ engineering students on the University Initiatives and Internal Affairs committees
- Advocated for expanded undergraduate research funding and access to shared technical resources

Engineering Peer Mentor

August 2024 – January 2026

UNLV Howard R. Hughes College of Engineering

Las Vegas, NV

- Mentored 36 first-year students through weekly Engineering 101 labs and hands-on design projects
- Ran office hours and monthly check-ins supporting final design projects and academic planning

Computer Engineer Intern

May 2024 – September 2024

NV Energy

Las Vegas, NV

- Developed a Management of Change app in Python and Power Apps to digitize approvals across 13 power plants, cutting processing time by 40%
- Automated modification tracking with Power Fx logic and SharePoint integration, cutting data entry by 25%

IT Assistant

September 2023 – June 2024

UNLV William S. Boyd School of Law

Las Vegas, NV

- Maintained and troubleshoot AV and computing systems across 400+ classroom and office endpoints
- Resolved time-critical hardware and software failures to minimize instructional downtime

FEATURED PROJECTS

LiDAR-Inertial SLAM on a Unitree Go2 Quadruped

2026 – Present

- Deployed FAST-LIO2 with a Livox Mid-360 on a Unitree Go2 EDU, recording rosbags on-robot for offline processing on a ROS 2 laptop
- Corrected a 22° forward sensor tilt in post-processing with an Open3D script to level generated point-cloud maps
- Configured CycloneDDS networking and routing between robot and workstation for reliable field data transfer

Real-Time Fruit Detection Model

Python, YOLO11, PyTorch

- Captured and hand-labeled a custom 100-image dataset in Label Studio, varying lighting and backgrounds to diversify training samples
- Trained a YOLO11 model for 60 epochs on a Colab T4 GPU, then deployed it locally in PyTorch for real-time webcam inference on an RTX 4060