

Luis Alzamora

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EDUCATION

Worcester Polytechnic Institute

Worcester, MA

Master of Science in Mechanical Engineering (Controls Concentration)

Aug 2022 - May 2026

Bachelor of Science in Robotics Engineering (with Honors)

Aug 2022 - May 2026

- **Relevant Coursework:** Dynamics, Motion Planning, Linear & Non-Linear Systems, Vibrations, Motion Control

SKILLS

Languages: Python, C/C++, JavaScript, TypeScript, SQL, Ada, HTML/CSS

AI Tools: Cursor, Claude Code, Codex, Greptile, Wispr Flow

Robotics: ROS2, Gazebo, RViz, SolidWorks, ESP32, NVIDIA Jetson, Onshape, MATLAB, PyTorch, NumPy

Technologies: Docker, Git, React, Next.js, Django, AWS, Jira, Linux, CI/CD

Certifications: Associate Systems Engineering Professional (INCOSE), Advanced Leadership (NSLS)

WORK EXPERIENCE

QuickEst Estimations

March 2024 - Aug 2026

Co-Founder and Software Engineer | TypeScript, Next.js, React, PostgreSQL, Prisma, Supabase, AWS, Django, Leaflet, Vercel

- Built an estimating funnel for franchises and contractors that converts **4-6x** more website visitors into inbound leads.
- Tracked estimate-session activity and built **cron-based** auto-alerts with **SendGrid** and **Twilio** for abandoned quotes.
- Diagnosed misleading session analytics and consolidated estimate sessions by **40%**, so companies saw real completions.

NASA Lunabotics

Aug 2025 - May 2026

Robotics Engineer | Python, C++, ROS2, Gazebo, RViz, Docker

- Led the programming initiative among a multi-disciplinary team of **9** engineers to build a lunar excavation robot.
- Leveraged **Nav2/RTAB-Map** with a **PointCloud2** detection pipeline for crater/obstacle avoidance, cutting collisions by **83%**.
- Containerized the stack with **Docker** on a **NVIDIA Jetson Orin**, eliminating cross-team dependency conflicts.

General Dynamics

Aug 2024 - Jan 2025

Software Engineer Co-op | Secret Clearance | C++, Ada, Jira, GitLab, Agile/Scrum

- Resolved **GUI-driven** failures, improving reliability for submarine subsystems in an isolated **Linux** environment.
- Increased test coverage **15%** across temperature and humidity sensors by mocking sensor dependencies.
- Resolved **50+** Jira tickets on a legacy codebase, adhering to defense-sector documentation and compliance standards.

UMass Chan Medical School

May 2024 - Aug 2024

Software Engineer Intern | React, JavaScript, HTML/CSS, Lighthouse, Axe DevTools, JAWS, Agile/Scrum

- Developed software for **100k+** nurses and senior citizens, ensuring secure handling of data and QA compliance.
- Achieved **90%+ WCAG** compliance with Lighthouse audits, ensuring visually impaired users could use the site.
- Proactively joined stakeholder meetings to gain exposure to client requirements and project decisions.

Sebela Pharmaceuticals

May 2023 - Aug 2023

Automation Engineer Intern | SolidWorks, CNC mill, Band Saw, Lathe, PLC, TIA Portal, cGMP

- Supported the mechanics in a manufacturing plant for pharmaceutical products such as Sulfave and SUTAB.
- Designed and prototyped equipment to **cGMP** standards using **SolidWorks**, CNC mills, and other equipment.
- Gained exposure to programming Siemens SIMATIC S7-300 PLC to control sensors, pistons, and conveyors.

PROJECTS

7-DOF Simulated Robot Arm | Python, PDDL, Pyperplan, Genesis, OMPL, PyTorch, NumPy

Aug 2025 - Dec 2025

- Stacked blocks with a Franka Panda in Genesis, using PDDL/Pyperplan for task planning and OMPL for motion planning.
- Interpolated **8-planner** paths into **200** waypoints per motion under a **5 sec** timeout, achieving **93%** collision-free execution.
- Defined a symbolic abstraction layer that maps raw block poses to a **5** predicate PDDL state and **4** action primitives.

4-DOF Physical Robot Arm | Python, C++, ROS2, MATLAB

Aug 2025 - Dec 2025

- Implemented real-time manipulation with quintic trajectory planning and computer vision to sort colored balls.
- Programmed inverse, forward, and velocity kinematics for a 4-DOF arm while avoiding singularities.
- Applied Jacobian-based adaptive and predictive control with feedback loops to regulate joint velocity.

Maze-Exploring Robot | Python, ROS, Gazebo, RViz, GMapping, OpenCV, LiDAR

Jan 2024 - Mar 2024

- Autonomously mapped entire unknown environments on a Turtlebot3 using **SLAM**, frontier detection, and **AMCL** localization.
- Implemented path planning using **A***, particle filters, and pure pursuit, with path smoothing and waypoint following.
- Calculated frontier-cost heuristics to prioritize unexplored regions, dynamically rerouting around obstacles.

Multi-Robot Solar Panel Placement Project | C, C++, PlatformIO, SolidWorks, OpenMV

Jan 2023 - Mar 2023

- Programmed embedded firmware for motor controllers and integrated camera sensing to locate, lift, and place solar panels.
- Analyzed mechanical stress and critical loads to determine motion parameters and torque margins for secure handling.
- Navigated using line-following sensors and OpenMV-read AprilTags to locate and accurately place panels.