Romeo Garcia Jr.

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PROFESSIONAL EXPERIENCE

Test Engineering Intern, ***Aeromutable Corporation*** *– San Diego, CA* Jun 2022 – Sep 2022

- Procured a power unit and designed a custom bracket that helped provide 100% reliable system power
- Designed a 100% store-bought air intake system for cost-effectiveness and easy replacement
- Built a real-time weather data program for real-time system adjustments to current conditions
- Meticulously adhered to document control protocols for 15+ critical materials, such as instruction manuals, design reviews, cost analyses, prototypes, and CAD drawings

Jun 2023 – Sep 2023

- Conducted comprehensive weather data analysis and comparative assessments across full-scale experiments, identifying trends to optimize system performance
- Sourced 2 testing devices to accurately measure fuel consumption during on-road evaluations

Course Assistant**,** ***ME 170A/B/C Mechanical Engineering Capstone Design –*** *Stanford, CA* Sep 2024 – Present

- Assisted students in designing and developing engineering systems to address real-world challenges.
- Guided students through industry-standard development processes, from requirements definition to implementation.
- Provided feedback on technical design, system integration, ethics, professional communication.

Research Intern, ***CHARM Lab*** *– Stanford, CA* Jan 2023 – Mar 2023

- Engineered an Arduino-based system for guiding human motion using directional vibrotactile cues
- Designed a personalized casing using Fusion 360, completing 3 iterations to optimize usability and aesthetics, and documented electrical schematics for system assembly.

PROJECT EXPERIENCE

Embedded Autonomous Mobile Robot Jan 2025 – Mar 2025

- Designed and programmed an embedded system architecture using dual PIC32 microcontrollers with SPI communication, integrating real-time sensor processing and distributed motor control for autonomous navigation.

ROS-Based Autonomous Exploration and Object Detection Sep 2024 – Dec 2024

- Developed a ROS2 node integrating A* path planning, frontier exploration, real-time mapping in RViz, and stop sign detection for autonomous navigation of a TurtleBot in a closed environment.

Real-Time Interactive Game Powered by PIC32 Embedded System Sep 2024 – Dec 2024

- Programmed a PIC32-based embedded system to acquire real-time sensor inputs and control servo actuation with predefined movement commands, enabling responsive tactile and visual feedback.

CNC Design and Manufacturing of Bottle Opener and Ice Press Mar 2024 – May 2024

- Designed and CAM-programmed a Tron-inspired bottle opener (FEA-verified) and an aluminum ice press with organic surfaces, using Fusion 360's Form, Design, and Manufacturing tools, and fabricated parts on a Haas CNC.

Generative Design and Fabrication of Stackable Shoe Storage Jan 2023 – Mar 2023

- Used generative design to create a single-3D print (on an Ender 3), lightweight custom shoe storage

Arduino-Based Autonomous Navigation Robot Development Jan 2024 – Mar 2024

- Designed, built, and programmed a mobile robot with ultrasonic sensors, achieving 90% task completion

EDUCATION

Stanford University, *Stanford, CA.*

M.S. in Mechanical Engineering – Mechatronics, Robotics – GPA: 3.95 June 2025

B.S. in Mechanical Engineering – Product Realization – GPA: 3.73 June 2024

SKILLS & TOOLS

Programming & Simulation:	Python, C/C++, MATLAB, COMSOL
Mechanical Design & CAD:	SolidWorks, Fusion 360, FEA, CAM, Generative Design
Hardware & Fabrication:	Arduino, RasPi, 3D Printing, CNC Machining, Laser Cutting, Lathe, Mill, Soldering
Other:	Git, ROS, Spanish (fluent), American Sign Language (basic)