Romeo Garcia Jr.

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EDUCATION

Stanford University, Stanford, CA.

M.S. in Mechanical Engineering - Mechatronics, Automatic Controls - GPA: 3.95 — expected June 2025

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

PROJECTS

Banana Launcher 1/23-3/23

- Built a mass-efficient, motor-powered slingshot-style launcher capable of producing 100N of force

Stackable Shoe Storage 1/23-3/23

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

Autonomous Navigation Robot 1/24-3/24

- Designed and programmed an Arduino-powered robot using ultrasonic distance sensors to navigate the course and detect obstacles, achieving a 90% task completion rate during competition trials.
- Developed CAD models and built the robot within a $200 budget, combining 3D-printed and store-bought components to meet design specifications and ensure easy maintenance.

CNC Manufacturing: Bottle Opener, Ice Press 3/24-5/24

- Designed and CNC-manufactured a functional Tron-inspired bottle opener on Fusion 360: Manufacture, Design, FEA
- Manufactured a functional aluminum ice press with organic surfaces using Fusion 360: Manufacture, Design, Form

Autonomous TurtleBot Exploration and Object Detection 9/24-12/24

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

EXPERIENCE

Team Manager (Senior Capstone Project), ***Renewell Energy*** - *Stanford, CA* 9/23-3/24

- Designed and implemented a lubrication system using an atomizing nozzle, achieving approximately 75% penetration efficiency through optimized pressure settings and 7+ tests to validate system performance
- Applied FMEA, CAD design, and prototyping techniques while managing a $3,000 budget and coordinating efforts within the team to ensure project success

Test Engineering Intern, ***Aeromutable Corporation*** - *San Diego, CA* 6/22-9/22

- Procured a power unit and designed a custom bracket that helped provide 100% reliable system power during tests
- Designed a 100% store-bought air intake system for cost-effectiveness and easy replacement
- Built a real-time weather data program for immediate 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

6/23-9/23

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

Research Intern, ***CHARM Lab*** - *Stanford, CA* 1/23-3/23

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

SKILLS

Design/Software:	Advanced SolidWorks and Fusion 360, FEA, COMSOL, Github, Arduino, MATLAB, RasPi, ROS
Fabrication:	3D Printing, Laser Cutting, Lathe, Mill, CNC Machining, Soldering
Soft Skills:	strong work ethic, effective communication, attention to detail, critical thinking
Languages:	Python, C, C++, Spanish, American Sign Language