

Steven "Nico" Ramos

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EDUCATION

Yale University

May 2026

Bachelor of Science (BS), Mechanical Engineering

GPA: 3.87

- **FE Mechanical Exam:** Passed
- **Awards:** QuestBridge Scholar, Gordon Grand Fellow, Bryant-Jordan Scholar-Athlete Region Winner
- **Relevant Coursework:** Mechanical Design, Machine Elements and Manufacturing Processes, Dynamics, Fluid Mechanics, Embedded Robotics, Medical Device Design

PROFESSIONAL EXPERIENCE

Centre for Automation and Robotics (CAR), UPM-CSIC

Sep 2026 – Present

Robotics Research Engineer | Gordon Grand Fellow (1-Year Fellowship)

Madrid, Spain

- Developing a chassis-mounted actuator drivetrain for continuous wheel reconfiguration, including a three-planet planetary gearbox, preliminary VDI 2736-based nylon gear load and thermal analysis, tolerance stack-up, 3D models, 2D manufacturing drawings with GD&T, and BOMs.
- Co-authoring research on a two-input differential transmission using coupled epicyclic gear stages to independently control wheel locomotion and shape reconfiguration.
- Redesigning a transformable wheel-leg for a multi-terrain search-and-rescue robot, with planned machine-learning-based autonomy.

Yale Laboratory

Apr 2025 – May 2026

Research Intern

- Designed and fabricated custom mechanical test apparatus using an Instron 3345 load frame to replicate subsurface conditions and quantify burrowing forces.
- Conducted 60+ cone penetrometer tests across chamber geometries and granular densities to characterize material-mechanism interactions.
- Fabricated silicone-based test intruders with controlled material properties.
- Co-authored NASA-funded research presented at IEEE RoboSoft 2025 establishing a quantitative framework for characterizing granular media for burrowing robotics.

GlobalFoundries

Jun 2025 – Aug 2025

Equipment Engineering Intern

Malta, NY, USA

- Investigated failure modes across 50+ furnace tools using data-driven root-cause analysis; developed CAD-based rigid-tubing redesigns and engineering change orders, and worked with vendors to implement them, improving equipment reliability and uptime.
- Led gas recycling system implementation, reducing material waste by up to 99%; optimized process control limits and batch-process metrics to improve fault detection, process capability, and manufacturing efficiency.

MECHANICAL DESIGN PROJECTS

Senior Capstone: Shingle Shark

Jun 2025 – May 2026

Project Team Lead

New Haven, CT, USA

- Led 4-person team through three build-iterate cycles to design, prototype, and validate an electromechanical shingle-removal tool meeting weight, operation, and ergonomic requirements.
- Designed and validated four-bar scoop-and-lift linkage from 3D-printed prototype through full-scale steel/aluminum builds.
- Set a 124 lbf lifting design target from empirical 60 lbf nail-removal testing with safety and material-degradation factors.
- Sized DC motor and bevel-gear transmission using AGMA contact/bending stress calculations across candidate gear sets.
- Used FEA to reduce linkage/head weight while controlling stress concentrations and deflection, meeting the under 30 lb system weight target.

Yale Exploration Rover

Aug 2024 – May 2025

Drives Subteam Lead

New Haven, CT, USA

- Led a team of eight students in designing and fabricating a rover chassis, rocker-bogie suspension, and propulsion system for the University Rover Challenge.
- Designed mechanical components and assemblies using CAD, static/dynamic modeling, stress analysis, motor analysis, and iterative prototyping.

Yale Project Liquid

Aug 2022 – May 2024

Propulsion/Structures Subteam Member

New Haven, CT, USA

- Designed and fabricated components for an Augmented Spark Igniter (ASI), progressing from initial CAD concepts through repeated successful 3-second hot-fire tests.
- Modeled flight loads and structural stresses for a 1,000 lbf-thrust vehicle to inform structural component design and sizing.

SKILLS

Mechanical Design: Machine Design, Drivetrain Design, 3D Modeling, 2D Drawings, GD&T, Tolerance Stack-Up Analysis, Structural Analysis, FEA, Design for Manufacturing (DFM), Design for Reliability (DFR), FMEA, Root Cause Analysis, Rapid Prototyping

CAD / Software: SolidWorks, Autodesk Fusion, OnShape, MATLAB, Simulink, Python, Arduino, C/C++

Fabrication / Materials: Mechanical Testing, Instron Testing, Machining, 3D Printing, Electromechanical Systems; Steel, Aluminum, Nylon, Silicone

Languages: English, Spanish