NICHOLAS TORRES

Nicktorres13@icloud.com | (973) 309-5546 | http://linkedin.com/in/TorresNicholasA

EDUCATION

Columbia University, School of Engineering and Applied Science (SEAS), New York, NY
Bachelor of Science in Mechanical Engineering | GPA: 3.23 | Expected May 2027
Relevant Coursework: Mechanics of Solids, Thermodynamics, Mechanics of Fluids, Computer Graphics and Design
Activities: ColumbiaFSAE Racing, Columbia Space Initiative Club, American Society of Mechanical Engineers (ASME)

KEY SKILLS

Language: Fluent in English and Spanish
Design and Engineering Software: SolidWorks, FEA, Python, Structural Analysis, Assembly Modeling, Microsoft/Google Suite
Machining and Prototyping: 3D Printing, CNC, Scanning Electron Microscopy (SEM), Reactive Ion Etching (RIE), Semiconductor Fabrication
Core Strengths: Learning agility, Team player, Analytic thinker, Creative problem-solver, Effective communicator

Professional Experience

Kathedra Summer Internship
Mechanical Engineering Intern | Brooklyn, NY | 07/2025 – 08/2025
- Redesigned the staple-gun mounting assembly for robotic upholstery system in SolidWorks, streamlining the design to eliminate overengineering and improve structural stability and runtime efficiency.
- Rewrote and debugged Python ROS2 control scripts in Ubuntu, resolving corner-firing errors and improving precision, responsiveness, and overall reliability of the robotic stapling process for the system's MVP
- Executed and analyzed 50+ performance trials in Linux Ubuntu to determine optimal stapling height, speed, and timing parameters—enhancing process consistency, runtime efficiency, and mechanical stability of the robotic prototype.
- Collaborated with engineering teams, participated in technical discussions and learnt agile workflows

Leadership and Involvement

Columbia FSAE Formula Racing – Controls Team
Low-Voltage Enclosures Lead Engineer | *New York, NY | 07/2025 – Present*
- Lead the design and integration of low-voltage electrical enclosures for Columbia University's Formula SAE race car
- Responsible for component selection, wire routing, packaging, and enclosure layout to ensure reliability, safety, and ease of maintenance
- Partnering with electrical and mechanical sub-teams to enhance vehicle controllability, reliability, and performance to meet performance and competition standards under tight deadlines

Team member | New York, NY | 09/2024 – 07/2025
- Optimized driver control systems by applying CAD and FEA to design focusing on safety features, brakes and pedals
- Fabricated key vehicle components using CNC machining, 3D printing and composite materials
- Assisted in mounting and housing low-voltage electrical components ensuring proper integration within the vehicle

Columbia Space Initiative – Lunabotics Team
Lunabotics Team Member – *Autonomous Vehicle Project* | New York, NY | 07/2025 – Present
- Spearhead mechanical planning for a fully autonomous lunar-style vehicle for the NASA Lunabotics design challenge
- Select and architect core mechanical and electronic subsystems, including sensor integration, actuator layout, drivetrain structure, and control enclosures
- Plan system integration around dual Raspberry Pi units running Linux-based robotics software to support modularity and autonomous navigation pipelines

Columbia's University Shared Materials and Characterization Laboratory
Research Technician | New York, NY | 09/2024 – 05/2025
- Improved semiconductor reliability by depositing SiO_2 thin films with plasma, measuring step height and using ellipsometry for accurate property analysis, and maintaining lab systems like X-ray photoelectron spectroscopy and diffraction equipment
- Developed semiconductor devices in a cleanroom using SEM analysis, spin-coating silicon wafers and RIE

Holy Name Medical Center Internship
Intern, Engineering/Operations | Jersey City, NJ | 08/2022 – 03/2023
- Developed hospital equipment energy and cost savings report while to support hospital's PSE&G $5M energy savings plan