

Román Villarreal

Saadiyat Island, New York University Abu Dhabi, Abu Dhabi | +971 501382843 | riv2004@nyu.edu

Mechanical Engineering senior with hands-on experience in aerospace systems, data-driven simulations, and automation tools. Skilled in CAD, FEA, Python programming, and thermal analysis. I am passionate about crafting solutions that harmonize technology with human and business complexities. Seeking roles in aerospace/aeronautic where innovation meets the art of practical integration.

EDUCATION

New York University Abu Dhabi

Bachelor of Science in Mechanical Engineering

New York, New York

2021 – graduation 2025

ENGINEERING PROJECTS

- **OrbitalGrid: GIS Engineering for Space Economy** June 2024 – Present
Developed a SQL-based GIS system integrating 3D scanning and satellite data for aerospace mapping.
- **Rolls-Royce Trent XWB Jet Turbine, Advanced CAD and Aerodynamics, NYU Tandon** Jan 2024 – May 2024
Co-designed a 3D model and optimized aerodynamics-mechanics using SolidWorks and ANSYS.
- **NYC HyperLoop Engineering, NYU Tandon** Jan 2024 – May 2024
Led mechanical design, using magnetic asynchronous linear motors and aerodynamics for high-speed transit for a potential route NYC-Long Island.

JOB EXPERIENCE

Alpes Technologies Mexico

Junior Project Engineer

Mexico City, Mexico

June 2024 – Sept 2024

- Installed and manufactured capacitor banks successfully across Mexico, boosting power factor to 99% for large Hispanic companies.
- Developed a warehouse management system using HTML/JavaScript, increasing operational efficiency by 60% with real-time tracking.
- Conducted electrical analyses and proposed corrective actions, reducing downtime by 28%.
- Quoted and tailored electrical solutions based on comprehensive studies, leading to a 15% reduction in energy costs for clients.

Studies and Projects on Engineering and GIS (EPIGSA)

Inter, Assistant to the Data Engineering Manager

Mexico City, Mexico

May 2024 – August 2024

- Supported the data acquisition chain process in the field, ensuring accurate and efficient data collection.
- Involved in capturing, validating, and integrating field data into spatial databases for GIS applications for water treatment resources.
- Learned the company's spatial data structure and revised databases to maintain data integrity.
- Assisted in providing technical support and consultation for end users on the company's GIS platform.

Solar Ship

Intern, Air Mobility Strategist & Designer

Toronto, Canada

May 2023 - Aug 2023

- Designed a fully electric hydrogen based air mobility system for cargo delivery in African remote regions, reducing carbon emissions by 40%.
- Led a team of engineers to develop energy optimizations, integrating renewable energy systems for sustainable aviation.
- Conducted aerodynamic simulations and performance modeling, optimizing aircraft efficiency and logistics planning.
- Identified high-impact flight routes and infrastructure design strategies, cutting operational costs by 30%.
- Proposed automation and avionics improvements for next-gen air mobility solutions, enhancing system autonomy and scalability.

AWARDS & LEADERSHIP

- **Poll President, Delegation Elections 2021:** Led electoral operations – *Mexico City, Mexico*
- **General Assembly President, Model United Nations:** Directed MUN policy debates – *LFM, Mexico City, Mexico*
- **Bicultural Innovator, French-Mexican Background:** Shaping a global mindset with adaptability across diverse environments.
- **ISC 2024 Space Mining Challenge,** International STEM Participant – *Abu Dhabi, UAE.*
- **AQUA Challenge,** SIGEIN Project for Water Losses Management – *Málaga, Spain.*
- **Formula SAE Team NYUAD,** Aerodynamics and Manufacturing Team – *Abu Dhabi, UAE.*

SKILLS & CERTIFICATIONS

Technical Skills Coding and Database: C++, MATLAB, Python, HTML, Javascript, PLC, PostgreSQL, MySQL; CAD: SolidWorks, Siemens NX, Fusion 360, AutoCad; FEA: ANSYS, Simulink, COMSOL.

Certifications & Training: SolidWorks CSWA – Mechanical design; Official Tyre Marking -ISO 9001; GIS Data Management Training; 3D Printing and CNC Training by NYU Tandon School of Engineering, Technician in Sciences and Technologies of the Industry and Sustainable Development by LFM. Official First Mental Health Aider.

Languages: English (Advanced); French (Native), Spanish (Native); Italian (Basic)

Organizations: Member of the American Society of Mechanical Engineers NYUAD chapter, Aerospace SIG Member at NYUAD.

