

Juan Morales-Lopez

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EDUCATION

University of Southern California, Los Angeles, CA

Viterbi School of Engineering

Expected May 2029

Bachelor & Master of Science, Astronautical Engineering

GPA: 3.79

Coursework: Statics, Strengths of Materials, Computational Methods, Intro to MATLAB, Calculus I–III, Physics I–III, Differential Equations, Intro to Astronautics

Honors: QuestBridge National Scholar, The Gates Scholarship Recipient, Hispanic Scholarship Fund Scholar, Hispanic Heritage Foundation Youth Awardee, Horatio Alger Scholar, Viterbi Dean's List

WORK EXPERIENCE

USC Liquid Propulsion Laboratory (LPL)

Aorta Turbopump Team, Propulsion Engineer

Sept 2026 – Present

- Set up 2D single-blade impulse turbine cascade CFD simulations in Ansys Fluent to evaluate flow turning angles and compressible wall shear
- Decomposed domain into inlet duct, rotor passage, and outlet zones; generated structured quad-dominant mesh with fine boundary layer inflation prism layers
- Configured periodic boundary interfaces along pitch lines, resolving leading-edge cell skewness and stabilizing continuity/velocity residuals below 10^{-4}
- Solved compressible flow field to resolve leading-edge shock impingement, passage flow turning, and trailing-edge expansion fans across high-camber impulse blading

USC Formula Electric

Aerodynamics and Composites Co-Lead Engineer

July 2026 – Present

- Led CAD packaging, manufacturing drawings, and composite fabrication for aerodynamic bodywork and structural enclosures on tubular space-frame chassis SCFE26
- Drafted production drawings in Siemens NX under ASME Y14.5-2018; applied GD&T for CNC aluminum 6061-T6 wing brackets specifying perpendicularity and positional hole tolerances
- Fabricated structural carbon-fiber sandwich floorboards integrating 1/4" and 1/2" Nomex honeycomb cores to maximize specific bending stiffness
- Led and executed manual wet layups and vacuum debulking for 2-ply carbon fiber body panels (nosecone, hood, side panels) and 3-ply fiberglass rear enclosures
- Installed and toleranced flush 13 mm Dzus quarter-turn fasteners projected onto chassis weld tabs, enabling sub-2-minute panel removal for competition tech inspections

Baum Family Maker Space, USC Viterbi

Student Worker & Safety Instructor

Sept 2026 – Present

- Train and certify engineering undergraduates on Level 1-3 machine shop equipment and safety standards.
- Instruct students on manual equipment operation: horizontal and vertical band saws, precision drill presses, and bench grinders.

TECHNICAL PROJECTS

Formula Electric Chassis Enclosure & Rapid Fastening Packaging (Siemens NX)

Spring 2026

- Modeled multi-body body panels, clearance envelopes, and mounting hardware in Siemens NX directly referencing tubular chassis geometry
- Dimensioned custom clearance cutouts for suspension pushrods, bellcranks, and A-arms on front suspension panels
- Verified contour fit-checks on chassis tubes with zero interference, ensuring alignment across weld tab interfaces

LEADERSHIP & SERVICE

USC Trojan Esports - Rocket League Team Manager & Broadcaster

Sept 2025 – Present

- Direct collegiate tournament logistics and tournament scheduling for Varsity and JV teams.

Delicias Lupita - Remote Operations Manager

May 2019 – Present

- Manage financial tracking, inventory replenishment, and customer communications for family business.

SKILLS

- **CAD & Simulation:** Siemens NX, Autodesk Inventor, Ansys Fluent, Ansys Meshing, GD&T Fundamentals (ASME Y14.5-2018)
- **Manufacturing & Hardware:** Carbon Fiber & Fiberglass Wet Layups, Vacuum Bagging/Debulking, Nomex Honeycomb Sandwich Cores, Band Saws, Drill Presses, Bench Grinders, FDM 3D Printing, Dzus Quarter-Turn Hardware