

Victoria Ortega

MECHANICAL ENGINEER | SPACE SYSTEMS & ROBOTICS

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Mechanical engineer designing robotic hardware for demanding environments. Experience spans lunar excavation robots, suborbital payloads, structural analysis, hardware integration, and environmental testing.

EXPERIENCE

■ CTO & Co-founder

Drover Labs | Oakland, CA | 2025-2026

- Co-founded Drover Labs with two partners and turned a fly-and-drive drone concept into hardware manufactured in-house for oil and gas pipeline inspection.
- Led mobility system design, manufacturing, and testing for wet, dirty environments; sized motors and designed housings, compliant wheels that improved surface contact and impact resistance, and sensor integration to enable autonomous driving.
- Integrated drive-control scripts on the VOXL 2 companion computer and developed custom ground-control software for Steam Deck; used PX4 for basic flight controls.
- Delivered technical investor pitches and helped raise \$3.1M; led customer demos, discussed commercial terms, and recruited for a robotics engineer.

■ NASA Aerospace Engineer for Autonomous and Robotic Systems

NASA Kennedy Space Center | Swamp Works | 2022-2025

Granular Mechanics and Operations Lab (GMRO)

IPEx Suborbital Flight Experiment | Lead Design Engineer

- Designed, assembled, and tested two bucket drum payloads to study regolith flow in a lunar environment and support DEM simulations.
- Performed pressure and quasi-static FEA in Creo Simulate to reduce stress concentrations and meet New Shepard safety factors.
- Presented design reviews to KSC chief engineers and Blue Origin to proceed to procurement.
- Led vacuum decay, helium leak, vibration, EMI testing, and mass properties measurements per the New Shepard Payload User Guide.

Infrastructure Pilot Excavator (IPEx) TRL 5 Robot | Mechanical Engineer

- Tested custom IPEx actuators in a vacuum chamber using a cryocooler, temperature and torque sensors, and a brake to characterize performance under simulated lunar conditions.
- Assembled and led camera thermal-vacuum, launch-load vibration, and functional testing to assess performance under lunar conditions.
- Redesigned the radiator cover actuator housing and cover profile to improve dust mitigation after an electrostatic test campaign.
- Assembled, wired, and tested the IPEx TRL 5 rover for a five-day continuous demonstration of digging and dumping operations; coordinated simulations and monitored robot safety during 13-hour night shifts.

ALSI Pressure Vessel | Lead Design Engineer

- Designed a custom crucible and extrusion system to form wire from molten aluminum and eutectic aluminum-silicon alloy using induction heating and argon pressurization in a vacuum chamber.
- Designed a stainless-steel vessel following the ASME Boiler and Pressure Vessel Code, rated for 250 psi at 1200°F.

OSCAR Structural Analysis | Structural Analyst

- Performed chamber FEA to verify rated pressure capability and presented results to KSC chief engineers at a Critical Design Review.

■ NASA Mechanical Engineering Pathways Intern

NASA Kennedy Space Center | Swamp Works | Spring - Summer 2021

Mini RASSOR | 15 kg excavation robot based on the 65 kg RASSOR rover

- Printed ABS parts on Ultimakers and checked tolerances on wheels, chassis, bucket drum, and actuator housings.
- Designed a 3D-printable bucket drum that reduced part count to seven and simplified assembly.

EDUCATION & TECHNICAL SKILLS

Carnegie Mellon University | B.S. in Mechanical Engineering | May 2022

Design & Analysis: Creo, OnShape, FEA, MathCAD, GD&T drawings · **Programming:** Arduino, Python, C

Prototyping: Manual machining, 3D printing, woodworking

PUBLICATIONS | CO-AUTHOR

Cloud, J. M., et al. (2025). The IPEx Autonomy Test-Site: Terrestrial Testing of Autonomous Excavation in Lunar South Pole Conditions. IEEE Aerospace Conference.

Clark, C. J., et al. (2025). Design and Testing of TRL5 IPEx Actuators. IEEE Aerospace Conference.

Schuler, J. M., et al. (2024). ISRU Pilot Excavator (IPEx) Technology Readiness Level 5 Design Overview. AIAA ASCEND.

Clark, C. J., et al. (2023). Experimental Capabilities and Achievements of the Space Environment Dynamometer (SED). IEEE Aerospace Conference.