

ALEJANDRO HOLGUIN PRADO

MECHANICAL & AEROSPACE ENGINEER | DESIGN • MANUFACTURING • PROJECTS

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PROFESSIONAL SUMMARY

Mechanical and Aerospace Engineer with dual B.S. degrees from New Mexico State University and hands-on experience in mechanical design, CAD/CAE, electromechanical integration, prototype development, and engineering simulation. Award-winning QKOIL capstone team member with external audit experience at Crowe, adding disciplined process analysis, ERP, inventory, controls, and technical documentation to an engineering profile.

CORE SKILLS

Engineering: Mechanical design, electromechanical integration, prototyping, FEA, materials, DFM, troubleshooting

CAD / CAE: SolidWorks, Siemens NX, AutoCAD, ANSYS

Programming: MATLAB, C++, Python

Operations: SAP, CONTPAQi, advanced Excel/macros, component sourcing, budget and inventory tracking, documentation

PROFESSIONAL EXPERIENCE

Audit Staff - Crowe Mexico / Crowe Global | Chihuahua, Mexico

Jun 2023 - Apr 2024

- Executed external audit procedures for manufacturing, financial-services, and aerospace-related clients; reviewed financial statements, inventory, fixed assets, contracts, payroll, internal controls, and supporting evidence.
- Used SAP, CONTPAQi, and Excel/macros to organize and reconcile data, test transactions, document findings, and support evidence-based audit conclusions.
- Reviewed cross-border English/Spanish documentation and contracts for assignments involving Crowe New York, strengthening bilingual communication, compliance awareness, and process-risk analysis.

SELECTED ENGINEERING PROJECTS

QKOIL Autonomous Overhead Wireless Charging System | NMSU

2025 - 2026

- Designed SolidWorks supports/brackets, completed roughly half of system wiring, integrated mechanical/electrical/vision/control components, sourced parts, tracked budget/inventory, and supported client reporting on a four-person capstone team.
- Helped diagnose EMI/signal-noise affecting charger activation and implement the fix; supported a C++-controlled x-y-z gantry with camera alignment to approximately 2 cm plus e-stop, temperature, motion-warning, and retraction safeguards.
- Earned Most Outstanding Project and Most Sustainable Project at the NMSU Capstone Showcase - \$4,000 in total team awards.

MATLAB Planetary Orbit Simulator | Independent Project

2024

- Built an interactive heliocentric/geocentric simulator with selectable ODE integrators and orbital-parameter outputs; validated a Jupiter case against NASA Horizons with less than 0.1% deviation.

Ornithopter Design Competition | NMSU

2025

- Developed the primary concept and AutoCAD drawings, researched materials/patents, and fabricated/tested multiple prototypes; achieved approximately 10 m of flapping flight and placed 2nd among about 18 teams.

CNC Toolpath Simulation & Siemens NX FEA | UACH

2023

- Programmed and verified machining sequences in a CNC simulator and evaluated stress, deformation, and safety-factor behavior for mechanical components in Siemens NX.

Aggies Without Limits - Field Engineering | El Potrero, Nicaragua

2025

- Supported clinic material/cement calculations and construction, water-pump electrical work, bridge reinforcement, and rainwater-diversion/erosion mitigation in remote field conditions.

EDUCATION

New Mexico State University

May 2026

B.S. Mechanical Engineering; B.S. Aerospace Engineering | GPA 3.25/4.00

Universidad Autonoma de Chihuahua

Dec 2023

Public Accounting degree | GPA 9.07/10

Universidad Autonoma de Chihuahua

2026

Aerospace Engineering program requirements completed; administrative degree documentation in process

CREDENTIALS, HONORS & LANGUAGES

NMSU Engineering Entrepreneurship Digital Badge (Parchment), Apr 2026 | QKOIL Capstone Awards, 2026 | Ornithopter Competition: 2nd Place, 2025

Languages: Spanish - native | English - professional working proficiency