

Lukas Neal

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SUMMARY

Senior mechanical engineer with 10 years developing complex aerospace and defense hardware from concept through qualification and **production transition**. Work includes precision mechanical design, warhead and ordnance development, platform integration, **verification and validation**, prototype maturation, and ground and flight testing. Advanced NX and Teamcenter user with hands on experience creating drawings, specifications, test procedures, engineering reports, and **technical data packages**. Leads **design of experiments**, high speed video capture, data analysis, supplier execution, failure investigation, controlled assembly, and configuration management. Partners with analysis, safety, manufacturing, vehicle integration, test, and operations teams to resolve difficult engineering issues. Brings practical judgment to safe, manufacturable designs and disciplined execution across export controlled programs, helping teams move mission critical hardware from engineering intent into reliable production.

EXPERIENCE

Senior Mechanical Engineer, Energetic Systems

July 2023 - Present

Vanguard Aero Systems

Tucson, Arizona

Lead mechanical development for compact energetic payload assemblies supporting unmanned aerospace platforms. Own architecture trades, detailed design, prototype maturation, qualification planning, supplier coordination, and production readiness. Guide engineers and technicians through controlled builds, test execution, discrepancy review, and configuration release.

- Led **NX** design maturation for energetic payload assemblies, supporting prototype builds and production readiness.
- Created **Teamcenter** design baselines, interface definitions, drawings, and controlled releases for tightly packaged assemblies.
- Directed arena and ground tests with **high speed video**, instrumentation, and post test inspection.
- Established **design of experiments** matrices and procedures, supporting safe qualification decisions across configuration variables.
- Coordinated machining, energetic material, and specialty test suppliers, resolving tolerance and schedule issues.
- Guided controlled prototype assembly and **disassembly**, improving discrepancy review and configuration documentation.

Mechanical Engineer IV

March 2020 - June 2023

Red Mesa Defense Engineering

Albuquerque, New Mexico

Owned **mechanical design** and integration for ruggedized munition adjacent hardware supporting flight vehicles. Led requirements tracing, NX and Teamcenter release activity, prototype to production reviews, verification planning, anomaly analysis, supplier coordination, and junior engineer development.

- Owned NX design integration for ruggedized hardware, balancing loads, packaging, environments, and **manufacturability**.
- Released production drawings, specifications, and **technical data packages** through **Teamcenter** configuration workflows.
- Planned ground and flight verification with safety, instrumentation, test, and **vehicle integration** teams.
- Analyzed **high speed video**, sensor data, and hardware condition, guiding focused engineering changes.
- Drove prototype to production reviews with suppliers, simplifying features without compromising critical performance.
- Mentored junior engineers through tolerance analysis, design reviews, test readiness, and technical reporting.

Mechanical Engineer III

August 2017 - February 2020

Frontier Flight Technologies

Phoenix, Arizona

Designed mechanical subsystems and precision test fixtures for aerospace programs from analysis through fabrication, assembly, and environmental testing. Supported integration, configuration control, supplier execution, nonconformance disposition, root cause investigation, and formal design and test readiness reviews.

- Designed mechanical subsystems and fixtures, supporting fabrication, assembly, and environmental testing.
- Built NX layouts and interface studies, resolving packaging conflicts before **vehicle integration**.
- Authored specifications, assembly instructions, **test procedures**, and **technical reports** with acceptance criteria.
- Executed vibration, shock, thermal, and functional tests, using measured data for investigations.
- Coordinated specialty fabrication and procurement, incorporating supplier feedback into released designs.
- Presented mechanical margins, interface risks, and verification evidence at formal readiness reviews.

Mechanical Engineer

June 2016 - July 2017

Sonoran Aerospace Labs

Tempe, Arizona

Developed mechanical components, fixtures, and prototype assemblies for flight hardware research programs under senior engineering guidance. Produced controlled NX models and drawings, supported fit checks and testing, incorporated technician feedback, and documented findings for verification decisions.

- Developed mechanical components, fixtures, and prototype assemblies under senior engineering guidance.
- Produced NX models and drawings with geometric tolerancing, materials, and inspection features.
- Supported prototype assembly and fit checks, recording interfaces and incorporating approved changes.
- Prepared **test procedures** and instrumentation layouts for structural and functional evaluations.
- Improved drawing notes and inspection guidance through direct machinist and technician feedback.
- Documented test observations and dimensional findings in engineering reports supporting verification decisions.

PROJECTS

Energetic Payload Qualification Campaign 📅 2024

Directed a qualification campaign for compact payload assemblies, combining design of experiments, controlled builds, arena testing, high speed video, post test inspection, and engineering review. Work connected measured behavior with analytical predictions and production readiness decisions.

Munition Adjacent Flight Hardware Transition 📅 2022

Moved ruggedized flight hardware from detailed design through verification and production review. Coordinated NX design updates, Teamcenter release activity, vehicle integration, supplier feedback, acceptance criteria, and anomaly disposition across cross functional teams.

LEADERSHIP & AWARDS

- Recognized by engineering leadership for dependable ownership of energetic payload prototype and qualification work.
- Selected to mentor junior engineers through design reviews, tolerance analysis, test readiness, and technical reporting.
- Commended by manufacturing and test partners for resolving interface issues before integration milestones.

EDUCATION

Bachelor of Science in Mechanical Engineering

2016

Arizona State University GPA: 3.5

Tempe, Arizona

Coursework: Mechanical design, dynamics, materials science, manufacturing processes

CERTIFICATIONS

- NX Advanced Design Training 📅 2024
- Teamcenter Configuration and Change Management 📅 2023

TECHNICAL SKILLS

- **CAD Design:** NX, CAD, geometric tolerancing
- **PLM Systems:** Teamcenter, configuration management, change management
- **Mechanical Engineering:** Mechanical design, interface definition, precision assemblies
- **Test Execution:** Arena testing, ground testing, flight testing
- **Verification Methods:** Verification and validation, qualification assessment, acceptance criteria
- **Instrumentation:** High speed video, sensor data, witness media
- **Technical Documentation:** Specifications, test procedures, engineering reports
- **Data Packages:** Technical data packages, production drawings, assembly instructions
- **Manufacturing Engineering:** Manufacturability, prototype fabrication, production transition
- **Safety Engineering:** System safety, safety protocols, controlled assembly
- **Supplier Management:** Vendor direction, supplier coordination, subcontractor execution
- **Integration Engineering:** Platform integration, vehicle integration, interface studies

SKILLS

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|-----------------------|-------------------------|-------------------------------|------------------|
| • Mechanical design | • Teamcenter | • Platform integration | • Ground testing |
| • Warhead development | • CAD | • Verification and validation | • Flight testing |
| • Ordnance systems | • PLM | • Design of experiments | • System safety |
| • NX | • Prototype development | • Arena testing | |

PROFESSIONAL AFFILIATIONS

- Member, American Society of Mechanical Engineers, supporting continued mechanical engineering practice.
- Participant, aerospace and defense engineering review communities focused on testing, safety, and manufacturability.

LANGUAGES

- English (Native)
- Spanish (Intermediate)

ADDITIONAL INFORMATION

Work Status : Authorized to work in United States. No sponsorship required.

REFERENCES

AVAILABLE ON REQUEST