

CANDIDATE NAME

CAD Design, Mechanical-Electro-Optical, & Integration Engineer

Highly skilled Senior Mechanical Engineer, AAS in Mechanical Engineering Technology, with over 20 years of engineering process and technology supporting clients/employers include **[COMPANY NAMES]**. Extensive experience supporting military projects and government programs. Most recently supported **COMPANY A** as **Senior Engineer Design Checker** checking **Military MFC** design layouts, drawings and detailed release package deep dives. Provided **fuel systems, structures, tooling**, integration design expertise for new wet wing development projects at **COMPANY D**, Melbourne Florida. **Conceptual layout** for wing tanks & perimeter structures for a complete fuel test simulation. Center-wing structure was fully modified to new specifications as required for the new design. At **COMPANY K**, performed **design checking** for final Prime Structure configuration, and was designer of custom one-off optical tooling, **laser optical test layouts** and designed 15-20-ton support structures used for vibratory stress testing. Adapted and Implemented new vibration isolation units. Served as **Senior Design** Principal at **COMPANY J** as well as Manufacturing Engineering Production Specialist. Acted as **Liaison Specialist** for the **AH1Z Cobra** and **UH1Y Huey** early low production build team. Created **V-22 Osprey** main tilt rotor gearbox models with port and starboard configurations, as well as mid-wing gearbox and rotor tilt gearboxes. Performed **primary structure modifications** on H1's. Gearboxes re-created with full cast in place tubing designs. MRB and DCMA reviews and dispositions for release of DCN's. Supported **structures team** at BE Aerospace working on **Airbus A300/600** passenger to freighter conversion. Proficient in **SolidWorks, CREO 4.0/Windchill Pro-E current 2000 hours. Siemens** through **NX11, 26,000** hours. Siemen's **UG** over **30,000** hours, printed tools and parts. **Catia V5 3500 hours**. Trained in Lean Manufacturing, Six Sigma (Green Belt), ISO 9001, GD&T, ASME Y14.5M-1994/ASME Y14.41-2003

- **Creo 2.0 – Creo 4.0 / Windchill** current, nearly **2000 hrs.** PDM/PLM, Pro-Cabling
- **NASA** Standard Practices, engineering supplier management skills
- interfacing with government customers on technical and programmatic levels
- Siemens **NX** thru **NX11, 26,000 hrs.** PDM/PLM
- Siemen's **UG V3 through V18 over 30,000 Hours** 29 years Total NX experience
- Catia V5 3500+ hrs. & Enovia, Windchill, PDM/PLM
- **DFM DFA for Reliability and Service**, American for **Poka-Yoke**
- **Printed Additive Manufacturing Tools**
- **PDM** Team Center 9.0, **SAP, DCMA, MRB, Procurement Interaction**
- TCE, One Vault, ISE, all **Microsoft Office Tools**
- Project Database Management (PDM), Configuration Management
- Structures Primary and Secondary
- Exact Constraint
- Complex Structures, Weldments, Castings
- **Parametric Modelling, MBD**, Optical Layouts and fixture Designs
- Tool Design, Fixturing
- Master Model (Assemblies and Components)
- Mil-Specs. And Standard Practices
- Shipside GSE, 787-1
- Fixturing, Tools/Dies,
- Electrical Harnessing, Integration
- AWS American Welding Society standards
- Product Definition / Model Based Design & Definition, Technical Studies
- IPT team, Lifecycle Analysis (LCA)
- Weight Management
- ETAC, PSDS, Spatial Integration, C&E systems analysis,
- Thermal Dynamics, ECS designs
- **Rapid Prototyping, Stereo lithography, Additive Manufacturing**

EXPERIENCE

COMPANY A

03/2019 – 06/2019: Senior Engineer Design Checker, Creo 4.0, Windchill 11.0

- Checking of **Military MFC** design layouts, drawings and detailed release pkg. deep dives.
- Mechanical, Electrical, Optical, Harness, Software, GD&T and Process Checking.

COMPANY B

02/2018 – 09/2018: Design Engineer 4, contract Creo 4.0, Windchill 11.0

- Development layouts in **Creo 2.0/4.0** for Landing and Recovery GSEO for shipboard Instrumentation and recovery rigging integration. Designs of custom lifting winch rigging.

COMPANY C

03/2017 – 10/2017: Design Engineer, NX 11

- M-Class, Cars and SUV's. Configuration Management. **Additive Mfg. Tools. NX11** Final Product delivery layouts and integration. Using Engineering Client/Smaragh release system to integrate **Catia V5, NX** and **SolidWorks** files and **PMI**. Tooling Designs to aid in assembly procedures. White Body Structures. Lofting type Body fit checking tools.

COMPANY D

03/2015 – 10/2015, 06/2016 – 07/2016 : Systems Architect 5

- Created comparison CAD layouts of the entire Center Wing existing fuel system tubing, Aerial refueling system, and future extended capacity systems and the impacts and modifications to all wet wing structures. Created PPT documentation of modification coordinates, materials and thicknesses of each structural change. This was a SOW for all structural mods to existing aircraft structure including capping off previous iterations. RFP begun with visually captured PPT docs and CAD models made available to vendors.
- Developed cross over fuel paths for dry bay at mid-wing. Constant evolution as rib structure stiffening and fasteners moving changed clearance requirements. **NX8.5** Proposals created for alleviating design clashes.
- High End Military **RF** mechanical electronic packaging design, integration, and release.

COMPANY E

08/2014 – 10/2014: CAD Engineer, direct & Structural Designer

- Tooling designs for DOD high volume 50 Ton ordnance presses.

03/2014 – 04/2014: Structural Designer

- Structural tooling redesign of a mobile X-ray system for an R&D project.

COMPANY F

08/2010-10/2013 Senior Design Principal Engineer

- Developed complex surface models in **NX6** from lofting for machining titanium V22 wing skins. Evolved staging SOW's for machine centers to speed processes.
- Adapted **Composite** build processes for rotor blades per rotor **Fellow** input.
- Created negative or open area models for issues surrounding oil flow problems in a new vendor supplied casting for a dual input turbomachinery gearbox. Vendor deviations in casting coring discovered and SOW solutions suggested and implemented. NX6
- Airframe Structures design updates and problem resolutions on H-1. Rotors/Drives UH-1Y & AH-1Z Rotor and Drives integration assignments writing ECO's and creating NX6 models for improving manufacturing processes for various models of H1 and V22 aircraft.
- **Checker** for ECO's and DCN's written by sub-contractors. Helped develop a SOW checklist guideline

for these engineers to aid speed of ECO release. Solved material and Mil-spec evolution discrepancies. GD&T **checked** for consistency. **Managed Task Exec.**

- Resolved issues surrounding oil flow problems in a new vendor supplied casting for dual input **turbomachinery**. RFP's given to several vendors supplying large castings. **Corrective actions** for better core locating tools from **Tolerance and Deviation Studies**.
- Created numerous Power Point presentations showing SOW optional designs for Military consideration and cost analysis. Investigated the history and development of build processes for building better drives and composite build operations for optimal blade build.

COMPANY G

12/2007 – 02/2009: Integration Designer, contract Catia V5

- 747-8 Oxygen Systems ECS Integration. **Clean Sheet layouts** of tubing trunk lines and routing through entire fuselage structure along with tank mounting and regulator systems. Represented Oxy systems in twice weekly IPT meetings for communication and collaboration with Electrical Systems (Hi and Low Voltage), Structures, ECS and **Flight controls**. **Resolved cross functional issues** with plenum and duct and harness route modifications. Released EPIC CAD data into the system for IVT fly-through. **Catia V5**
- SOW created for entire new trunk line deviations from existing system.
- Proposal for a new Remote Fill Option for Oxygen on the 747-8 Freighter. **Trade Studies**.
- On the 787 Was on the **Composite** Fastener Standards Substitution Team.
- Fuselage integration Liaison tasks involved with A/P 1 and the Static Test A/P.
- Resolved Structural issues at Fuselage join and Wing to Body join. EE-Bay Integration Support using **Catia V5** and **Enovia** Verified the fit, form and function of 3D models and assemblies for structural and mechanical designs.
- Worked with project engineers and electrical engineers to resolve design problems. Designed and tested prototypes of new and existing designs.
- Verified manufacturability and structural acceptability of designs
- Provided senior input to junior designers and reviewed and **checked** work for quality and accuracy **within the Integrated Product Team**.

COMPANY H

07/2007 – 11/2007: Senior Mechanical Designer contract NX 6

- Boeing 787 Overhead Interior storage modules designed integrated and released Modular passenger ECS Oxygen systems design. Injection molded parts for modular bottle nesting
- Multiple releases of varying overhead storage units per customer changes in scope
- ECS passenger thermal management plenum nozzle designs for intuitive ease of use, and lighting switch designs.

COMPANY I

09/2006 – 02/2007: Senior Mechanical Designer

- **Airbus** A300/600 Passenger to Freighter conversion
- Interiors and Structures. Created Cargo door surround structure and assembly designs.
- SOW release for a door deactivation EO for the freighter conversion.
- Created a new Crew courier area ceiling design with **ECS** duct and plenum integration.
- The secondary aircraft structural designs for the ceiling support systems had to meet FAA crew requirements. SOW created and RFP sent to in-house shop.
- Created designs of fuselage structure changes in the mid-section for cargo bay door structure adaptation. **UG NX5** and Team Center 9.0

COMPANY J

Ft. Worth, TX

09/2005 – 08/2006: Engineering Liaison/Specialist

- Military liaison Redline effort AH1Z Cobra and UH1Y Huey early low production rate build.
- Wire Harness conformity and routing feasibility through structure mods. SOW shown through Redlines on copies of 50-year-old drawings. BOM updates, and tooling mods.
- Engineering Change Order planning was done. Flight line and floor engineering support for build team. Stack-up clearancing, chafing, edge margins, Int. mold-line check, clamp clearances, Subsystem integration tasks.
- Unigraphics **MBD Parametric Modelling** of Large Highly Complex **Turbomachinery** Gearbox Castings and complete drive trains. Completely re-modelled.
- V22 Left and right main gearboxes created, along with Mid-wing and Tilt-Rotor
- Forgings and Machined parts for the V-22 Osprey and other Helicopter lines needing component changeover to 3D models in **NX** for the automated machining centers.

COMPANY K

12/2003 – 12/2004: Lead Designer Development Group

- Space Systems Division
- Created a 47-custom component optical alignment fixture that had to be light weight and have multiple orientation capability with micro adjustability in 3 different axes, plus impart no stresses to 1.5 wavelengths to the primary optic. Theodolite final optical layout.
- SOW created for entire fixture build. RFP sent to 3 shops to bid. Clean room compliant.
- Designed and released a super-size 15-ton Structural Weldment fixture for vibratory testing. SOW created for entire fixture build. RFP sent to 3 shops to bid. Materials, cut, machine, weld, final machine, finish and 3D laser scanning of critical dimensions.
- Collaborated with numerous teams to ensure facility support systems are in place for testing. SOW for special building modifications for large force systems requirement.
- Framework integrated into a 6-story test facility. Metal plates and concrete stanchions were specified to handle the loads. Integrated an isolation system into an existing Super Structure. Worked with steel suppliers for proper materials specifications with IPT evaluation. Electromechanical integration of multiple configuration layouts for final assembly Verification. Structural and systems fitment final **checking**.
- Utilizing custom designed fixturing and Optical Alignment tooling for extremely critical measurements. **GD&T** on all drawings using **NX2**.

COMPANY L

12/1980 – 02/2003: Senior Structures IPT Configuration and Tooling Designer

- Copy Products Development. Worked with vendors on **Tooling** for **6-sigma** deliverable on welded mainframes. **UG V3** through **NX2**
- IPT lead Structure design and planning. Modular computer server rack structure & enclosure. 55% cost of an off the shelf system weldment plus injection Molded cabinetry components, associative trade studies. ECS cooling and ducting system designed to normalize and reduce computer temperature fluctuations.
- 3-Axis adjustable laser and LED writer mounts. Patentable micro-adjust optical mounts.
- Lead IPT responsibility working with teams to achieve cost goals and delivery.
- Created a high-speed fuser concept layout, minimizing existing parts count and developed 2X: functionality from currently used Components. Service- ability and access designed for quick-change. Modular Drop in design fitted into existing machines with no modifications.
- Decreased service frequencies and downtime by over 50%. SOW created.
- Mainframe structure IPT responsibility meant also integrating all other sub-systems. Created Complete ECS Thermal management IPT lead for machine environment. Created all duct work,

manifolds hose routings, fan and blower sizing sound abatement and vibration reduction through multiple test evaluations of various manufacturers. Evaluated filters, hose, and duct inner surfaces for airflow capabilities and thermal effectiveness.

- Designed testing and evaluated data from thermal couples placed throughout the machine running at full load. Hundreds of ECS ducts created in Stereo lithography and later rubber molded in various durometers for short run production testing. After Mfg. sign-off parts released and molded for prod.
- Exactly Constrained structural mainframes, created one deliverable, Vendor trade studies.
- Created a new type of structure Weldment for eliminating Peripheral framework blocking access to internal sub-systems and achieved 6-sigma process for the complex Weldment. Went on site to the vendor shop creating the Weldment fixture to help create sequencing of the welded components for reduction of stresses. This sequencing gave the forty-key mounting points a six-sigma deliverable. C&E analysis run for reduction in number and frequency of welds and effect of stress on structures.
- Prototypes were assembled and run with zero defects
- Over 150 new components created and built requiring no rework or redesign. On time under cost.

EDUCATION

AAS – Mechanical Technology

UNIVERSITY A

Current Creo 4.0/Windchill, Siemen's UG & NX thru NX11/Team Center 55,000 hrs.

3500 Hrs. Catia V4/V5 - ENOVIA LCA/VPLM – Boeing Compliance Training - ISO 9001