

Christopher McDowell

Senior Mechanical Engineer

105 John Coffee Court · Madison, Alabama 35757 · (256) 541-5828 · McDowell.Chris.J@Gmail.com

OBJECTIVE:

To obtain a senior or principal level mechanical engineering position where I can provide expertise related to mechanical design, analysis, product development and management.

QUALIFICATIONS SUMMARY:

Comprehensive mechanical engineering background related to the detailed design, product development, analysis, and integration of aerospace and military products. Areas of experience include spacecraft and launch vehicle structures, mechanisms, electro-mechanical packaging, harness, and mechanical ground support equipment design. Current Security Clearance – Details available on a need-to-know basis.

EDUCATION & TRAINING:

Bachelor of Science in Mechanical Engineering, December 1996

The University of Arizona, Tucson, Arizona

Professional training in Geometric Dimensioning and Tolerancing (GD&T), Tolerance Stack Analysis, Pro/Engineer and Pro/Cabling, Adhesive Bonding, Weld Design, Fiber Reinforced Composites, Orbital Mechanics, Launch Vehicle Design, Electrostatic Discharge (ESD), and Six Sigma.

PROFESSIONAL EXPERIENCE:

Jacobs ESTS Group, Marshall Space Flight Center, Huntsville, AL September 2009 to Present

Senior Structural Design Engineer and Task Lead – Space Systems Department

- Task lead for the Ares-I Upper Stage Aft Skirt structural design, layout, and integration task orders.
- Provided mechanical engineering design services to the Structural & Mechanical Design Branch at the NASA Marshall Space Flight Center.
- Developed engineering models and drawings for the Aft Skirt primary and secondary structure components using Pro/Engineer.
- Coordinated the layout and interface of adjoining subsystems within the Aft Skirt volume.
- Performed tolerance analysis using GD&T on mechanical interfaces.
- Exceeded design objectives, resulting in a successful Component Lay-Out Review and Interim Design Review in preparation for CDR.
- Participated in the evaluation of two proposed Explorer Missions.

Orbital Sciences Corporation, Chandler, AZ

April 2007 to September 2009

Senior Mechanical Engineer – Design, Integration, and Test Department

- Performed mechanical engineering design and analysis tasks on various launch vehicle structures in support of the Ground-based Midcourse Defense (GMD) program's Orbital Boost Vehicle (OBV).
- Led a trade study for the design of a new structure to attach the GMD payload to the 2-Stage OBV.
- Responsible for the design and analysis of the Booster Avionics Module Adapter on the 2-Stage Heritage demonstration vehicle.
- Responsible Engineer for the design and development of the Payload Attach Fitting and Avionics Adapter for 2-Stage OBV.
- Coordinated proposal design activities to develop a multiple payload dispenser system for the deployment of Iridium's NEXT satellites.

General Dynamics Advanced Information Systems

Spectrum Astro Space Systems, Gilbert, AZ

September 2003 to March 2007

Senior Mechanical Engineer – Structures and Mechanisms Department

- Lead designer for the GLAST spacecraft, responsible for the design, documentation, fabrication, testing, and integration of the spacecraft structure, solar arrays, and electronics boxes.
- Led a team of engineers in support of solar array and spacecraft integration and testing.
- Maintained the subsystem schedule, integrating it with the master schedule using Microsoft Project.
- Responsible for project budget and earned value management for Structures and Mechanisms.
- Managed subcontracts and the procurement of hardware with vendors. Coordinated fabrication and assembly activities with manufacturing and quality engineering.
- Supported requirements verification with Systems Engineering.
- Designed assembly and test fixtures for solar arrays and electronics box environmental testing.
- Developed mechanical integration, test, and handling procedures. Coordinated procedure development with subject matter experts across subsystems.
- Coordinated design verification with structural analysis and thermal analysis engineers.
- Interfaced with launch vehicle and instrument engineers to identify and design critical interfaces, perform clearance analyses, and conduct vehicle mass properties analysis.
- Reported status of subsystem design activities with counterparts at NASA's Goddard Space Flight Center.
- Participated in the proposal, design, implementation, and validation of a new release mechanism system for the spacecraft's deployables.
- Designed and fabricated a structural mock-up used for designing and routing the spacecraft harness. Interfaced with subsystems to identify critical harness requirements, routing and field joint locations. Modeled critical harness paths using Pro/Cabling.
- Mechanical packaging design engineer for The University of Arizona's Thermal and Evolved Gas Analyzer (TEGA) for the Phoenix Mars Mission.
- Mechanical packaging engineer for the P909 Power System Distribution Unit.
- Designed MGSE in support of shock, vibration, and thermal vacuum testing for P909.

Raytheon Missile Systems, Tucson, AZ

April 1999 to September 2003

Mechanical Engineer II – Mechanical Packaging and Interconnect Design Department

- Responsible Engineering Authority (REA) for the AMRAAM P3I Frequency Reference Unit.
- Performed detailed design, documentation, and analysis of intricate electronics assemblies, cables, and harnesses using Pro/Engineer and Pro/Cable 3D modeling software.
- Interfaced with manufacturing, project engineers, and buyers to build engineering and flight hardware according to design specifications and schedule requirements.
- Performed complex tolerance analyses on mechanical components and assemblies.
- Designed assembly tooling and fixturing for harness and circuit card assembly manufacturing.
- Submitted and defended engineering changes at program and customer sponsored change review boards.
- Presented design at Preliminary Design Review, Critical Design Review, Design for Manufacturing and Assembly (DFMA) Review, and other peer reviews.
- Responsible for designing, modeling, and drafting the AMRAAM P3I missile Terminal Seeker Harness.
- Responsible for executing multiple engineering design and documentation changes for the Exoatmospheric Kill Vehicle (EKV) as a member of the Avionics Harness Design Team.
- Member of a Six Sigma Design Team implementing a Lessons Learned Database for the Mechanical Engineering Center.

Summa Mechanical Contractors, Phoenix, Arizona

May 1997 to April 1999

Project Manager, Estimator, and Safety Director

- Managed and bid on commercial HVAC construction projects. Coordinated activities with subcontractors, architects, engineers, and business owners. Responsible for organizing and maintaining employee safety training, certifications, and records.

REFERENCES: Available Upon Request