

Trent Oberlander

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EDUCATION

Bachelor of Science in Aerospace Engineering, Wichita State University **Cum Laude May 2023**

TECHNICAL SKILLS

Programming Languages: Python3, MATLAB 2019, Visual Basic, MapleSoft, Simulink, NeuralWorks 2001

Management Software: Teams, SAP, Microsoft Office Suite

Design Software: AutoCAD, Inventor, CATIA v5/v6, Patran/Nastran, FeMAP, ANSYS 2023R1, GMAT

Equipment: Subsonic Wind Tunnel, Supersonic Blowdown Wind Tunnel, Epilog Laser Cutter, SLA Printing, CNC

INDUSTRY EXPERIENCE

Lockheed Martin Aeronautics – Edwards AFB, California

Flight Test Systems Engineer

July 2023 - Present

- Design, coordinate, and execute flights for Fusion and EW subsystem development.
- Write analysis reports to be delivered to Lockheed Martin Aeronautics and the Joint Program Office to enhance Mission Systems software development.
- Utilize real-time data telemetry to enhance mission quality and deliver secure instructions to pilots in the aircraft, as well as post flight data for visual and statistical analysis.
- Develop, maintain, and repair analysis tools for F35 mission systems performance analysis.
- Use of Lockheed Martin owned FATMOPs (Fusion Analysis Tool Measures of Performance) and government designed FAT (Fusion Analysis Tool).

Wichita State University – Wichita, Kansas

Experimental Methods Teaching Assistant

Summer '22 – Spring '23

- Oversaw teams responsible for experimental design and offered experienced advice.
- Led development of balsa glider with specific and intentionally flawed aerodynamic properties.
- Collaborated with professors and faculty to improve testing facilities.
- Trained student groups in the operation of 3'x4' subsonic wind tunnel, 8'x10' trans-sonic wind tunnel, small supersonic wind tunnel, water table, and water tunnel.

A&M Manufacturing – Spring Hill, KS

Summer '20

Systems Engineer

- Analyzed historical maintenance records in SAP to upgrade to preventative practices.
- Persuaded floor staff and engineers in favor of transitioning to history based preventative maintenance.
- Redesigned tutorial documentation for maintenance and inspection.
- Oversaw experimental product implementation for quality assurance of factory machinery.

PROJECTS

30R08, 40R01, 40R02 Fusion Analysis and Mission Execution

Subject Matter Expert and Control Room Instructor

Fall 2023 - Present

- Designed individual F35 mission execution plans based on current system status and information needs as determined by Lockheed Martin requirements and the USG owned test plans.
- Trained multiple engineers on control room and Fusion analysis procedures.
- Use Continuous Capability Development and Delivery practices affecting all levels of work: communication of issues, dissemination of changes to the system, and analysis tool updates.
- Communicated the F35 Fusion subsystem status based on flight test to system developers at Lockheed Martin and the customer.
- Enhance analysis tool effectiveness through integration of new modules, refactor of old modules, and continuous monitoring of output products at every stage.
- Performed analysis using custom data visualizations and statistical methods to facilitate Regression, Re-Baselining, and New Capabilities software testing from flight test.

TAILSPIN GUI and Software Redesign

Project Lead

Winter 2023

- Rebuilt Gui for in-house issue tracker for F35 flight test improving aesthetics, functionality, and design velocity without compromising optimization.
- Built custom data classes in Python3 for efficient interaction with .csv files to preserve Tableau operability and parallel use with government issue trackers (WIT, DR).
- Redesigned interaction between the GUI and the database with custom queries and visualization of the database.

Bronze Propeller – Wichita Kansas (1st Place)

Structural Design and Stress Engineering Lead

Fall 22 – Spring 23

- Produced drafting tools for trade studies of structural configurations using analytical methods in MATLAB.
- Aggressively reduced weight and complexity of design to promote fast and cheap manufacturing using material property analysis at part, component, subsystem, and system level.
- Maintained accurate expense reports for every tooling and material cost at every stage of design and development.
- Documented system structural requirements for mission success and communicated across disciplines to ensure requirements were met at each stage.
- Sourced components from local, national, and international vendors, including no longer manufactured parts.

System Design and Mission Requirements Analysis of CubeSat Orbital Mission

Fall 21

Assembly Design and Documentation Lead

- Selected sub-assemblies and produced physical system design based on mission requirements.
- Maintained mass property data for completed system and effects of orbital transfer on fuel states at each debris.

- Communicated mission execution plan and coordinated timelines for transfer between orbits defined by the orbit patterns of 25 separate debris around Earth.

Cost and Efficiency Analysis of the Walter-Beech Turning Vanes

Spring 22

Management and Analysis Lead

- Designed methodology for modification of highly cambered turning vane for the aerodynamic simulation of a quarter pipe.
- Maintained expense reports and material contacts for the project requirements.

Flight Controller Design for Lightweight UAV

Fall 23

Management and Analysis Lead

- Designed two loop flight control architecture for pitch stability and elevator command.
- Validated PID results with Simulink, MATLAB, Bode plots, and Root Locus Techniques.

Lockheed Martin Innovation Works (3rd Place, 2nd Place)

Spring 21, Fall 21

Team Member

- Brainstormed ideas given the two different simplified prompts.
- Wrote scripts and presentations to sell problem, solution, and validity to a panel of judges over three elevator pitches.

Adaptive Neural Network Modeling and Control

Spring 23

Lead Designer

- Used inverse system control, model reference, and neural model control schemes to train, test, and operate a variety of systems from robotic arms to chemical distillation columns.
- Created reinforcement and recurrent learning networks for basic flight control systems.
- Produced MATLAB procedures to generate training and testing data for both NeuralWorks and MATLAB networks.

HONORS AND MEMBERSIPS

President: College of Engineering Student Ambassadors Spring 22 – Spring 23

Member: AIAA (Fall 19 – Current)

American Alpine Club (Fall 21 – Current)

USPA A-License (Spring 22 – Current)

Honors: Dwayne and Velma Wallace Scholar

Dorothy and Bill Cohen Honors Student