SETH ZELMAN

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SUMMARY

Self-motivated engineer with experience in model-based software development and systems engineering, autonomous flight management systems, vehicle dynamics modeling and simulation, advanced control and estimation theory, and real-time rendering and animation. Skilled in clearly communicating complex concepts and collaborating in a team environment to solve challenging problems and complete projects within budget and schedule.

Core Competencies

Effective Communication | Team Collaboration | Critical Problem Solving | Technical Computing | Software Design

Technical Skills

MATLAB/Simulink | C/C++ | Python | Git/GitLab | ROS | Unity/ C# | Unreal | JS/HTML/CSS

PROFESSIONAL EXPERIENCE

Aurora Flight Sciences — Manassas, VA/Virtual

Guidance, Navigation, and Controls Engineer — June 2021 – Present

- Led preliminary design of flight control system for experimental active flow control technology demonstrator
- Mapped demonstrator mission objectives to flight control system requirements and architecture
- Developed generic, unit-tested flight control algorithms, flight test support functions, and utility libraries
- Developed framework for closed-loop nonlinear simulation and statistical performance analysis
- Collaborated on simulation analysis toolset for model-reference adaptive control algorithms
- Built custom software applications for video animation of vehicle simulation trajectory data
- Authored one conference paper and one patent application

The Boeing Company, Boeing Commercial Airplanes — Everett, WA/Virtual

Guidance, Navigation, and Controls Engineer — July 2019 – June 2021

- Demonstrated application of model-based systems engineering and model-based development practices for maturing early autonomous flight technologies into future commercial airplane capabilities
- Led small team investigation of automated contingency management for improved approach and landing safety
- Analyzed stability robustness and performance characteristics for 777X program to ensure compliance with regulatory requirements and design objectives
- Developed dynamic flight display and remote operator application to demonstrate new pilot alerting concepts
- Installed out-the-window visualization system with flight control hardware and high-fidelity simulation to accelerate and optimize qualitative feedback from test pilots
- Designed and tested robust autopilot controller algorithms for fixed-wing freighter concept

The Boeing Company, Boeing Defense, Space & Security — St. Louis, MO

Guidance, Navigation, and Controls Engineer — November 2017 – June 2019

- Analyzed flying qualities, stability robustness, and performance characteristics for variety of fighter aircraft to ensure compliance with all applicable requirements, specifications, and design objectives
- Designed and integrated simulation and modeling software for aircraft 6-DOF simulation
- Interfaced with test pilots to develop and execute test plans to evaluate flying qualities and performance
- Developed software tools to improve stability analysis, simulation, and data visualization processes

The Boeing Company, Boeing Defense, Space & Security — St. Louis, MO

Electrical Design and Analysis Engineer — July 2016 – November 2017

- Designed electrical hardware integration and test stations to support F/A-18 and EA-18G programs
- Supported F/A-18 Systems Integration Lab with hardware diagnostics, integration, and testing

EDUCATION

University of Illinois at Urbana-Champaign — Virtual

Master of Science in Aerospace Engineering, May 2018 — GPA: 3.54/4.00

University of Illinois at Urbana-Champaign — Champaign, IL

Bachelor of Science in Aerospace Engineering, May 2016 — GPA: 3.54/4.00