# Seth Pietrowski

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## WORK EXPERIENCE

**Certification Engineer I**                                                           06/2024 – Present
*Safran Group, Aircraft Seats Division*                                                  Gainesville, TX

- Lead certification for multiple seat programs, integrating customer and installer requirements into designs that meet safety standards for crashworthiness and operational loads (taxi, takeoff, landing)
- Prepare and submit qualification plans/reports to the FAA and OEMs, demonstrating compliance for static, dynamic, and flammability testing under 14 CFR 25.561, 25.562, 25.785, and OEM requirements (Boeing D6, Airbus X2521)
- Apply industry/regulatory standards (AC25.562, AS8049, ARP5526) to guide structural, fatigue, and abuse testing
- Review and approve engineering drawing changes as Stress and M&P focal, ensuring design updates align with qualification strategy, tolerance, and source control documentation
- Develop department templates and process documentation; create VBA automation tools to improve document change visibility and reduce certification workflow time

**Undergraduate Research Assistant**                                                   01/2022 – 05/2024
*UCF Structural Dynamics Lab, Dr. Jeffrey Kauffman*                                          Orlando, FL

- First author of conference paper for ONR-funded piezoelectric-driven oscillating valve project
- First author and leader of project investigating the capability of metal wire meshes for damping of high-bandwidth vibrations that develop in turbomachinery, such as around rotor blades and turbine shafts
- Utilized physical data and software-based design to analyze structures' vibration characteristics
- Collected data using various instruments imported through LabVIEW and data analysis in MATLAB
- Model construction separately in MATLAB and SolidWorks, meshing and simulation in ANSYS Workbench

**Electrical Engineering Intern**                                                      05/2023 – 08/2023
*Eastern Shipbuilding Group*                                                             Panama City, FL

- Analyzed voltage drop from ship electrical generators to all electrical components, accounting for resistance losses of power and lighting wires for single- and three-phase loads according to MIL-HDBK-299
- Generated electrical diagrams used by production team in placing electrical wiring on Coast Guard OPC vessels
- 3D modeled, routed cables, generated reports according to military and commercial specifications

## EDUCATION

**University of Central Florida,** *3.73 GPA*                                                   05/2024
*Bachelor of Science, Aerospace Engineering*                                                Orlando, FL

- **Relevant Courses:** Vibrations & Controls, Rocket Propulsions, Aerodynamics, Flight Mechanics, Mechatronics

## PROJECTS

**Rocket Nozzle CFD**                                                                  05/2025-Present
*Independent Project*

- Building a browser-based compressible flow simulator in JavaScript using ES Modules and Vite, modeling supersonic flow through a converging-diverging rocket nozzle
- Implementing realistic physics equations, convergence tracking, and client-side parameter tuning

**Senior Design Project – Aerodynamics Leader**                    **08/2023 – 05/2024**

*University of Central Florida*                                      Orlando, FL

- Developed, manufactured, tested rocket to reach apogee of 2200 ft with active guidance back to launch site
- Set physical restraints for all payload systems based on required apogee and available motors; designed all aerodynamic components; performed CFD for critical components; assured quality of component systems

**Supersonic Engine Ground Test Station**                           **08/2023 – 11/2023**

*University of Central Florida*                                      Orlando, FL

- Simulated Mach 5 high altitude flow at ground conditions for scramjet engine with temperature and pressure analysis across engine, created piping and instrumentation diagram, and adjusted mixture ratio for efficient combustion without exceeding thermal limits of test housing in the nozzle region

## PUBLICATIONS

**Seth P. Pietrowski**, Bryce Villanueva, & Jeffrey L. Kauffman, "Experimental Investigation of Randomly Oriented Wire Mesh Damper Performance." Proceedings of the ASME Turbo Expo 2024: Turbomachinery Technical Conference and Exposition. Volume 10B: Structures and Dynamics — Fatigue, Fracture, and Life Prediction; Probabilistic Methods; Rotordynamics; Structural Mechanics and Vibration, V10BT27A012 (28 August 2024); https://doi.org/10.1115/GT2024-124095

Sydney A. Giannuzzi, Tate Myers, **Seth Pietrowski**, and Jeffrey L. Kauffman, "Limitations of Piezoelectric-Based Valve Actuators." AIAA SCITECH 2024 Forum, AIAA 2024-0258 (4 January 2024); https://doi.org/10.2514/6.2024-0258

Sydney A. Giannuzzi, Andres M. Rodriguez, **Seth P. Pietrowski**, Jeffrey L. Kauffman, "Piezoelectric ring-stack actuator design for high-frequency valve," Proc. SPIE 12483, Active and Passive Smart Structures and Integrated Systems XVII, 124830I (28 April 2023); https://doi.org/10.1117/12.2658565

**Seth P. Pietrowski**, Andres M. Rodriguez, Carlos Hernandez, Jeffrey L. Kauffman, "Piezoelectric ring-stack actuator characterization and modeling for high-bandwidth application," Proc. SPIE 12484, Behavior and Mechanics of Multifunctional Materials XVII, 1248408 (18 April 2023); https://doi.org/10.1117/12.2658625

## SKILLS

- Certified in Autodesk Inventor, Microsoft Excel
- Proficient in SolidWorks, ANSYS FEA, SmarTeam, CATIA, AutoCAD, Python, JavaScript, C, MATLAB, LABVIEW, Navisworks, VBA
- Hobbies: Coding, Academic Learning, Language Learning, Rock Climbing, Running