Jonathan D. Gitzendanner

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Active Security Clearance: DOD/NATO SECRET – exp: 06/2026

Academics

University of Oregon, PhD Student, Earth Sciences   Sep 2024 - Expected 2029
- **GPA:** 4.0 **Study:** Electromagnetic signatures of compressible granular flows

University of Central Florida, BS in Aerospace Engineering - Math minor   Aug 2020 – May 2024
- **GPA:** 3.3 **Coursework:** Vibration and Control, High Speed Aerodynamics, Numerical Methods, Flight Mechanics

Research Experience

Dufek Multiphase Flow Group, University of Oregon   Sept 2024 – Present
Electromagnetic Signatures of Compressible Granular Flows
- Using particle-seeded shock tubes to study particle aggregation, electrification, and radio frequency emission
- Developing numerical models for electromagnetic field calculation in high-speed granular flows

Integrated Engagement Systems, Navy Surface Warfare Center Dahlgren   May 2024 – Aug 2024
Hypersonic Aerothermal Modeling
- Studied heating and ablation on several high speed flight bodies
- Stood up the process for mapping CFD Boundary Conditions to aerothermal solvers
- Initiated process for erosion modeling with atmospheric data from Dufek Multiphase Flow Group

Computational Biomechanics Lab, University of Central Florida   Jan 2022 – Dec 2023
Optimizing of Polo Kayak Design for Drag Reduction
- Modeling multiphase free surface fluid interactions around a 2 DOF body to characterize the drag of a kayak

Multiphase Reactive Flow Group, University of Florida   May 2023 – Jul 2023
Symbolic Regression for Wave Speed in Polydisperse Compressible Granular Flows
- Developed method for approximation of sound speed in polydisperse eulerian particle phases
- Modeled particle dispersal and combustion in aluminized explosives

Projects

Distributed Electric Propulsion (DEP) Demonstrator Senior Design Project   Fall 2023 – Spring 2024
- As a team: designed, fabricated, and tested a sub-scale Uncrewed Aerial Vehicle (UAV) taking advantage of DEP
- Individually: lead aerodynamic Test and Evaluation of flight performance and stability

Skills

- Finite Volume Method for compressible granular flows
- Ablation and thermal modeling in hypersonic environments
- Reacting and charged particle flows

- Python (skilled)
- Matlab (proficient)
- Fortran 90 (Novice)

Leadership Experience

Teaching Assistant - Calculus 1, Summer Research Academy, Honors Symposium   Aug 2021 – May 2024
- Developed lecture series on applications of basic calculus in engineering
- Mentored a total of 43 students as they entered research and UCF's Honors College

Member and Co-Coordinator - Dean's Leadership Council Burnett Honors College   Feb 2021 – May 2024
- Served as Co-Coordinator from May 2023 - May 2024 organizing 18 member council
- Selected as only freshman inaugural member to the Burnett Honor's College's student advisory board