

# Geoffrey Andrews

## Contact Information

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[LinkedIn](#) | [Google Scholar](#) | [ResearchGate](#)

## Education

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**Ph.D.** Aeronautics and Astronautics

*Purdue University (2017 – 2022)*

Dissertation: *Acoustic Influences on Boundary Layer Transition in Hypersonic Wind Tunnels*

**M.S.** Aeronautics and Astronautics

*Purdue University (2015 – 2017)*

**B.S.** Mechanical Engineering

*Lehigh University (2013 – 2015)*

## Honors and Awards

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**Abe M. Zarem Award**

*American Inst. Aeronautics & Astronautics*  
(Winner, 2019)

**Aviation Week 20 Twenties**

*Aviation Week & Space Technology*  
(Winner, 2017)

**Y. B. Wei Prize**

Lehigh University Mech. Eng. Dept.  
(Winner, 2013)

## Skills & Expertise

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- Computational and analytical study of hypersonic flows
- Boundary layer stability theory
- Development of research concepts and program leadership

## Additional Skills

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- Commercial pilot with tailwheel, complex, and aerobatic experience
- PADI Open-Water Diver

## Work Experience

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**MIT Lincoln Laboratory**

Lexington, MA

Technical Staff

(2022-present)

- Responsible for hypersonic aerothermal research and modeling efforts in the Structural and Thermal Fluids Engineering group

**Purdue University**

West Lafayette, IN

Research Assistant

(2015-2022)

- Analyzed acoustic influences on high-Mach boundary layers in hypersonic wind tunnels using direct numerical simulation
- Led departmental outreach programs

**NASA Glenn Research Center**

Cleveland, OH

Pathways Intern

(2016-2021)

- Developed MONTE, a Python package for object-oriented method of characteristics analysis
- Created models for cycle analysis of hypersonic air breathing propulsion systems

**von Karman Institute for Fluid Dynamics**

Belgium

Research Fellow

(2020)

- Characterized boundary layer transition behavior in VKI's Longshot hypersonic wind tunnel using linear stability theory

## Selected Publications and Presentations

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- "Direct Numerical Simulation of Acoustically-Driven Transition in a Hypersonic Wind Tunnel," AIAA Aviation 2023, San Diego, CA.
- "Effects of Freestream Acoustic Disturbances on Hypersonic Boundary Layer Stability," AIAA Aviation 2020.
- "Stability of Cylindrical and Conical Boundary Layers," AIAA SciTech 2019, San Diego, California.
- "A Hybrid Length Scale Similarity Solution for Swirling Turbulent Jets," ICAS 2018, Belo Horizonte, Brazil.
- "Preliminary Design of a Rotating Detonation Engine for Launch Vehicle Applications," AIAA SciTech 2018, Kissimmee, FL.

## Educational and Advocacy Experience

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- Purdue Space Day Ambassadors Program — STEM advocacy initiative which allows student volunteers to teach STEM activities to approximately 1,500 K-12 Indiana students per year
- Project HALO — NASA-funded collaboration between Purdue University and local high schools which introduces students to engineering by allowing them to design, build, and launch a scientific balloon payload to 100,000 feet