

Geoffrey Andrews
geoffreymgandrews@gmail.com

Education

Purdue University - West Lafayette, IN

- Ph.D. in Aeronautical and Astronautical Engineering – May, 2021 (*expected*) GPA: 3.44
Dissertation: *The Effects of Acoustic Disturbances on Hypersonic Boundary Layer Transition*
- M.S. in Aeronautical and Astronautical Engineering – May, 2017 GPA: 3.64

Lehigh University - Bethlehem, PA

- B.S. in Mechanical Engineering and Mechanics – May, 2015 (*expected: May, 2016*) GPA: 3.27

Work Experience

- **Von Karman Institute for Fluid Dynamics** - *Honorary Research Fellow (2020-present)*
Stability analysis of high-Mach boundary layers to predict transition in VKI Longshot, a hypersonic wind tunnel
- **Purdue University School of Aeronautics and Astronautics** – *Research Assistant (2017-present)*
Analysis of acoustic influences on high-Mach boundary layers using direct numerical simulation
- **NASA Glenn Research Center, Propulsion Systems Analysis Branch** - *Pathways Co-op Student (2016-present)*
Cycle analysis of high-speed air breathing propulsion systems for hypersonic flight
- **Lehigh University** - *Research Assistant, Aerospace Systems Lab (2013-2015), Bionanomechanics Laboratory (2014-2015)*
 - Performed wind tunnel tests on gun-launched surveillance drone for U.S. Army; upgraded tunnel test setup.
 - Performed independent research on a novel method of fabricating microfluidic devices using direct light processing.

Selected Publications and Presentations

- G. Andrews, J. Poggie; “Effects of Freestream Acoustic Disturbances on Hypersonic Boundary Layer Stability,” AIAA Aviation 2020.
- G. Andrews, J. Poggie; “Stability of Cylindrical and Conical Boundary Layers,” AIAA SciTech 2019, San Diego, California.
- G. Andrews; “A Hybrid Length Scale Similarity Solution for Swirling Turbulent Jets,” ICAS 2018, Belo Horizonte, Brazil.
- G. Andrews, A. Black, J. Graham, O. Rique; “Preliminary Design of a Rotating Detonation Engine for Launch Vehicle Applications,” AIAA SciTech 2018, Kissimmee, Florida.

Educational and Advocacy Experience

- Creator and organizer of several community engagement initiatives:
 - Purdue Space Day Ambassadors Program - STEM advocacy initiative which has brought high-quality educational engineering and science activities to over 2,000 students in dozens of schools in Central Indiana since 2017.
 - 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.
 - Destination: Space – summer course for high-achieving middle-schoolers focusing on fundamental concepts of spaceflight and systems design taught as part of Purdue’s Gifted Education Resource Institute summer camp.
 - Letters to Mars – public engagement campaign involving personal correspondence with hundreds of schoolchildren nationwide during a crew rotation at the Mars Desert Research Station in Utah.
- Active member of AIAA - working group leader in the Educational Outreach Committee and technical committee volunteer.

Honors and Awards

- Belgian-American Educational Foundation–Von Karman Institute for Fluid Dynamics Graduate Fellowship
- Abe M. Zarem Award for Distinguished Achievement in Aeronautics (American Institute of Aeronautics and Astronautics)
- Aviation Week & Space Technology’s 20 Twenties 2017 Recipient – “*In Support of Tomorrow’s Engineering Leaders*”
- Graduate Individual Aircraft Design Competition 2017, Second Place (American Institute of Aeronautics and Astronautics)
- Ross Graduate Fellowship, Purdue Forever Fellowship, Outstanding Service Scholarship (Purdue University)
- Y. B. Wei Prize in Mechanical Engineering and Mechanics (Lehigh University Department of Mechanical Engineering and Mechanics) – “*In Recognition of Outstanding Academic Achievements and Demonstrated Leadership Qualities*”

Other Experience and Skills

- Programming languages include Python, Fortran, C++, and MATLAB; CFD tools include SU2, ANYS Fluent, and several in-house codes plus stability codes LASTRAC and STABL; CAD packages include SolidWorks, AutoCAD, Inventor, etc.
- Commercial pilot with tailwheel, complex, and high-performance endorsements; amateur pianist and horn player; hobbyist baker and mechanic; travel and adventure enthusiast.