

James W. Gregory, Ph.D.

Professor and Chair
Department of Mechanical and Aerospace Engineering
The Ohio State University

201 W 19th Ave, Columbus, OH 43210

Phone: 614-292-5024

<https://mae.osu.edu/people/gregory.234>

<https://mae.osu.edu>

E-mail: gregory.234@osu.edu

ORCID: [0000-0002-8589-8758](https://orcid.org/0000-0002-8589-8758) ResearcherID: [A-2343-2015](https://orcid.org/A-2343-2015)

May 13, 2021

BIOGRAPHICAL SKETCH

Dr. James W. Gregory is Professor and Chair of the Department of Mechanical and Aerospace Engineering (MAE) at The Ohio State University. He received his doctorate and masters degrees in Aeronautics and Astronautics from Purdue University in 2005 and 2002, respectively, and his Bachelor of Aerospace Engineering from Georgia Tech in 1999, graduating with highest honors. He has been a faculty member at Ohio State since 2008 (Assistant Prof 2008-13, Associate Prof 2013-2017, Full Prof 2017-present), served as Director of the Aerospace Research Center from 2017-2020, and is currently department chair of MAE (2020 – present). Dr. Gregory is an Associate Fellow of AIAA and a Fellow of the Royal Aeronautical Society.

The Department is home to academic programs in Mechanical, Aerospace, and Nuclear engineering, with nearly 80 faculty and 30 staff educating and serving about 1600 undergraduate and 300 graduate students. As Chair of MAE, Dr. Gregory is responsible for oversight of a \$16M operational budget and facilities in the 230,000-square foot Scott Laboratory, with annual research expenditures of about \$26M.

Prior to Chairing MAE, Dr. Gregory was Director of the Aerospace Research Center, where he expanded interdisciplinary collaborations to include colleagues from aerospace engineering, industrial engineering, electrical engineering, mechanical engineering, and medicine. The Center grew to include engagement from over 15 faculty, approximately 50 students, 6 research staff, and 7 support staff. Under Dr. Gregory's leadership, the Center's research expenditures grew from \$2.8M in FY17 to \$7.7M in FY20.

Dr. Gregory's research interests lie at the intersection of Unmanned Aircraft Systems (drones) and unsteady aerodynamics, including flight testing of vehicle performance, systems integration studies, robust flight of UAS in all weather conditions (wind and icing), unsteady airfoil loading, and low-Reynolds number rotor wake studies. Funding for his work since 2008 has totaled over \$20M, including grants from ARO (Young Investigator Award), ARL, AFOSR, AFRL, FAA, NASA, Sikorsky, Honda R&D, the Ohio Federal Research Network, and the Ohio Department of Transportation. Dr. Gregory serves as PI for Ohio State as a core member of the ASSURE FAA Center of Excellence on Integrating UAS in the National Airspace System, and is

lead PI for the Ohio Department of Transportation's \$6.9M Unmanned Aircraft Traffic Management (UTM) system. His research has resulted in the Thomas Hawksley Gold Medal, a best paper award presented by the Institution of Mechanical Engineers (IMechE) across all of their journals; and the Alfred Gessow Award for co-author of the Best Paper at the 68th American Helicopter Society Forum. Dr. Gregory also led a team of researchers and students to set official world records for [speed](#) and [distance](#) for an autonomous drone in August 2017 (sanctioned by NAA and FAI, and reported on in [Aviation Week](#) magazine).

Dr. Gregory's teaching innovations have led to the National Aeronautic Association [Frank G. Brewer Trophy](#), which honors significant contributions of enduring value to aerospace education in the United States. He has also been recognized with the OSU College of Engineering's McCarthy Engineering Teaching Award, the Department of Aerospace Engineering Outstanding Professor Award, and the SAE [Ralph R. Teetor Educational Award](#). He has produced a video lecture series on the [Science of Flight](#), in collaboration with the Great Courses and the Smithsonian Institution's Air & Space Museum. This video course, with 24 half-hour lectures, has sold over 14,000 copies with an additional 25,000 hours of online streaming since June 2017. Dr. Gregory has also made his own video recordings of his *Introduction to Aerospace Engineering* course, and has used these to "flip" the classroom in this large, sophomore-level course, leading to a full letter grade improvement in the class average. He has also developed a number of innovative design projects and labs including an international collaboration for aerial detection of buried landmines, high-altitude balloon launch, analysis of US Airways flight 1549 flight recorder data, glider design/build/fly, and airfoil design/build/test using rapid prototyping.

Dr. Gregory's work experience includes stints at the US Air Force Research Laboratory Air Vehicles Directorate, Delta Air Lines, NASA Glenn Research Center, Tohoku University in Japan, and as a Fulbright Scholar at the Technion in Israel. He has also served as a policy fellow at the National Academy of Engineering through the [Christine Mirzayan Science & Technology Policy Fellowship](#). He also completed a postdoctoral fellowship at the U.S. Air Force Academy, funded through the National Research Council Research Associateship Program. He is an instrument rated commercial pilot, with over 400 flight hours in single-engine aircraft, and is one of the first holders of a remote pilot certificate under part 107.

EDUCATION

Ph.D. in Aeronautics and Astronautics – August 2005

Purdue University, West Lafayette, Indiana

Dissertation: *Development of Fluidic Oscillators as Flow Control Actuators*

Advisor: Prof. John P. Sullivan

M.S. in Aeronautics and Astronautics – December 2002

Purdue University, West Lafayette, Indiana

Thesis: *Unsteady Pressure Measurements in a Turbocharger Compressor Using Porous Pressure-Sensitive Paint*

Advisor: Prof. John P. Sullivan

Bachelor of Aerospace Engineering, Cooperative Plan, with Highest Honors – August 1999

Georgia Institute of Technology, Atlanta, Georgia

Dean's List (>3.0 GPA) – 12 of 13 Quarters; Faculty Honors (4.0 GPA) – 1 Quarter

Studied at Keble College, Oxford University in summer 1996 as part of the Georgia Tech study abroad program.

Advisor: Prof. Narayanan M. Komerath

WORK EXPERIENCE

The Ohio State University, Department of Mechanical and Aerospace Engineering, Columbus, Ohio. January 2008 – Present (Department of Aerospace Engineering, 2008-2010).

- Chair, Department of Mechanical and Aerospace Engineering (2020 – present)
- Director, Aerospace Research Center (2017 – 2020)
- Associate Director, Aerospace Research Center (2014 – 2020)
- Professor (2017 – Present)
- Associate Professor (2013 – 2017)
- Assistant Professor (2008 – 2013)

US Air Force Academy, Department of Aeronautics, Colorado Springs, Colorado. December 2005 – December 2007. National Research Council Postdoctoral Fellow (12/05 – 12/06) and Visiting Research Scientist (1/07 – 12/07).

Purdue University, School of Aeronautics and Astronautics, West Lafayette, Indiana, August 1999 – August 2005. Graduate Research Assistant and NASA GSRP Doctoral Fellow.

Georgia Institute of Technology, School of Aerospace Engineering, Atlanta, Georgia, July 1995 – January 1999. Student Research Assistant with the Experimental Aerodynamics Group.

Delta Air Lines, Atlanta, Georgia, March 1995 – June 1998. Cooperative student work in Liaison Engineering – support for aircraft maintenance.

SHORT-TERM WORK EXPERIENCE

Air Force Research Laboratory, Summer Faculty Fellowship, Dayton, Ohio, summers 2009 and 2010. Air Vehicles Directorate.

National Academy of Engineering, Aeronautics and Space Engineering Board, Washington, D.C., September – November 2005, Christine Mirzayan Science & Technology Policy Graduate Fellowship Program.

Tohoku University, Department of Aeronautics and Space Engineering, Sendai, Japan, Summer 2004. International Internship Program Student Award, International Center of Excellence of Flow Dynamics.

NASA Glenn Research Center, Optical Instrumentation Technology Branch, Cleveland, Ohio, Summer 2002 and 2003. Lewis' Educational and Research Collaborative Internship and Graduate Student Researchers Program.

MAJOR INTERNATIONAL AWARDS

Fellow, Royal Aeronautical Society, 2021.

National Aeronautic Association Frank G. Brewer Trophy, 2020, honoring significant contributions of enduring value to aerospace education in the United States. Citation: "For his enduring contributions and leadership in engaging the public and students in the science of flight through video series, innovative laboratory experiences, and world-record-setting testing of unmanned aerial vehicles."

FAI World Records for Autonomous Unmanned Aerial Vehicle, August 30, 2017

(certified by the National Aeronautic Association as national records; and by the Fédération Aéronautique Internationale as world records)

- [Absolute Speed](#) (U-Absolute subclass), 237 km/h
- [Speed over a Straight 15/25km Course](#), 237 km/h
- [Distance Over an Out and Return Course](#), 45 km

Fulbright Scholar Award, "Study of Dynamic Stall and its Implications for Wind Turbine Performance," to collaborate with Prof. David Greenblatt at the Technion – Israel Institute of Technology, Haifa, Israel, 2014-15.

Army Research Office Young Investigator Award, "Time-Varying Compressible Dynamic Stall Mechanisms Due to Freestream Mach Oscillations," 2011.

Thomas Hawksley Gold Medal (Best Paper Award), for the best original paper published by the Institution of Mechanical Engineers (UK) in 2008 for the paper, "A Review of Pressure-Sensitive Paint for High Speed and Unsteady Aerodynamics," in *Proceedings of the Institution of Mechanical Engineers, Part G, Journal of Aerospace Engineering*.

Kenneth Harris James Prize (Best Paper Award), *Proceedings of the Institution of Mechanical Engineers, Part G, Journal of Aerospace Engineering*, for the paper, "A Review of Pressure-Sensitive Paint for High Speed and Unsteady Aerodynamics," 2008.

Boeing Engineering Student of the Year, Presented at *Flight International* magazine's *Aviation Excellence Awards* at the Asian Aerospace Airshow in Singapore, 2006.

AIAA Foundation Orville and Wilbur Wright Graduate Award, 2005. "For significant research contributions to the field of aerospace engineering."

AIAA National Student Paper Competition, First Place Graduate Student, 2004.

HONORS AND AWARDS

Big10 Academic Alliance, Academic Leaders Program, 2020-21.

Charles F. Kettering Aerial Torpedo “Bug” Award, 2018, presented by the Engineers Club of Dayton, for outstanding achievements which pushed the boundaries of Unmanned Aerial Systems technology as evidenced by world records for speed and distance of an autonomous Unmanned Aerial System set by their vehicle.

Outstanding Aerospace Engineer, Purdue University School of Aeronautics and Astronautics, 2018. Alumni award presented to just over 2% of the school’s 8800 alumni.

AIAA Associate Fellow, 2016.

NASA Group Achievement Award, Kiowa Warrior Advanced Experimental Measurements Team, contractor support of PSP data acquisition and analysis, 2013.

Lumley Research Award, College of Engineering, The Ohio State University, 2013.

Outstanding Professor Award, Aerospace Engineering Program, 2010 and 2013, (selected by students).

Outstanding Paper Award, AIAA Ground Testing Technical Committee, 2012.

Alfred Gessow Award for Best Paper, 68th Annual Forum of the American Helicopter Society, 2012, co-author of best paper out of 230 presented at the Forum.

SAE Ralph R. Teetor Educational Award, 2012.

Indo-American Frontiers of Engineering Symposium, National Academy of Engineering, 2012.

McCarthy Engineering Teaching Award, College of Engineering, 2011, recognizes the contributions of junior faculty to create more innovative and effective teaching and learning.

Outstanding Paper Award, AIAA Ground Testing Technical Committee, 2011 (one of seven best papers selected from hundreds presented in AIAA Ground Test sessions in 2010-11).

Distinguished Undergraduate Research Mentor Award, Denman Undergraduate Research Forum, 2009.

Frontiers of Engineering Program, National Academy of Engineering, 2008.

Academic Keys, Future Faculty Grant, 2007.

Best Paper by a Young Presenter Award, Signal Processing Technical Committee, Acoustical Society of America, 2006. Awarded for the paper “Pressure-sensitive paint as a distributed optical microphone array,” presented at the 4th Joint Meeting of the Acoustical Society of America and the Acoustical Society of Japan, Honolulu, HI, 28 November – 2 December, 2006.

Sigma Xi Graduate Student Poster Competition, Purdue University, First Place in Engineering, 2005.

AIAA Region III Student Paper Competition, First Place, 2003.

NASA Graduate Student Researchers Program Fellowship, August 2002 – July 2005.

Outstanding Graduate Student Award, School of Aeronautics and Astronautics, Purdue University, 2002.

Sigma Gamma Tau, 1996 – Present, Aerospace Honor Society, member.

Duke of Paducah, 1994. Honorary award to recognize citizenship and community service in Paducah, Kentucky.

Eagle Scout, Boy Scouts of America, December 1993.

LICENSES

Commercial Pilot, FAA, 2013. Airplane, Single-Engine, Land with Instrument Rating. >400 flight hours.

Extra Class License, AD4GN, FCC, 1993. Highest level Amateur Radio License.

SUMMARY OF RESEARCH GRANTS AWARDED

(Beginning in 2008, including ongoing grants and contracts, projected renewals, and pending)

- Total External Funding at OSU as PI or co-PI: **\$20.07 million** (Gregory share ~\$14.19 M)
- External Funding at OSU as sole or lead PI: **\$11.60 million**
- External Funding at OSU as co-PI: **\$8.48 million** (Gregory share ~\$2.60 M)
- Lead PI at OSU for the multi-disciplinary FAA Center of Excellence on Integrating Unmanned Aircraft Systems (UAS) in the National Airspace System (NAS), a **\$5M/year Center for 10 years**.

PUBLICATIONS AND PRESENTATIONS

Summary:

- 1 Book to be published by Wiley in July 2021
- 1 Video lecture course
- 2 Patent applications
- 64 peer-reviewed journal papers (published, in press, and accepted)
 - Key journals include *Annual Review of Fluid Mechanics*, *Journal of Fluid Mechanics*, *Physics of Fluids*, *Experiments in Fluids*, *AIAA Journal*
 - 38 journal papers co-published with advisees (students and/or postdoctoral researchers)
- 105 peer-reviewed or abstract-reviewed conference papers
- 41 invited seminar presentations

h-Index:

- 30 (Google Scholar, <https://scholar.google.com/citations?user=rObt4m4AAAAJ>)
- 17 (ISI / Thompson Reuters, ResearcherID [A-2343-2015](https://orcid.org/0009-0001-2343-2015))

Books

1. Gregory, JW and Liu, T, 2021, *Introduction to Flight Testing*, submitted to John Wiley & Sons on September 7, 2020. Final copyediting and typesetting complete. To be published July 16, 2021.

Lecture Series

1. Gregory, JW, 2017, *The Science of Flight*, a series of 24 half-hour lectures on various topics spanning flight in the atmosphere and space. Filmed, produced and marketed by The Great Courses, in collaboration with the Smithsonian Air & Space Museum.
<http://www.thegreatcourses.com/courses/the-science-of-flight.html>

Refereed Journal Publications (* indicates advisee)

1. Caradonna, F, Henley, E, Silva, M, Huang, S, Komerath, N, Mahalingam, R., Reddy, U., Funk, R., Wong, O., Ames, R., Darden, L., Villareal, L., and Gregory, J, 1999, "Performance Measurement and Wake Characteristics of a Model Rotor in Axial Flight," *Journal of the American Helicopter Society*, vol. 44, no. 2, pp. 101-108, doi: [10.4050/JAHS.44.101](https://doi.org/10.4050/JAHS.44.101). IF: 0.796
2. Sakaue, H, Gregory, JW, Sullivan, JP, and Raghu, S, 2002, "Porous Pressure-Sensitive Paint for Characterizing Unsteady Flow Fields," *AIAA Journal*, vol. 40, no. 6, pp. 1094-1098, doi: [10.2514/2.1757](https://doi.org/10.2514/2.1757). IF: 1.207
3. Gregory, JW, Sullivan, JP, and Raghu, S, 2005, "Visualization of Jet Mixing in a Fluidic Oscillator," *Journal of Visualization*, vol. 8, no. 2, pp. 169-176 (Invited Paper), doi: [10.1007/BF03181660](https://doi.org/10.1007/BF03181660). IF: 0.575

4. Gregory, JW, Sullivan, JP, Wanis, SS, and Komerath, NM, 2006, "Pressure-sensitive paint as a distributed optical microphone array," *Journal of the Acoustical Society of America*, vol. 119, no. 1, pp. 251-261, doi: [10.1121/1.2140935](https://doi.org/10.1121/1.2140935). **IF: 1.503**
5. Gregory, JW and Sullivan, JP, 2006, "Effect of Quenching Kinetics on Unsteady Response of Pressure-Sensitive Paint," *AIAA Journal*, vol. 44, no. 3, pp. 634-645, doi: [10.2514/1.15124](https://doi.org/10.2514/1.15124). **IF: 1.207**
6. Gregory, JW, Sullivan, JP, Raman, G, and Raghu, S, 2007, "Characterization of the Microfluidic Oscillator," *AIAA Journal*, vol. 45, no. 3, pp. 568-576, doi: [10.2514/1.26127](https://doi.org/10.2514/1.26127). **IF: 1.207**
7. Huang, CY, Gregory, JW, and Sullivan, JP, 2007, "A Modified Schlieren Technique for Micro Flow Visualization," *Measurement Science & Technology*, vol. 18, no. 5, pp. N32-N34, doi: [10.1088/0957-0233/18/5/N04](https://doi.org/10.1088/0957-0233/18/5/N04). **IF: 1.433**
8. Huang, CY, Gregory, JW, and Sullivan, JP, 2007, "Microchannel Pressure Measurements Using Molecular Sensors," *Journal of Microelectromechanical Systems*, vol. 16, no. 4, pp. 777-785, doi: [10.1109/JMEMS.2007.892914](https://doi.org/10.1109/JMEMS.2007.892914). **IF: 1.754**
9. Huang, CY, Gregory, JW, and Sullivan, JP, 2007, "Flow Visualization and Pressure Measurement in Micronozzles," *Journal of Visualization*, vol. 10, no. 3, pp. 281-288, doi: [10.1007/BF03181695](https://doi.org/10.1007/BF03181695). **IF: 0.575**
10. Gregory, JW, Asai, K, Kameda, M, Liu, T, and Sullivan, JP, 2008, "A Review of Pressure-Sensitive Paint for High Speed and Unsteady Aerodynamics," *Proceedings of the Institution of Mechanical Engineers, Part G, Journal of Aerospace Engineering*, vol. 222, no. 2, pp. 249-290 (**Invited Review Paper; Kenneth Harris James Best Paper Award; Thomas Hawksley Gold Medal**), doi: [10.1243/09544100JAERO243](https://doi.org/10.1243/09544100JAERO243). **IF: 0.678**
11. Gregory, JW, Baughn, JW, Porter, CO, and Byerley, AR, 2008, "Optical Method for Measuring Low Wall Shear Stresses Using Thermal Tufts," *AIAA Journal*, vol. 46, no. 5, pp. 1088-1095, doi: [10.2514/1.29876](https://doi.org/10.2514/1.29876). **IF: 1.207**
12. Gregory, JW, Gnanamanickam, EP, Sullivan, JP, and Raghu, S, 2009, "Variable-Frequency Fluidic Oscillator Driven by a Piezoelectric Bender," *AIAA Journal*, vol. 47, no. 11, pp. 2717-2725, doi: [10.2514/1.44078](https://doi.org/10.2514/1.44078). **IF: 1.207**
13. Fang, S*, Disotell, KJ*, Long, SR*, Gregory, JW, Semmelmayr, FC, and Guyton, RW, 2011, "Application of fast-responding pressure-sensitive paint to a hemispherical dome in unsteady transonic flow," *Experiments in Fluids*, v. 50, n. 6, pp. 1495-1505, doi: [10.1007/s00348-010-1010-1](https://doi.org/10.1007/s00348-010-1010-1). **IF: 1.670**

14. Disotell, KJ* and Gregory, JW, 2011, "Unsteady Surface Signature of a Pulsed Vortex Generator Jet," *Journal of Visualization*, v. 14, n. 2, pp. 121-127, doi: [10.1007/s12650-011-0080-3](https://doi.org/10.1007/s12650-011-0080-3). **IF: 0.575**
15. Juliano, TJ*, Kumar, P*, Peng, D*, Gregory, JW, Crafton, J, and Fonov, S, 2011, "Single-shot, lifetime-based pressure-sensitive paint for rotating blades," *Measurement Science & Technology*, v. 22, no. 8, pp. 085403, doi: [10.1088/0957-0233/22/8/085403](https://doi.org/10.1088/0957-0233/22/8/085403). **IF: 1.433**
16. Disotell, KJ* and Gregory, JW, 2011, "Measurement of Transient Acoustic Fields Using a Single-Shot Pressure-Sensitive Paint System," *Review of Scientific Instruments*, v. 82, no. 7, pp. 075112-1-8, doi: [10.1063/1.3609866](https://doi.org/10.1063/1.3609866). **IF: 1.614**
17. Gompertz, K*, Jensen, C*, Kumar, P*, Peng, D*, Gregory, JW, and Bons, JP, 2011, "Modification of a Transonic Blowdown Wind Tunnel to Produce Oscillating Freestream Mach Number," *AIAA Journal*, v. 49, n. 11, pp. 2555-2563, doi: [10.2514/1.J051090](https://doi.org/10.2514/1.J051090). **IF: 1.207**
18. Tomac, M*, Yugulis, K*, Gregory, JW, Loftus, J, and Ferrito, T, 2011, "Investigation of Vibration Phenomena Induced by Air Flow over Side View Mirror," *Journal of Fluids Engineering*, v. 133, n. 12, pp. 121102, doi: [10.1115/1.4005425](https://doi.org/10.1115/1.4005425). (A Top 10 Most Downloaded Article in January 2012). **IF: 0.932**
19. Fang, S*, Long, S*, Disotell, KJ*, Gregory, JW, Semmelmayr, FC, and Guyton, RW, 2012, "Comparison of Unsteady Pressure-Sensitive Paint Measurement Techniques," *AIAA Journal*, v. 50, n. 1, pp. 109-122, doi: [10.2514/1.J051167](https://doi.org/10.2514/1.J051167). **IF: 1.207**
20. Juliano, TJ*, Disotell, KJ*, Gregory, JW, Crafton, J, & Fonov, S, 2012, "Motion-Deblurred, Fast-Response Pressure-Sensitive Paint on a Rotor in Forward Flight," *Measurement Science & Technology*, v. 23, n. 4, 045303, doi: [10.1088/0957-0233/23/4/045303](https://doi.org/10.1088/0957-0233/23/4/045303). **IF: 1.433**
21. Montefort, J, Pohl, N, Liu, T, Gregory, JW, and Crafton, J, 2013, "Thin-Wing Vibration Control Using Flexible Fins," *AIAA Journal*, v. 51, n. 9, pp. 2218-2230, doi: [10.2514/1.J052093](https://doi.org/10.2514/1.J052093). **IF: 1.207**
22. Peng, D*, Jensen, CD*, Juliano, TJ*, Gregory, JW, Crafton, J, Palluconi, S, and Liu, T, 2013, "Temperature-Compensated Fast Pressure-Sensitive Paint," *AIAA Journal*, vol. 51, no. 10, pp. 2420-2431, doi: [10.2514/1.J052318](https://doi.org/10.2514/1.J052318). **IF: 1.207**
23. Yugulis, K*, Hansford, S, Gregory, JW, and Samimy, M, 2014, "Control of High Subsonic Cavity Flow Using Plasma Actuators," *AIAA Journal*, vol. 52, no. 7, pp. 1542-1554, doi: [10.2514/1.J052668](https://doi.org/10.2514/1.J052668). **IF: 1.207**
24. Gregory, JW, Sakaue, H, Liu, T, and Sullivan, JP, 2014, "Fast Pressure-Sensitive Paints for Flow and Acoustic Diagnostics," *Annual Review of Fluid Mechanics*, vol. 46, pp. 303-330, doi: [10.1146/annurev-fluid-010313-141304](https://doi.org/10.1146/annurev-fluid-010313-141304). **IF: 11.163**

25. Gordeyev, S, De Lucca, N, Jumper, EJ, Hird, K*, Juliano, TJ*, Gregory, JW, Thordahl, J, and Wittich, DJ III, 2014, "Comparison of unsteady pressure fields on turrets with different surface features using pressure-sensitive paint," *Experiments in Fluids*, vol. 55, 1661, doi: [10.1007/s00348-013-1661-9](https://doi.org/10.1007/s00348-013-1661-9). **IF: 1.670**
26. Disotell, KJ*, Peng, D*, Juliano, TJ*, Gregory, JW, Crafton, J, and Komerath, NM, 2014, "Single-Shot Temperature- and Pressure-Sensitive Paint Measurements on an Unsteady Helicopter Blade," *Experiments in Fluids*, vol. 55, 1671, doi: [10.1007/s00348-014-1671-2](https://doi.org/10.1007/s00348-014-1671-2). **IF: 1.670**
27. Tomac, MN* and Gregory, JW, 2014, "Internal Jet Interactions in a Fluidic Oscillator at Low Flow Rate," *Experiments in Fluids*, vol. 55, 1730, doi: [10.1007/s00348-014-1730-8](https://doi.org/10.1007/s00348-014-1730-8). **IF: 1.670**
28. Gregory, JW, Disotell, KJ*, Peng, D*, Juliano TJ*, Crafton, J, and Komerath, NM, 2014, "Inverse Methods for Deblurring PSP Images of Rotating Surfaces," *AIAA Journal*, vol. 52, no. 9, pp. 2045-2061, doi: [10.2514/1.J052793](https://doi.org/10.2514/1.J052793). **IF: 1.207**
29. Liu, T, Woodiga, S, Gregory, J, and Sullivan, J, 2014, "Global Skin Friction Diagnostics Based on Surface Mass-Transfer Visualizations," *AIAA Journal*, v. 52, n. 11, pp. 2369-2383, doi: [10.2514/1.J052682](https://doi.org/10.2514/1.J052682). **IF: 1.207**
30. Bhattacharya, S* and Gregory, JW, 2015, "Effect of Three-Dimensional Plasma Actuation on the Wake of a Circular Cylinder," *AIAA Journal*, v. 53, no. 4, pp. 958-967, doi: [10.2514/1.J053316](https://doi.org/10.2514/1.J053316). **IF: 1.207**
31. Bhattacharya, S* and Gregory, JW, 2015, "Investigation of the cylinder wake under spanwise periodic forcing with a segmented plasma actuator," *Physics of Fluids*, v. 27, no. 014102, doi: [10.1063/1.4905536](https://doi.org/10.1063/1.4905536). **IF: 2.031**
32. Metka, M* and Gregory, JW, 2015, "Drag Reduction on the 25-degree Ahmed Model Using Fluidic Oscillators," *ASME Journal of Fluids Engineering*, v. 137, no. 5, 051108, doi: [10.1115/1.4029535](https://doi.org/10.1115/1.4029535). **IF: 0.932**
33. Metka, M*, Gregory, J, Sassoon, A, and McKillen, J, 2015, "Scaling Considerations for Fluidic Oscillator Flow Control on the Square-back Ahmed Vehicle Model," *SAE Int. J. Passeng. Cars - Mech. Syst.*, v. 8, no. 1, pp. 328-337, doi: [10.4271/2015-01-1561](https://doi.org/10.4271/2015-01-1561).
34. Huang, CY, Matsuda, Y, Gregory, JW, Nagai, H, and Asai, K, 2015, "The applications of pressure-sensitive paint in microfluidic systems," *Microfluidics and Nanofluidics*, v. 18, no. 5-6, pp. 739-753, doi: [10.1007/s10404-014-1510-z](https://doi.org/10.1007/s10404-014-1510-z). **IF: 2.528**
35. Peng, D* and Gregory, JW, 2015, "Vortex dynamics during blade-vortex interactions," *Physics of Fluids*, v. 27, no. 053104, doi: [10.1063/1.4921449](https://doi.org/10.1063/1.4921449). **IF: 2.031**

36. Pandey, A* and Gregory, JW, 2015, "Step Response Characteristics of Polymer/Ceramic Pressure-Sensitive Paint," *Sensors*, v. 15, no. 9, pp. 22304-22324, doi: [10.3390/s150922304](https://doi.org/10.3390/s150922304). **IF: 2.245**
37. Pandey, A* and Gregory, JW, 2016, "Frequency Response Characteristics of Polymer/Ceramic Pressure-Sensitive Paint," *AIAA Journal*, v. 54, no. 1, pp. 174-185, doi: [10.2514/1.J054166](https://doi.org/10.2514/1.J054166). **IF: 1.207**
38. Watkins, AN, Leighty, BD, Lipford, WE, Goodman, KZ, Crafton, J, and Gregory, JW, 2016, "Measuring Surface Pressures on Rotor Blades Using Pressure Sensitive Paint," *AIAA Journal*, v. 54, no. 1, pp. 206-215, doi: [10.2514/1.J054191](https://doi.org/10.2514/1.J054191). **IF: 1.207**
39. Tomac, MN* and Gregory, JW, 2016, "Internal Flow Physics of a Fluidic Oscillator in the Transition Regime," *Atomization and Sprays*, v. 26, no. 7, pp. 673-686, doi: [10.1615/AtomizSpr.2015012652](https://doi.org/10.1615/AtomizSpr.2015012652). **IF: 0.781**
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 53. Peng, D* and Gregory, JW, 2014, “Experimental Study of Vortex Dynamics during Blade-Vortex Interactions,” 52nd AIAA Aerospace Sciences Meeting (AIAA 2014-1284), National Harbor, MD, January 13-17, 2014.† doi: [10.2514/6.2014-1284](https://doi.org/10.2514/6.2014-1284)
 54. Hird, K*, Frankhouser, M*, Gregory, JW, and Bons, JP, 2014, “Compressible Dynamic Stall of an SSC-A09 Airfoil Subjected to Coupled Pitch and Freestream Mach Oscillations,” Paper No. 19, American Helicopter Society 70th Annual Forum, Montreal, Quebec, Canada, May 20-22, 2014.†#
 55. McCrink, MH* and Gregory, JW, 2014, “Flight Test Protocol for Electric Powered Small Unmanned Aerial Systems,” AIAA Atmospheric Flight Mechanics Conference (AIAA 2014-2814), Atlanta, GA, June 16-20, 2014.† doi: [10.2514/6.2014-2814](https://doi.org/10.2514/6.2014-2814)
 56. Tomac, MN* and Gregory, JW, 2014, “Internal Flow Physics of a Fluidic Oscillator in the Transition Regime,” *Invited Paper and Presentation* at the Active Flow and Combustion Control 2014 conference, Technische Universität Berlin, Berlin, Germany, September 10-12, 2014.†# doi: [10.14279/depositonce-37](https://doi.org/10.14279/depositonce-37)
 57. Disotell, KJ* and Gregory, JW, 2015, “Time-Resolved Measurements of Cellular Separation on a Stalling Airfoil,” 53rd AIAA Aerospace Sciences Meeting (AIAA 2015-1501), Kissimmee, FL, January 5-9, 2015.† doi: [10.2514/6.2015-1501](https://doi.org/10.2514/6.2015-1501)
 58. Pandey, A* and Gregory, JW, 2015, “Dynamic Response Characteristics of Polymer/Ceramic Pressure-Sensitive Paint,” 53rd AIAA Aerospace Sciences Meeting (AIAA 2015-0021), Kissimmee, FL, January 5-9, 2015.†# doi: [10.2514/6.2015-0021](https://doi.org/10.2514/6.2015-0021)

59. Naigle, S*, Frankhouser, M*, Hird, K*, Bons, JP, and Gregory, JW, 2015, "Blowing Flow Control of Dynamic Stall under Coupled Pitch and Freestream Oscillations," Paper No. 125, American Helicopter Society 71st Annual Forum, Virginia Beach, VA, May 5-7, 2015.†
60. Hird, K*, Frankhouser, M*, Naigle, S*, Gregory, JW, and Bons, JP, 2015, "Study of an SSC-A09 Airfoil in Compressible Dynamic Stall with Freestream Mach Oscillations," Paper No. 311, American Helicopter Society 71st Annual Forum, Virginia Beach, VA, May 5-7, 2015.†
61. Disotell, KJ*, Nikoueeayan, P, Naughton, J, and Gregory, JW, 2015, "Single-Shot Pressure-Sensitive Paint Measurements of Static and Dynamic Stall on a Wind Turbine Airfoil," Paper No. 38, American Helicopter Society 71st Annual Forum, Virginia Beach, VA, May 5-7, 2015.†#
62. McCrink, MH* and Gregory, JW, 2015, "Blade Element Momentum Modeling of Low-*Re* Small UAS Electric Propulsion Systems," AIAA Aviation Forum, 33rd AIAA Applied Aerodynamics Conference (AIAA 2015-3296), Dallas, TX, June 22-26, 2015.†# doi: [10.2514/6.2015-3296](https://doi.org/10.2514/6.2015-3296)
63. Frankhouser, M* and Gregory, JW, 2015, "Nanosecond Dielectric Barrier Discharge Plasma Actuator Flow Control of Compressible Dynamic Stall," AIAA Aviation Forum, 46th AIAA Plasmadynamics and Lasers Conference (AIAA 2015-2341), Dallas, TX, June 22-26, 2015.† doi: [10.2514/6.2015-2341](https://doi.org/10.2514/6.2015-2341)
64. Pandey, A* and Gregory, JW, 2015, "Step Response of Polymer/Ceramic Pressure Sensitive Paint", 10th Pacific Symposium on Flow Visualization and Image Processing ([PSFVIP 10-49](#)), Naples, Italy, June 15-18, 2015.†#
65. Pandey, A*, Gregory, JW, Stanfield, S, and Crafton, J, 2016, "Comparison of Blur Elimination Techniques for PSP Images of Rotating Surfaces," 54th AIAA Aerospace Sciences Meeting (AIAA 2016-2019), San Diego, CA, January 4-8, 2016.† doi: [10.2514/6.2016-2019](https://doi.org/10.2514/6.2016-2019)
66. Gregory, JW and McCrink, MH*, 2016, "Accuracy of Smartphone-Based Barometry for Altitude Determination in Aircraft Flight Testing," 54th AIAA Aerospace Sciences Meeting (AIAA 2016-0270), San Diego, CA, January 4-8, 2016.† doi: [10.2514/6.2016-0270](https://doi.org/10.2514/6.2016-0270)
67. Naigle, SC*, Frankhouser, MW*, Williams, K*, Gregory, JW, and Bons, JP, 2016, "Experimental Modeling of Compressible Dynamic Stall in Unsteady Flow through Interpolation of Phase-Matched Conditions in Steady Flow," AHS Specialists' Conference on Aeromechanics Design for Vertical Lift, January 20-22, 2016, Fisherman's Wharf, San Francisco, California.†
68. Naigle, SC*, Frankhouser, MW*, Gregory, JW, and Bons, JP, 2016, "Effects of Time-Varying Flow Velocity on Steady Blowing Flow Control for a Pitching Airfoil," American Helicopter Society 72nd Annual Forum, West Palm Beach, FL, May 17-19, 2016.†

69. Lorber, PF, Bowles, PO, Berezin, CR, Scott, MW, Hird, K*, Frankhouser, M*, Bons, JP, and Gregory, JW, 2016, "Compressible Dynamic Stall Alleviation Through High Momentum Steady Blowing," American Helicopter Society 72nd Annual Forum, West Palm Beach, FL, May 17-19, 2016.†
70. Metka, M*, Gregory, J, McKillen, J, 2016, "Investigation of Fluidic Oscillator Flow Control for Ground Vehicles," Second International Conference in Numerical and Experimental Aerodynamics of Road Vehicles and Trains (Aerovehicles 2), Goteborg, Sweden, June 21-23, 2016.†
71. Hossain, MA, Prenter, R, Agricola, LM, Lundgreen, RK, Ameri, A, Gregory, JW, and Bons, JP, 2017, "Effects of Roughness on the Performance of Fluidic Oscillators," 55th AIAA Aerospace Sciences Meeting (AIAA 2017-0770), Grapevine, TX, January 9-13, 2017.† doi: [10.2514/6.2017-0770](https://doi.org/10.2514/6.2017-0770)
72. Lundgreen, RK, Hossain, MA, Prenter, R, Bons, JP, Gregory, J, and Ameri, A, 2017, "Impingement Heat Transfer Characteristics of a Sweeping Jet," 55th AIAA Aerospace Sciences Meeting (AIAA 2017-1535), Grapevine, TX, January 9-13, 2017.† doi: [10.2514/6.2017-1535](https://doi.org/10.2514/6.2017-1535)
73. McCrink, MH* and Gregory, JW, 2017, "Range and Endurance Estimation for Low-Re Electric UAS," 55th AIAA Aerospace Sciences Meeting (AIAA 2017-1214), Grapevine, TX, January 9-13, 2017.† doi: [10.2514/6.2017-1214](https://doi.org/10.2514/6.2017-1214)
74. Hossain, MA, Prenter, R, Lundgreen, RK, Agricola, LM, Ameri, A, Gregory, JW, and Bons, JP, 2017, "Investigation of Crossflow Interaction of an Oscillating Jet," 55th AIAA Aerospace Sciences Meeting (AIAA 2017-1690), Grapevine, TX, January 9-13, 2017.† doi: [10.2514/6.2017-1690](https://doi.org/10.2514/6.2017-1690)
75. Bons, JP, Frankhouser, MW*, and Gregory, JW, 2017, "Synchronized Flow Control of Dynamic Stall under Coupled Pitch and Freestream Oscillations," American Helicopter Society 73rd Annual Forum (Paper number 73-2017-0199), Fort Worth, TX, May 9-11, 2017.†
76. Tomac, MN* and Gregory, JW, 2017, "Phase-Synchronized Fluidic Oscillator Pair," 47th AIAA Fluid Dynamics Conference (AIAA 2017-3314), Denver, CO, June 5-9, 2017.† doi: [10.2514/6.2017-3314](https://doi.org/10.2514/6.2017-3314)
77. McCrink, M* and Gregory, JW, 2017, "Aerodynamic Parameter Estimation for Derived Angle of Attack Systems," AIAA Atmospheric Flight Mechanics Conference (AIAA 2017-4061), Denver, CO, June 5-9, 2017.† doi: [10.2514/6.2017-4061](https://doi.org/10.2514/6.2017-4061)
78. Hossain, MA, Prenter, R, Lundgreen, RK, Ameri, A, Gregory, JW, and Bons, JP, 2017, "Experimental and Numerical Investigation of Sweeping Jet Film Cooling," Proceedings of

the ASME Turbo Expo 2017: Turbomachinery Technical Conference and Exposition, GT2017-64479, Charlotte, NC, June 26-30, 2017. ‡ #

79. Agricola, L, Hossain, MA, Prenter, R, Lundgreen, R, Ameri, A, Gregory, J, and Bons, JP, 2017, "Impinging Sweeping Jet Heat Transfer," 53rd AIAA/SAE/ASME Joint Propulsion Conference (AIAA 2017-4974), Atlanta, GA, July 10-12, 2017.† doi: [10.2514/6.2017-4974](https://doi.org/10.2514/6.2017-4974)
80. Hossain, MA, Agricola, LM, Ameri, A, Gregory, JW, and Bons, JP, 2018, "Effects of Curvature on the Performance of Sweeping Jet Impingement Heat Transfer," 2018 AIAA Aerospace Sciences Meeting (AIAA 2018-0243), Kissimmee, FL, January 8-12, 2018.† doi: [10.2514/6.2018-0243](https://doi.org/10.2514/6.2018-0243).
81. McCrink, MH* and Gregory, JW, 2018, "Design and Development of a High-Speed UAS for Beyond Visual Line-of-Sight Operations," 2018 AIAA Aerospace Sciences Meeting (AIAA 2018-0750), Kissimmee, FL, January 8-12, 2018.†# doi: [10.2514/6.2018-0750](https://doi.org/10.2514/6.2018-0750).
82. Pandey, A*, Sutkowy, M*, McCrink, MH* and Gregory, JW, 2018, "Aerodynamic Study of a Quad-Rotor Helicopter using Pressure-Sensitive Paint," 2018 AIAA Aerospace Sciences Meeting (AIAA 2018-1526), Kissimmee, FL, January 8-12, 2018.† doi: [10.2514/6.2018-1526](https://doi.org/10.2514/6.2018-1526).
83. Sutkowy, ML, Jr.*, Pandey, A*, McCrink, MH* and Gregory, JW, 2018, "Rotor Wake Structure Development in Low Reynolds Number Conditions," 2018 AIAA Aerospace Sciences Meeting (AIAA 2018-1830), Kissimmee, FL, January 8-12, 2018.† doi: [10.2514/6.2018-1830](https://doi.org/10.2514/6.2018-1830).
84. Wang, Z, Pandey, A*, Sutkowy, M*, Harter, B*, McCrink, MH*, Gregory, JW, and Zhuang, M, 2018, "A Comprehensive Approach to Study Aerodynamic and Aeroacoustic Performances of Small Multicopter Unmanned Aerial Systems," 2018 AIAA Aerospace Sciences Meeting (AIAA 2018-0268), Kissimmee, FL, January 8-12, 2018.†# doi: [10.2514/6.2018-0268](https://doi.org/10.2514/6.2018-0268).
85. Sutkowy, ML, Jr.*, Harter, B*, McCrink, MH*, and Gregory, JW, 2018, "Impact of Wake Structure Characteristics on Small-Scale Rotor Performance over a Range of Reynolds Numbers," American Helicopter Society 74th Annual Forum (Paper number 74-2018-0135), Phoenix, AZ, May 14-17, 2018.†
86. Hossain, MA, Agricola, L, Ameri, A, Gregory, JW, and Bons, JP, 2018, "Sweeping Jet Film Cooling on a Turbine Vane," Proceedings of the ASME Turbo Expo 2018: Turbine Technical Conference and Exposition, GT2018-77099, Oslo, Norway, June 11-15, 2018. ‡ #
87. Hossain, MA, Agricola, LM, Ameri, A, Gregory, JW, and Bons, JP, 2018, "Sweeping jet impingement cooling on a simulated turbine vane leading edge," Global Power and Propulsion Conference, Montreal Canada, GPPS2018-0148. ‡# doi: [10.5281/zenodo.1342688](https://doi.org/10.5281/zenodo.1342688).

88. Lee, H*, McCrink, MH*, and Gregory, JW, 2018, "Unmanned Aerial System Framework for Human-Robot Interaction," 2018 AIAA Aviation Forum (AIAA 2018-2984), Atlanta, GA, June 25-29, 2018. † doi: [10.2514/6.2018-2984](https://doi.org/10.2514/6.2018-2984).
89. Zhu, W*, Harter, B*, Gregory, JW, and Bons, JP, 2018, "Characterizing Wave Propagation in an Unsteady Transonic Wind Tunnel," 2018 AIAA Aviation Forum (AIAA 2018-3568), Atlanta, GA, June 25-29, 2018. † doi: [10.2514/6.2018-3568](https://doi.org/10.2514/6.2018-3568).
90. Thorpe, R*, McCrink, MH*, and Gregory, JW, 2018, "Measurement of Unsteady Gusts in an Urban Wind Field using a UAV-based Anemometer," 2018 AIAA Aviation Forum (AIAA 2018-4218), Atlanta, GA, June 25-29, 2018. † doi: [10.2514/6.2018-4218](https://doi.org/10.2514/6.2018-4218).
91. Jiao, L, Chen, Y, Peng, D, Liu, Y, and Gregory, JW, 2018, "Experimental Study of the Interaction between Rotor Wake and a Cylinder in Hover," 2018 AIAA Aviation Forum (AIAA 2018-4214), Atlanta, GA, June 25-29, 2018. † doi: [10.2514/6.2018-4214](https://doi.org/10.2514/6.2018-4214).
92. Hossain, MA, Agricola, LM, Ameri, A, Gregory, J, Bons, JP, "Sweeping jet film cooling on a turbine vane," ASME Turbo Expo 2018, GT2018-77099. ‡# doi: [10.1115/GT2018-77099](https://doi.org/10.1115/GT2018-77099).
93. Agricola, LM, Hossain, MA, Ameri, A, Gregory, J, Bons, JP, "Turbine Vane Leading Edge Impingement Cooling with a Sweeping Jet," ASME Turbo Expo 2018, GT2018-77073. ‡ # doi: [10.1115/GT2018-77073](https://doi.org/10.1115/GT2018-77073).
94. Hossain, MA, Agricola, LA, Ameri, A, Gregory, JW, and Bons, JP, 2018, "Effects of Exit Fan Angle on the Heat Transfer Performance of Sweeping Jet Impingement," 2018 AIAA Propulsion and Energy Forum (AIAA 2018-4886), Cincinnati, OH, July 9-11, 2018. ‡# doi: [10.2514/6.2018-4886](https://doi.org/10.2514/6.2018-4886).
95. Lee, H*, McCrink, M*, and Gregory, JW, 2019, "Visual-Inertial Odometry for Unmanned Aerial Vehicle using Deep Learning," 2019 AIAA SciTech (AIAA 2019-1410), San Diego, CA, January 7-11, 2019. † doi: [10.2514/6.2019-1410](https://doi.org/10.2514/6.2019-1410).
96. Zhu, W*, Bons, JP, and Gregory, JW, 2019, "Reynolds Scaling Effects on Dynamic Stall of VR-7 and VR-12 Airfoils," 2019 SciTech (AIAA 2019-0304), San Diego, CA, January 7-11, 2019. † doi: [10.2514/6.2019-0304](https://doi.org/10.2514/6.2019-0304).
97. Hossain, MA, Ameri, A, Gregory, JW, and Bons, JP, 2019, "Effects of Rotation on a Fluidic Oscillator," 2019 SciTech (AIAA 2019-0885), San Diego, CA, January 7-11, 2019. † doi: [10.2514/6.2019-0885](https://doi.org/10.2514/6.2019-0885) and [10.2514/6.2019-0885.c1](https://doi.org/10.2514/6.2019-0885.c1).
98. Singhal, A*, Thorpe, R*, McCrink, M*, and Gregory, JW, 2019, "Flight Test Vehicle for Determination of Multi-Rotor UAV Trim Conditions," American Helicopter Society 75th Annual Forum (Paper number 75-2019-0391), Phoenix, AZ, May 14-17, 2019. †

99. Harter, B*, McCrink, M*, and Gregory, JW, 2019, "Identification of Lagrangian Coherent Structures using the Background-Oriented Schlieren Method," 2019 AIAA Aviation Forum (AIAA 2019-2810), Dallas, TX, June 17-21, 2019.† doi: [10.2514/6.2019-2810](https://doi.org/10.2514/6.2019-2810).
100. Hossain, MA, Asar, ME, Gregory, J, Bons, JP, "Experimental Investigation of Sweeping jet film cooling in a transonic turbine cascade," ASME Turbo Expo 2019, Phoenix, AZ. Paper number: 2019-91678. ‡ # doi: [10.1115/GT2019-91678](https://doi.org/10.1115/GT2019-91678).
101. Hossain, MA, Ameri, A, Gregory, J, Bons, JP, "Sweeping jet film cooling at high blowing ratio on a turbine vane," ASME Turbo Expo 2019, Phoenix, AZ. Paper number: GT2019-91696. ‡ # doi: [10.1115/GT2019-91696](https://doi.org/10.1115/GT2019-91696).
102. Harter, B* and Gregory, JW, 2020, "Lagrangian Coherent Structures in Optimal Vortex Ring Formation," 2020 AIAA SciTech Forum (AIAA 2020-0141), Orlando, FL, January 6-10, 2020.† doi: [10.2514/6.2020-0141](https://doi.org/10.2514/6.2020-0141).
103. Zhu, W*, McCrink, MH*, Bons, JP, and Gregory, JW, 2020, "Aerodynamic Performance and Trailing Edge Flow Physics on an Airfoil in an Oscillating Freestream," 2020 AIAA SciTech Forum (AIAA 2020-1758), Orlando, FL, January 6-10, 2020.† doi: [10.2514/6.2020-1758](https://doi.org/10.2514/6.2020-1758).
104. Hossain, MA, Ameri, A, Gregory, JW, and Bons, JP, 2020, "Experimental Investigation of Innovative Cooling Schemes on an Additively Manufactured Engine Scale Turbine Nozzle Guide Vane," ASME Turbo Expo 2020, Virtual Conference. Paper number: GT2020-15707. ‡ # doi: [10.1115/GT2020-15707](https://doi.org/10.1115/GT2020-15707).
105. Emshoff, BL*, McCrink, MH*, and Gregory, JW, 2021, "Low-Altitude Radar Track Filtering and Classification Using Deep Learning, 2021 AIAA SciTech Forum (AIAA 2021-1411), Virtual Conference, January 11-15 & 19-21, 2021.† doi: [10.2514/6.2021-1411](https://doi.org/10.2514/6.2021-1411).

RESEARCH IMPACT / MEDIA APPEARANCES

Summaries of my research work that have been independently written and published by major publications, or commentary of mine that has appeared in journalism written or broadcast by others.

1. *Nature*, 2006, "[Paint that listens](#)," vol. 439, p. 121, January 12, 2006.
2. *Physics Today*, 2006, "[Pressure-sensitive paint \(PSP\) as an array of optical microphones](#)," vol. 59, no. 3, p. 9, March, 2006.
3. *Aviation Week*, 2017, "[Ohio State Pushes Speed Envelope in UAS Research](#)," by Graham Warwick, September 6, 2017.

4. *Wired*, 2017, "[President Trump Moves to Fill America's Skies with Drones](#)," by Jack Stewart, October 26, 2017.
5. *Washington Post*, 2018, "[While it's extremely rare, here's why it's possible to get sucked out of an airplane](#)," by Lori Aratani and Faiz Siddiqui, April 18, 2018.
6. *Popular Science*, 2018, "[This new system could help air taxis and drone deliveries avoid crashing](#)," by Rob Verger, June 21, 2018.
7. *NPR Marketplace*, 2019, "[Why sit in traffic when you can rideshare a drone?](#)," by Jack Stewart, February 18, 2019.
8. *NPR Marketplace*, 2019, [Uber Copter](#), by Jack Stewart, June 6, 2019.
9. *Curious Kids, The Conversation*, 2019, [How Does a Curveball Curve?](#), by Jim Gregory, October 14, 2019.

ADVISING

Research Scientist Collaborator / Advisee:

- Matt McCrink, Ph.D., 2016 – present. Ph.D. from Ohio State University, M.S. and B.S. from Boise State University.

Postdoctoral Advisees:

- Tom Juliano, Ph.D., 2010 – 2012. Ph.D. and M.S. from Purdue University, B.S. from CalTech. Subsequently NRC postdoctoral fellow at AFRL / Wright-Patterson AFB. Now a tenure-track Assistant Professor at the University of Notre Dame.
- Mohd Yousuf Ali, Ph.D., 2015 – 2016. Ph.D. from Florida State University, M.S. from Birla Institute of Technology (Ranchi, India), and B.S. from Middle East Technical University (Ankara, Turkey). Now a clinical-track faculty member at Florida State University.
- Matt McCrink, Ph.D., 2015 – 2016. Ph.D. from Ohio State University, M.S. and B.S. from Boise State University. Now a research scientist at Ohio State.
- Dhuree Seth, Ph.D., 2020 – present. Ph.D. from Embry-Riddle Aeronautical University.
- Mehmet Tomac, Ph.D., 2016 – 2017. Ph.D. from Ohio State University. Now a tenure-track Assistant Professor at Abdulla Gul University, Kayseri, Turkey.

Ph.D. Advisees:

Current

- Wenbo Zhu, Ph.D. student, 2016 – present, expected: Autumn 2021.

Graduated

- Samik Bhattacharya, 2009 – 2013.
Ph.D. Dissertation: *Investigation of Three Dimensional Forcing of Cylinder Wake with Segmented Plasma Actuators and the Determination of the Optimum Wavelength of Forcing*, December 2013.
Now a tenure-track Assistant Professor at the University of Central Florida, Orlando, FL.
- Kevin Disotell, 2010 – 2015.
Ph.D. Dissertation: *Low-Frequency Flow Oscillations on Stalled Wings Exhibiting Cellular Separation Topology*, December 2015.
Now a tenure-track Assistant Professor at Youngstown State University, Youngstown, OH.
- Matt McCrink, 2011 – 2015.
Ph.D. Dissertation: *Development of Flight-test Performance Estimation Techniques for Small Unmanned Aerial Systems*, December 2015.
Now a research scientist at Ohio State.
- Anshuman Pandey, 2012 – 2019.
Ph.D. Dissertation: *Streamwise Vortices in a Convex Wall Jet*, August 2019.
Now a postdoctoral researcher at Sandia National Lab.
- Di Peng, 2008 – 2014.
Ph.D. Dissertation: *Vortex Dynamics and Induced Pressure/Load Fluctuations During Blade-Vortex Interactions*, December 2014.
Now a tenured Associate Professor at Shanghai Jiao Tong University, Shanghai, China.
- Mehmet Tomac, 2008 – 2012.
Ph.D. Dissertation: *Internal Fluid Dynamics and Frequency Characteristics of Feedback-Free Fluidic Oscillators*, December 2012.
Now a research engineer at Rokestan, Ankara, Turkey.

M.S. Thesis Advisees:

Current

- Isaac Besignor, B.S.-M.S. student, 2020 – present, expected: Spring 2022.
- Brandon Emshoff, M.S. student, 2019 – present, expected: Summer 2021.
- Ross Heidersbach, M.S. student, 2021 – present, expected: Spring 2023.
- David Pitts, M.S. student, 2019 – present, expected: Summer 2021.
- Raymond Tan, M.S. student, 2021 – present, expected: Spring 2023.

Graduated

- George Altamirano, M.S. student, 2018 – 2020.
M.S. Thesis: *Investigation of Longitudinal Aero-Propulsive Interactions of a Small Quadrotor Unmanned Aircraft System*, December 2020.
- Joseph Balla, M.S. student, 2010 – 2012.
M.S. Thesis: *Pressure-Sensitive Paint for Detection of Boundary Layer Transition*, August 2012.

- Casie Clark, M.S. student, 2012 – 2014.
M.S. Thesis: *Body Optimization and Aerodynamic Performance of the Buckeye Bullet 3 Land Speed Race Vehicle*, April 2014.
- Shuo Fang, M.S. student, 2008 – 2010.
M.S. Thesis: *Application of Fast-Responding Pressure-Sensitive Paint to a Hemispherical Dome in Unsteady Transonic Flow*, December 2010.
- Matthew Frankhouser, M.S. student, 2013 – 2015.
M.S. Thesis: *Nanosecond Dielectric Barrier Discharge Plasma Actuator Flow Control of Compressible Dynamic Stall*, December 2015
- Braxton Harter, M.S. student, 2017 – 2019.
M.S. Thesis: *Lagrangian Coherent Structures in Vortex Ring Formation*, August 2019.
- Christopher Jensen, M.S. student, 2010 – 2012.
M.S. Thesis: *Global Pressure and Temperature Surface Measurements on a NACA 0012 Airfoil in Oscillatory Compressible Flow at Low Reduced Frequencies*, March 2012.
- Pradeep Kumar, M.S. student, 2008 – 2010.
M.S. Thesis: *Development of a Single-shot Lifetime PSP Measurement Technique for Rotating Surfaces*, September 2010.
- Elliot Lee, M.S. student, 2017 – 2019.
M.S. Thesis: *Deep Learning for Visual-Inertial Odometry: Estimation of Monocular Camera Ego-Motion and its Uncertainty*, August 2019.
- Matthew Metka, M.S. student, 2013 – 2015.
M.S. Thesis: *Application of Fluidic Oscillator Separation Control to a Square-back Vehicle Model*, December 2015.
- Shawn Naigle, M.S. student, 2014 – 2016.
M.S. Thesis: *Flow Control of Compressible Dynamic Stall using Vortex Generator Jets*, April, 2016. (co-advised with Prof. Bons).
- Mark Sutkowy, M.S. student, 2016 – 2018.
M.S. Thesis: *Relationship between Rotor Wake Structures and Performance Characteristics over a Range of Low-Reynolds Number Conditions*, August 2018.
- Kevin Yugulis, M.S. student, 2010 – 2012 (co-advised with M. Samimy)
College of Engineering Fellowship Awardee
M.S. Thesis: *High Subsonic Cavity Flow Control Using Plasma Actuators*, August 2012.

Undergraduate Honors Thesis Advisees:

- Isaac Bensignor, in progress, 2021.
- Nachiket Deshpande, *Modification of Aircraft to Serve as Humanitarian Mobile Medical Facilities: A Systems Engineering Approach*, 2010.
- Kevin Disotell, *A Semi-Empirical Model of the Wall-Normal Velocity Induced by Flow-Shaping Plasma Actuators*, 2010.
- Matthew Frankhouser, *Study of Shock Wave Boundary Layer Interaction Using Pressure-Sensitive Paint*, 2013.
- Alvaro Hernandez, *Conceptual Design of an Aircraft to Match the Mission Profile of a Mobile Hospital for Humanitarian Service*, 2010.

- David Huynh, *Experimental Design of a Shock Tube For the Time Response Study of Porous Pressure-Sensitive Paint*, 2013.
- Nathan Kidder, *Aerodynamic Impact of Leading Edge Surface Treatments on Wind Turbine Blades*, 2015.
- Samuel Long, *A Temperature Corrected Dual-Luminophore Pressure-Sensitive Paint System*, 2011.
- Ryan McMullen, *The Frequency Response of Porous Polymer/Ceramic Pressure-Sensitive Paint*, 2013.
- Matthew Metka, *An Examination of Active Drag Reduction Methods for Ground Vehicles*, 2013.
- Michael Thomas, *Experimental Determination and Validation of sUAS Moments of Inertia*, 2020.

TEACHING EXPERIENCE

Introduction to Aerospace Engineering I (Aero Eng 200 / 2200, OSU)

- Autumn Quarter 2008, 34 students. Overall Rating: **4.8 / 5.0** (College avg: 4.3 / 5.0).
- Autumn Quarter 2009, 112 students. Overall Rating: **4.7 / 5.0** (College avg: 4.1 / 5.0). *Significant development of new course material (lecture and labs).*
- Autumn Quarter 2010, 132 students. Overall Rating: **4.7 / 5.0** (College avg: 4.0 / 5.0).
- Autumn Semester 2012, 120 students. Overall Rating: **4.7 / 5.0** (College avg: 4.0 / 5.0).
- Autumn Semester 2013, 134 students. Overall Rating: **4.4 / 5.0** (College avg: 4.1 / 5.0).
- Autumn Semester 2015, 154 students. Overall Rating: **4.2 / 5.0** (College avg: 4.0 / 5.0).
- Autumn Semester 2016, 169 students. Overall Rating: **4.3 / 5.0** (College avg: 4.1 / 5.0).
- Autumn Semester 2017, 144 students. Overall Rating: **3.6 / 5.0** (College avg: 4.1 / 5.0). *Classroom managed by a TA, while I focused entirely on development of new video recordings (in a studio) of lecture content, to be used in future years.*
- Autumn Semester 2018, 123 students. Overall Rating: **4.5 / 5.0** (College avg: 4.2 / 5.0).
- Autumn Semester 2019, 142 students. Overall Rating: **4.3 / 5.0** (College avg: 4.2 / 5.0).

Introduction to Aerospace Engineering II (Aero Eng 201, OSU)

- Winter Quarter 2012, 97 students. Overall Rating: **4.7 / 5.0** (College avg: 4.0 / 5.0). *Significant development of new course material (lecture and labs).*

Thermodynamics (Aero Eng 405, OSU)

- Spring Quarter 2008, 73 students. Overall Rating: **4.7 / 5.0** (College avg: 4.1 / 5.0). *Significant development of new course material.*
- Spring Quarter 2009, 56 students. Overall Rating: **4.7 / 5.0** (College avg: 4.3 / 5.0).

Preliminary Design of Atmospheric Flight Vehicles I (Aero Eng 515.01, OSU)

- Autumn Quarter 2009, 38 students. Overall Rating: **4.5 / 5.0** (College avg: 4.3 / 5.0). *Significant development of new course material.*

Detailed Design of Atmospheric Flight Vehicles (Aero Eng 517.01, OSU)

- Spring Quarter 2010, 36 students. Overall Rating: **4.2 / 5.0** (College avg: 4.2 / 5.0). *Significant development of new course material.*

Aircraft Flight Test Engineering (Aero Eng 612 / 5612, OSU)

- Spring Quarter 2010, 15 students. Overall Rating: **4.4 / 5.0** (College avg: 4.5 / 5.0). *Significant development of new course material.*
- Spring Quarter 2011, 15 students. Overall Rating: **4.0 / 5.0** (College avg: 4.5 / 5.0).
- Spring Semester 2013, 20 students. Overall Rating: **4.6 / 5.0** (College avg: 4.3 / 5.0).
- Spring Semester 2014, 19 students. Overall Rating: **5.0 / 5.0** (College avg: 4.5 / 5.0).
- Spring Semester 2017, 20 students. Overall Rating: **5.0 / 5.0** (College avg: 4.5 / 5.0).
- Spring Semester 2018, 20 students. Overall Rating: **4.8 / 5.0** (College avg: 4.6 / 5.0).
- Spring Semester 2019, 20 students. Overall Rating: **4.3 / 5.0** (College avg: 4.3 / 5.0).

Helicopter Aerodynamics (Aero Eng 694, OSU)

- Spring Quarter 2012, 15 students, Overall Rating: **4.7 / 5.0** (College avg: 4.5 / 5.0). *New course development.*

Experimental Fluid Mechanics (Aero Eng 860 / 6860, OSU)

- Winter Quarter 2009, 15 students. Overall Rating: **4.7 / 5.0** (College avg: 4.4 / 5.0). *Developed completely new graduate course (lecture and labs).*
- Winter Quarter 2011, 15 students. Overall Rating: **4.5 / 5.0** (College avg: 4.3 / 5.0).
- Spring Semester 2016, 14 students. Overall Rating: **4.6 / 5.0** (College avg: 4.5 / 5.0).

Aeronautical Laboratory (Aero 471, USAFA), Fall Semester 2006. 13 students. Supervised six funded research projects with intense student participation.

PROFESSIONAL SOCIETY MEMBERSHIPS

American Institute of Aeronautics and Astronautics (AIAA)
 American Helicopter Society (AHS)
 American Society of Mechanical Engineers (ASME)
 American Society for Engineering Education (ASEE)
 Royal Aeronautical Society (RAeS)

SELECTED PROFESSIONAL SERVICE

Associate Editor, International Journal of Flow Control, 2008 – 2016.

AIAA Atmospheric Flight Mechanics Technical Committee, 2020 – present.

AIAA Fluid Dynamics Technical Committee, 2007 – 2013.

Chair of Student Outreach Subcommittee, 2007 – 2013

Conference Organization:

- **Technical Chair and Conference Organizer, 6th AIAA Flow Control Conference**, New Orleans, Louisiana, summer 2012. Organized two invited sessions.
- **Co-organizer, 4th AIAA Flow Control Conference**, Seattle, Washington, 2008.
- **Co-organizer, 49th AIAA Aerospace Sciences Meeting**, Fluid Dynamics sessions, Orlando, Florida, 2011.
- Co-organized the “Drones as Disruption” Symposium, <http://glenn.osu.edu/drones/>, on November 6, 2015. This event featured internationally-recognized invited experts in the areas of drone technology, policy, and law to speak on the interdisciplinary challenges of drone regulation.

Reviewer for:

Journal of Fluid Mechanics

Physics of Fluids

Experiments in Fluids

Experimental Thermal and Fluid Science

AIAA Journal

Journal of Aircraft

International Journal of Flow Control

Journal of Applied Physics

Journal of Fluids Engineering

Journal of Micromechanics and Microengineering

Journal of Propulsion and Power

Journal of Vibration and Acoustics

Journal of Visualization

Theoretical and Computational Fluid Dynamics

Measurement Science & Technology

Microfluidics and Nanofluidics

Proc. of the Institution of Mechanical Engineers, Part G, J. of Aerospace Engineering

Proc. of the Institution of Mechanical Engineers, Part C, J. of Mechanical Engineering Science

Sensors

Sensors & Actuators: B. Chemical

National Aeronautics and Space Administration, *Innovation in Aeronautics Instruction*

AIAA Fluid Dynamics Conference

AIAA Flow Control Conference

AIAA Aerospace Sciences Meeting

SAE World Congress

ASME International Gas Turbine Institute, Turbo Expo

DoD / ASEE SMART Scholarship Program

Army Research Office proposals

CRDF-Siberian Branch of the Russian Academy of Science Joint Basic Research Competition

United States-Israel Binational Science Foundation

Natural Sciences and Engineering Research Council of Canada