

EDUCATION

- 2016** **University of Illinois at Urbana-Champaign, Urbana, IL**
Ph.D. in Aerospace Engineering
Dissertation: “The Effects of Turbulence on the Measurements of Five-Hole Probes” under the advisement of Prof. Michael Bragg
- 2012** **University of Illinois at Urbana-Champaign, Urbana, IL**
M.S. in Aerospace Engineering
Thesis: “Aerodynamics of a Swept Wing with Leading-Edge Ice at Low Reynolds Numbers” under the advisement of Prof. Michael Bragg
- 2010** **Lehigh University, Bethlehem, PA**
B.S. in Mechanical Engineering
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RESEARCH EXPERIENCE

- 2016 - Current** **Rensselaer Polytechnic Institute, Center for Flow Physics and Control**
- Postdoctoral Researcher
 - Experimentally investigating the use of dynamically oscillating surfaces to actively delay boundary layer transition
- 2010 - 2016** **University of Illinois at Urbana-Champaign, Aircraft Icing & Aerodynamics Research Group**
- Graduate Researcher
 - Performed experimental, aerodynamic, subsonic wind tunnel testing using pressure and force balance measurements, surface oil flow visualization, pressure-sensitive paint, hotwire anemometry and five-hole pressure probes to study the effects of leading-edge ice on swept wing aerodynamics
 - Experimentally studied and theoretically modeled the effects of turbulence on the measurements of five-hole pressure probes
 - Experimentally studied the aerodynamics of splitter plate geometries used for semi-span wing testing in wind tunnels
 - Utilized high-speed Schlieren imaging and quantitative image processing to investigate the unsteady interaction between shear-layer vortices and shockwaves in the flowfield of an under-expanded jet impinging on a flat plate
 - Designed and constructed an optical parametric oscillator for spectroscopy experiments
 - Utilized a split-film anemometer to experimentally study the flowfield of a burst wake over a multi-element airfoil
- 2009 - 2010** **Lehigh University, Lehigh Hopper Spacecraft Team**
- Undergraduate Researcher
 - Led a team of undergraduates in the design, fabrication and testing of a quad-rotor to test the controls and navigation system of a future spacecraft concept
 - Assisted in the development of the feedback control system
- 2009** **NASA Glenn Research Center, Aircraft Icing Branch**
- Summer intern
 - Supported the operational development of the Vertical Icing Studies Wind Tunnel
 - Experimentally investigated the baseline flow characteristics of the tunnel
 - Tested several passive flow control devices in order to improve the flow characteristics
- 2008** **University of Minnesota, Turbulent Convective Heat Transfer Lab**
- Undergraduate Research Assistant
 - Assisted in the development of a test section designed to simulate the high-pressure rotor stage of a gas turbine
 - Used hotwire anemometry to map the flowfield within the test section
 - Investigated methods to reduce the secondary aerodynamic losses within the turbine

TEACHING/MENTORING EXPERIENCE

- 2015** **AE 298 Graduate Student Mentor, University of Illinois**
Assisted in the development of AE 298, a course designed to expose sophomore-level students to the fundamentals of research.
- 2013-2015** **Illinois Aerospace Institute Summer Camp (IAI), University of Illinois**
Instructor, taught classes in aerodynamics and wind tunnel testing and led demonstrations teaching aerospace concepts to high school students during a weeklong summer camp.
- 2014** **Graduate Teaching Fellow, University of Illinois**
Taught Aircraft Performance and Stability, a senior-level technical elective. Responsible for developing and presenting lectures, homework assignments and exams.
- 2011-2016** **Graduate Student Mentor, Aircraft Icing & Aerodynamics Research Group**
Mentored a total of nine undergraduates in various research projects related to the goals of the research group. Assisted in preparation for research symposiums and graduate school applications
- 2008-2010** **Peer Tutor, Lehigh University**
Tutored groups of up to five undergraduates in several mechanical engineering courses
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HONORS AND AWARDS

- 2014** **Aerospace Engineering Graduate Teaching Fellowship, University of Illinois**
The highest teaching honor awarded to doctoral students by the Aerospace Engineering Department at the University of Illinois. The responsibilities of the fellowship included preparing and teaching a senior-level technical elective course
- 2013 - 2014** **Mavis Future Faculty Fellowship, University of Illinois**
Awarded by the College of Engineering at the University of Illinois to advanced doctoral students to facilitate the training of future engineering faculty
- 2009** **Star Tutor Award**
Awarded to outstanding peer tutors at Lehigh University
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PUBLICATIONS

- 2016** **Diebold, J.M.**, "The Effects of Turbulence on the Measurements of Five-Hole Probes", PhD Dissertation, Department of Aeronautical and Astronautical Engineering, University of Illinois, Urbana, IL.
- 2015** **Diebold, J.M.** and Bragg, M.B., "Wake Survey Technique for Iced Swept Wing Aerodynamics," *AIAA Journal*, Vol. 53, No. 6.
- 2015** **Diebold, J.M.**, Woodard, B.S., Monastero, M.C., and Bragg, M.B., "Experimental Study of Splitter Plates for Use with Semispan Wing Models," AIAA Paper, AIAA 2015-1227.
- 2014** **Diebold, J.M.** and Elliott, G., "High-Speed Schlieren Imaging of a High-Speed Jet Impinging on a Flat Plate," AIAA Paper, AIAA 2014-3094.
- 2014** Pomeroy, B.W., **Diebold, J.M.**, Ansell, P.J. and Selig, M.S., "A Study of Burst Wakes in a Multielement Airfoil Flowfield," *AIAA Journal*, Vol. 52, No. 4.
- 2013** **Diebold, J.M.** Broeren, A.P. and Bragg, M.B., "Aerodynamic Classification of Swept-Wing Ice Accretion," AIAA Paper, AIAA 2013-2825.
- 2013** Broeren, A.P., **Diebold, J.M.** and Bragg, M.B., "Aerodynamic Classification of Swept-Wing Ice Accretion," NASA/TM – 2013-216381 also DOT/FAA/TC-13/21
- 2013** Pomeroy, B.W., **Diebold, J.M.**, Ansell, P.J. and Selig, M.S., "A Study of Burst Wakes in a Multielement Airfoil Flowfield," AIAA Paper, AIAA 2013-2919.
- 2013** **Diebold, J.M.** and Bragg, M.B., "Study of a Swept Wing with Leading-Edge Ice Using a Wake Survey Technique," AIAA Paper, AIAA 2013-0245.
- 2012** **Diebold, J.M.**, "Aerodynamics of a Swept Wing with Leading-Edge Ice at Low Reynolds Numbers", M.S. Thesis, Department of Aeronautical and Astronautical Engineering, University of Illinois, Urbana, IL.
- 2012** **Diebold, J.M.**, Monastero, M.C., and Bragg, M.B., "Aerodynamics of a Swept Wing with Ice Accretion at Low Reynolds Number," AIAA Paper, AIAA 2012-2795.
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