MARIANNE MONASTERO

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EDUCATION

2014 - 2018 **Rensselaer Polytechnic Institute (RPI), Troy, NY**
Ph.D. in Aeronautical Engineering
Thesis: "Flow Physics and Sensitivity Study of Synthetic Jets-Based Flow Control of 3-D Configurations" under the advisement of Prof. Michael Amitay

2011 - 2013 **University of Illinois at Urbana-Champaign (UIUC), Urbana, IL**
M.S. in Aerospace Engineering
Thesis: "Validation of 3-D Ice Accretion Documentation and Replication Method Including Pressure-Sensitive Paint" under the advisement of Prof. Michael Bragg

2007 - 2011 **Rensselaer Polytechnic Institute (RPI), Troy, NY**
B.S. in Aeronautical and Mechanical Engineering

RESEARCH/PROFESSIONAL EXPERIENCE

2018 - Present **Pratt & Whitney, Turbine Aerodynamics**
- Senior Engineer

2014 - 2018 **Rensselaer Polytechnic Institute, Center for Flow Physics and Control**
- Graduate Researcher
- Experimentally analyzed flow physics of the interactions of synthetic jet flow control with swept and separated flows for applications to aircraft wings and tails
- Designed interchangeable wind tunnel model based on vertical tail geometry
- Mentored and supervised undergraduate student researchers
- Performed various experimental techniques in a subsonic wind tunnel including stereo particle image velocimetry (SPIV), particle image velocimetry (PIV), pressure measurements, hotwire measurements, surface oil flow visualization, and tuft flow visualization

2011 - 2013 **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, and pressure-sensitive paint
- Implemented pressure-sensitive paint (PSP) methodology in lab
- Mentored and supervised undergraduate student researchers

2009 - 2011 **Rensselaer Polytechnic Institute, Flow Control Research Lab**
- Undergraduate Researcher
- Supported research and experimentation involving active flow control in wind turbine blades
- Designed wind tunnel model

2010 - 2010 **NASA Langley Aerospace Research Summer Scholars (LARSS), Aeroelasticity Branch**
- Summer intern
- Researched methods of predicting flutter and performed frequency analysis in MATLAB

LEADERSHIP/OUTREACH EXPERIENCE

2014 **Illinois Aerospace Institute Summer Camp (IAI)**
Instructor, taught classes in propulsion and led demonstrations teaching aerospace concepts to high school students during a weeklong summer camp

2012 – 2013 **UIUC Girls Adventures in Mathematics, Engineering, and Science (GAMES)**
Instructor, taught classes in aerodynamics and led demonstrations teaching aerospace concepts to high school women during a weeklong summer camp

2012 **Society of Women Engineers (SWE) Brownie Girl Scout Day Chair**
Led a committee and ran a science day to teach and inspire elementary school girls through science and engineering workshops

HONORS AND AWARDS

2015 **RPI Founders Award of Excellence**, awarded to students with strong academic performance, RPI pride, leadership skills, originality, and imagination

2013 **National Science Foundation (NSF) Graduate Research Fellowship**, awarded to outstanding graduate students who possess intellectual merit and whose research and work aim to have broader impacts

2007 **Girl Scout Gold Award**, highest award in Girl Scouting requiring a minimum of 65 hours, utilizing organizational and leadership skills

PUBLICATIONS

2018 Jansen, K.E., Rasquin, M., Farnsworth, J.A., Rathay, N., **Monastero, M.C.**, and Amitay, M., "Interaction of a Synthetic Jet with Separated Flow over a Vertical Tail," *AIAA Journal*, Vol. 56, No. 7.

2018 Lindstrom, A.M., **Monastero, M.C.**, and Amitay, M., "The Flow Physics of Synthetic Jets Interaction with Flow over a Flapped Airfoil," AIAA Paper, AIAA 2018-4019.

2018 **Monastero, M.C.**, Lindstrom, A., and Amitay, M., "Flow Physics of Synthetic Jets Interaction with a 3-D Separated Flow," *58th Israel Annual Conference on Aerospace Sciences*, Paper ThL1T6.2.

2018 Broeren, A.P., Addy, H,E., Jr., Lee, S., **Monastero, M.C.**, and McClain, S.T., "Three-Dimensional Ice-Accretion Measurement Methodology for Experimental Aerodynamic Simulation," *Journal of Aircraft*, Vol. 55, No. 2.

2017 Jansen, K.E., Rasquin, M., Farnsworth, J.A., Rathay, N., **Monastero, M.C.**, and Amitay, M., "Interaction of a Synthetic Jet Actuator on Separated flow over a Vertical Tail," AIAA Paper, AIAA 2017-3243.

2016 Lindstrom, A., Roman, J., **Monastero, M.**, and Amitay, M., "Effects of Synthetic Jets on Performance Enhancement of an Airfoil Model with a Control Surface," *The MANE Student Research and Design Journal*.

2016 **Monastero, M.C.**, and Amitay, M., "Performance Enhancement of an Airfoil Model with a Control Surface using Synthetic Jets," AIAA Paper, AIAA 2016-3305.

2015 Broeren, A.P., Addy, H.E., Jr., Lee, S., and **Monastero, M.C.**, "Validation of 3-D Ice Accretion Measurement Methodology for Experimental Aerodynamic Simulation," NASA/TM-2015-218724.

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 Broeren, A.P., Addy, H.E., Jr., Lee,S., and **Monastero, M.C.**, "Validation of 3-D Ice Accretion Measurement Methodology for Experimental Aerodynamic Simulation," AIAA Paper, AIAA-2014-2614.

2014 **Monastero, M.C.**, and Bragg, M.B., "Validation of 3-D Ice Accretion Measurement Methodology Using Pressure-Sensitive Paint," AIAA Paper, AIAA 2014-2615.

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.

CONFERENCE PRESENTATIONS

2016 **Monastero, M.C.**, and Amitay, M, "Flow Physics of Synthetic Jet Interactions on a Sweptback Model with a Control Surface," 69th Annual Meeting of the APS Division of Fluid Dynamics, Vol. 61, No. 20, Portland, OR, 2016.

2016 **Monastero, M.C.**, and Amitay, M., "Performance Enhancement of an Airfoil Model with a Control Surface using Synthetic Jets," AIAA 8th Flow Control Conference, Washington, DC, 2016.

2015 **Monastero, M.C.**, Lindstrom, A., Beyar, M., and Amitay, M., "Parametric Study of Synthetic-Jet-Based Flow Control on a Vertical Tail Model," 68th Annual Meeting of the APS Division of Fluid Dynamics, Vol. 60, No. 21, Boston, MA, 2015.

2014 **Monastero, M.**, Rathay, N., Whalen, E., and Amitay, M., "Effect of Synthetic Jet Actuator Spacing on the Performance Enhancement of a Vertical Tail Model," 67th Annual Meeting of the APS Division of Fluid Dynamics, Vol. 59, No. 20, San Francisco, CA, 2014.

2014 **Monastero, M.C.**, and Bragg, M.B., "Validation of 3-D Ice Accretion Measurement Methodology Using Pressure Sensitive Paint," AIAA 6th Atmospheric and Space Environments Conference, Atlanta, GA, 2014.

2014 **Monastero, M.**, Rathay, N., Amitay, M., and Whalen, E., "Effect of Synthetic Jet Spacing on Performance Enhancement of a Vertical Tail Model," 2014 1000 Islands Fluids Mechanics Meeting, Gananoque, Canada, 2014.