Daniel M. Moore
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PROFILE SUMMARY

Aspiring engineering scientist with experience in a variety of experimental facilities. Special focus is devoted to bluff body aerodynamics, specifically attempting to better understand and predict low-speed flows in order to mitigate unsteady aerodynamic forces experienced by bluff bodies.

EDUCATION

2016 - Present **Rensselaer Polytechnic Institute,** Troy, NY
Ph.D candidate in Mechanical Engineering (expected graduation: Summer 2020)
• Advisors: Michael Amitay & Chris W. Letchford
• Focus: Bluff Body Aerodynamics
• GPA: 3.80

2009 - 2013 **University of Vermont,** Burlington, VT
BSME in Mechanical Engineering
• Concentration: General mechanical engineering

RELEVANT EXPERIENCE

2017 - Present **Model to Full Scale Validation of Peak Pressure Mechanisms,** Wall of Wind, Miami, USA
• NSF award number 1727401, through P.I. Chris Letchford (Dept. of Civil Engineering)
• A high Reynolds number study to identify turbulence characteristics causing intense local suction peaks and façade damage
• Tests to be carried out Florida International University's Wall of Wind (NHERI facility)

2019 - Present **Aerodynamic Loadings of a Slung-Load Body,** Center for Flow Physics and Control, Troy, USA
• Fundamental investigation into the 3D separation on a 3D rectangular body with Stereo-PIV
• A study of laminar/turbulent transition of separating flows under extreme pressure gradients
• A Reynolds number study of the various modes in separated flow. Low Reynolds numbers are studied in the Glycerin channel, high Reynolds numbers in the Large Subsonic Wind Tunnel

2017 **Variable Aspect Ratio Prism,** Center for Flow Physics and Control, Troy, USA
• In-depth investigation into the coupling between separated shear layers with wake dynamics on 2D rectangular prisms
• 2D PIV, and hot wire used to investigate and analyze the transition behavior of separating flows

2016 **2D Square Prism,** Center for Flow Physics and Control, Troy, USA
• 2D PIV measurements focused on the separating shear layer
• Participated in testing of an Active Flow Control strategy to excite shear layer instabilities

2014 **George Washington Bridge,** New York City, USA
• Aeroelastic tests conducted on a force balance on 1:40 scale model to estimate the structural response to hazardous wind conditions
• Full scale measurements conducted to verify the natural frequencies and structural damping of the several different mode shapes of the bridge deck

2013 **Axeltorv 2 Towers,** Copenhagen, DEN
• Simultaneous pressure measurements on 600 channels for a new building in Copenhagen
• Measurements and analysis carried out in Denmark

PROFESSIONAL EXPERIENCE

2016 - Present **Rensselaer Polytechnic Institute,** Troy NY, USA – *Graduate Research Assistant*
• Participated in multiple wind tunnel campaigns
-Utilization of measurement equipment: High-speed Stereo PIV, hotwires, etc.
-Problem solving with DAQ hardware and software (LabView and Matlab)
-Extensive post-processing tools in Matlab associated with vector field analysis

2013 - 2015 **SOH Wind Engineering LLC,** Williston VT, USA – *Mechanical Engineer*
• Co-designed, implemented, and calibrated two dynamic force-balance measurement systems for compatibility in both of the large boundary layer wind tunnels (3m x 3m)
-A vertically oriented balance for building models (6 degree of freedom)
-A horizontally oriented balance for bridge section models (3 degree of freedom)
• Participated in aeroelastic testing & technical reporting of several significant bridge structures:

-George Washington Bridge, New York City, USA
-Bjørnafjorden Crossing, NOR (submersed bridge/tunnel)
-New Point Champlain Bridge, Quebec, CAN

2013 **Svend Ole Hansen ApS,** Copenhagen, DEN – *Engineer*
• Traveled/worked alone in Europe for extended time
• 5 month visit to learn wind tunnel testing/analysis techniques, active roles in major projects:
-Copenhagen arena, Ørestad, DEN
-Axeltorv 2 towers, Copenhagen, DEN

PEER-REVIEWED PUBLICATIONS

2019 Moore D.M., Letchford C.W., & Amitay M. "Energetic Scales in a bluff body shear layer" *Journal of Fluid Mechanics,* vol. 875, pp. 543-575

2018 Moore D.M., Letchford C.W., & Amitay M. "Transitional shear layers on rectangular sections" 15th Conference of the Italian Association for Wind Engineering, Naples Italy, September 9-11 2018

2018 Lander D.C., Moore D.M., Letchford C.W., & Amitay M. "Scaling of transitional square prism shear layers" *Journal of Fluid Mechanics*, vol. 849, pp. 1096-1119

OTHER PROCEEDINGS & PRESENTATIONS

2019 (Pending) Moore D.M., Letchford C.W., & Amitay M. "Understanding the role of turbulent kinetic energy in aerodynamic loading" The 15th International Conference on Wind Engineering, Beijing, China, September 1-6, 2019

2019 Moore D.M., Letchford C.W., & Amitay M. "Production of turbulent kinetic energy in curved shear layers" 11th International Symposium of Turbulence and Shear Flow Phenomena, Southampton, UK, July 30-August 2 2019

2018 Moore D.M., Letchford C.W., & Amitay "Energetic Scales in a bluff body shear layer" 71st Meeting of the American Physical Society, Division of Fluid Dynamics, Atlanta, GA, November 17-20 2018 (presentation only)

2018 Moore D.M., Letchford C.W., & Amitay "Separated shear layer characteristics" AIAA Aviation Forum, Atlanta, GA, November 17-20 2018

2017 Moore D.M., Letchford C.W., & Amitay "Separated shear layer characteristics of rectangular sections" 70th Meeting of the American Physical Society, Division of Fluid Dynamics, Denver, CO, November 19-21 2017 (presentation only)

2017 Moore D.M., Lander D.C., Letchford C.W., & Amitay M. "Characterization of the shear layer instability on the 2D square prism" 7th European-African Conference on Wind Engineering, Liège Belgium, July 3-6 2017

2016 Moore D.M., Lander D.C., Letchford C.W., & Amitay M. "Stability of a separated shear layer on a 2D square prism" 4th AAWE Workshop, Miami FL August 14-16 2016

2016 Lander D.C., Moore D.M., Letchford C.W., & Amitay M. " Bluff body shear layer control of the 2D square prism wake" 8th International Colloquium on Bluff Body Aerodynamics and Applications, Northeastern University, Boston MA June 7-11, 2016

TECHNICAL SKILLS

• Languages & Software: Matlab, Labview, LaTeX, Solidworks, AutoDesk, Microsoft Office
• Personal: Public speaking, Ability to work alone and/or lead a group environment
• Practical: Machine design, simple machining, welding, soldering, construction, experimental setup and design.

TEACHING EXPERIENCE

2016-2017 **Rensselaer Polytechnic Institute (RPI),** Troy, NY
• Strength of Materials, undergraduate
-One recitation class per week (2 hours), grading of weekly home works
-Various substitute lectures throughout the semester
