
Michael A. Meehan

PhD Student
Department of Mechanical Engineering
University of Colorado, Boulder

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Education

- June 2021 **Ph.D. in Mechanical Engineering**, *University of Colorado Boulder*, Boulder, CO, GPA: 3.90/4.0.
Research: Computation fluid dynamics and turbulent combustion.
Advisor: Dr. Peter E. Hamlington.
- May 2017 **B.S. in Mechanical Engineering**, *Pennsylvania State University*, State College, PA, GPA: 3.89/4.0.
Research: Experimental investigation of bluff-body stabilized flames and flow.
Advisor: Dr. Jaqueline O'Connor

Professional Experience

Research Experience

- 2017 - Present **Research Assistant**, *Turbulence and Energy Systems Laboratory*, University of Colorado Boulder.
Advisor: Dr. Peter Hamlington
- 2016 - 2017 **Research Assistant**, *Reacting Flow Dynamics Laboratory*, Pennsylvania State University.
Advisor: Dr. Jacqueline O'Connor

Teaching Experience

- 2017 - 2019 **Guest Lecturer**, *Department of Mechanical Engineering*, University of Colorado Boulder.
Undergraduate Fluid Mechanics. Dates: 04/04/18, 04/06/18, 12/12/19.
Undergraduate Thermodynamics. Dates: 10/14/19.
Graduate Fluid Dynamics. Dates: 10/22/18.
- Spring 2018 **Teaching Assistant**, *Department of Mechanical Engineering*, University of Colorado Boulder.
Instructor: Dr. Jean Hertzberg. Course: Introduction to Fluid Mechanics
- Fall 2017 **Teaching Assistant**, *Department of Mechanical Engineering*, University of Colorado Boulder.
Instructor: Dr. Jeffrey Knutsen. Course: Introduction to Fluid Mechanics

Research Interests

Computational fluid dynamics, turbulent flows, buoyancy-driven flows, modal decompositions.

Publications

Refereed Journal Publications - Published

- [1] Tyler P Dare, Zachary P Berger, Michael Meehan, and Jacqueline O'Connor. Cluster-based reduced-order modeling to capture intermittent dynamics of interacting wakes. *AIAA Journal*, pages 1-9, 2019.
- [2] Michael Meehan, Ankit Tyagi, and Jacqueline O'Connor. Flow dynamics in variable-spacing, three-bluff-body flowfield. *Physics of Fluids*, 2017.

Refereed Journal Publications - In Preparation

- [3] Michael A Meehan, Ryan Darragh, Colin AZ Towery, and Peter E Hamlington. Theoretical derivation of turbulent flame consumption speed using lagrangian trajectories. In preparation, 2020.
- [4] Michael A Meehan, Sam Simons-Wellin, and Peter E Hamlington. Efficient algorithm to perform proper orthogonal decompositions on block-structured adaptively refined grids. In preparation, 2020.

Conference Proceedings - Published

- [5] Michael Meehan, Nicholas T Wimer, Ankit Tyagi, Jacqueline A O'Connor, and Peter Hamlington. Identifying complex dynamics of interacting turbulent jets through modal decompositions. In *AIAA Scitech 2019 Forum*, page 0323, 2019.
- [6] Wyatt Culler, Joseph Crane, Janith Samarasinghe, Michael Meehan, and Jacqueline O'Connor. Effect of flame spacing and flow velocity on the dynamics of three interacting v-flames. In *9th U.S. National Combustion Meeting*, May 2015.

Fellowships

- 2018 – Present **Fellow of National Science Foundation Graduate Research Fellowship Program (NSF GRFP)**, *Reactant Pocket Dynamics in Interacting Turbulent Flames*.
Funding: \$138,000 for three years (\$34,000/yr stipend, \$12,000/yr towards cost-of-education)
- 2018 **Finalist of National Defense Science and Engineering Graduate Fellowship Program (NDSEG)**, *Reduced-Order Modeling of Turbulent Bluff-Body Stabilized Flames*.
- 2017 – 2018 **Dean's Graduate Assistantship**, Department of Mechanical Engineering, University of Colorado Boulder.
Funding: \$21,800 for one year

Leadership Roles

- 2018 – Present **Co-President of the Graduate Engineering Annual Research & Recruitment Symposium**.
Department of Mechanical Engineering, University of Colorado Boulder
- Summer 2019 **Graduate Mentor for Undergraduate Research**, *Project: Efficient Algorithm to Perform Proper Orthogonal Decompositions on Block-Structured Adaptively Refined Grids*.
Department of Mechanical Engineering, University of Colorado Boulder
- 2015 – 2016 **President of the Penn State Triathlon Club**.
Pennsylvania State University

Honors and Awards

- 2019 **Vogel Family Fellowship**, (Award: \$5000).
Department of Mechanical Engineering, University of Colorado Boulder
- 2018 **Outstanding Teaching Assistant**, (Award: \$500).
Department of Mechanical Engineering, University of Colorado Boulder
- 2017 **Outstanding Mechanical Engineering Research Potential Fellowship**, (Award: \$3,000).
Department of Mechanical Engineering, University of Colorado Boulder
- 2017 **Dr. John P. Kardis Department Head's Award for Research and Achievement in Mechanical Engineering**, (Award: \$1,500).
Department of Mechanical Engineering, Pennsylvania State University
- 2016 **First Place Award for Best Project at the Senior Design Showcase**.
Department of Mechanical Engineering, Pennsylvania State University
- 2016 **Louis A Harding Memorial Scholarship**, (Award: \$1,000).
Department of Mechanical Engineering, Pennsylvania State University

Conference Presentations

- [P.1] Synthetic Turbulence Generation Method to Simulate Turbulence Generating Plates. 5th Rocky Mountain Fluid Mechanics Symposium. Boulder, CO, July 29, 2019.
- [P.2] Identifying and Controlling Complex Dynamics in Turbulent Buoyant Jets. 16th Annual Graduate Engineering Annual Research & Recruitment Symposium. Boulder, CO, February 21, 2019.

[P.3] Characterization of Flapping in a Plane Turbulent Buoyant Jet Using Proper Orthogonal Decomposition. 4th Rocky Mountain Fluid Mechanics Symposium. Boulder, CO, August 15, 2018.

Activities

- 2019 Volunteer, 5th Rocky Mountain Fluid Mechanics Symposium. Boulder, CO, July 29, 2019.
- 2018 Volunteer, 4th Rocky Mountain Fluid Mechanics Symposium. Boulder, CO, August 14–15, 2018.
- 2017 Volunteer, 70th Meeting of the Division of Fluid Dynamics, American Physical Society. Denver, CO, November 19–21, 2017.
- 2017–2018 Transportation Committee Member, Mechanical Engineering Graduate Student Research & Recruitment Committee, Department of Mechanical Engineering, University of Colorado Boulder
- 2016–2017 Student Representative for Interviewing Prospective Mechanical Engineering Faculty, Department of Mechanical Engineering, Pennsylvania State University
- 2015–Present Professional Triathlete and Two-Time USA Collegiate Triathlon National Champion