Daniel Floryan

University of Houston
Department of Mechanical Engineering
4226 Martin Luther King Blvd.
Houston, TX 77204

Phone: (713) 743-3557
Email: dfloryan@uh.edu
Homepage: dfloryan.github.io

Experience

University of Houston, Houston, TX — Oct. 2021–
Kalsi Endowed Assistant Professor of Mechanical Engineering

University of Wisconsin–Madison, Madison, WI — Aug. 2019–Aug. 2021
Postdoctoral Research Associate, Advisor: Prof. Michael D. Graham

Princeton University, Princeton, NJ — June 2019–Aug. 2019
Postdoctoral Research Associate, Advisors: Prof. Clarence W. Rowley and Prof. Alexander J. Smits

Princeton University, Princeton, NJ — Feb. 2015–May 2019
Graduate Research Assistant, Advisors: Prof. Clarence W. Rowley and Prof. Alexander J. Smits

Education

Princeton University, Princeton, NJ — 2016–2019
Doctor of Philosophy, Mechanical and Aerospace Engineering
Thesis: Hydromechanics and optimization of fast and efficient swimming
Advisors: Clarence W. Rowley and Alexander J. Smits

Princeton University, Princeton, NJ — 2014–2016
Master of Arts, Mechanical and Aerospace Engineering

Cornell University, Ithaca, NY — 2009–2014
Bachelor of Science, *summa cum laude*, Mechanical Engineering

Cornell University, Ithaca, NY — 2009–2014
Bachelor of Arts, *with distinction in all subjects*, Economics with minor in Mathematics

Awards and Honours

- Cover of Nature Machine Intelligence, 2022
- Kalsi Endowed Professorship, 2021–2026 (University of Houston)
- Inaugural Thomas J. R. Hughes Fellowship, 2021 (USNC/TAM)
- NSF Presenter Fellowship for ICTAM 2020+1, 2021
- Porter Ogden Jacobus Honourific Fellowship[1], 2018–2019 (Princeton University)
- School of Engineering and Applied Science Award for Excellence, 2017 (Princeton University)
- Brit and Eli Harari Post Generals Fellowship, 2017–2018 (Princeton University)
- Sayre Award for Academic Excellence, 2015 (Princeton University)
- Daniel and Florence Guggenheim Foundation Fellowship, 2015–2016 (Princeton University)
- Charles W. Lummis Scholarship, 2014–2015 (Princeton University)
- NSERC Canada Graduate Scholarship, 2014
- Ontario Graduate Scholarship, 2014 (declined)
- The Sibley Prize for highest standing in mechanical engineering program, 2014 (Cornell University)
- Frank O. Ellenwood Prize for highest standing in heat and power courses, 2014 (Cornell University)
- Dean's Honour List, all semesters (Cornell University)
- Killam Canadian Scholarship, 2013 (Cornell University)
- *Phi Beta Kappa* honour society, inducted as a junior, 2013 (Cornell University)
- *Omicron Delta Epsilon* economics honour society, 2013 (Cornell University)
- *Tau Beta Pi* engineering honour society, 2013 (Cornell University, declined)
- ELI Undergraduate Student Research Award, funded by Boeing, 2013 (Cornell University)
- ELI Undergraduate Student Research Award, funded by Boeing, 2012 (Cornell University)
- Undergraduate Student Research Grant, 2012 (Texas A&M University)
- NSERC Undergraduate Student Research Award, 2011
- S.T.A.R. Scholarship, 2009–2010 (Cornell University)
- Governor General's Academic Medal, 2009 (Government of Canada)

[1] The Porter Ogden Jacobus Fellowship is Princeton University's top honour for graduate students

Publications

In Preparation

[1] A. Rehman and D. Floryan. Swimming in a wavy stream.

[2] D. Floryan and C.W. Rowley. Adjoint optimization of fish swimming.

[3] D. Floryan and A.J. Smits. Nonlinear damping in flexible swimmers.

Published

[1] A. Guo, D. Floryan, and M.D. Graham. Self-similar, spatially localized structures in turbulent pipe flow from a data-driven wavelet decomposition. *Journal of Fluid Mechanics*, in press, 2023.

[2] D. Yudin, D. Floryan, and T. Van Buren. Propulsive performance of oscillating plates with time-periodic flexibility. *Journal of Fluid Mechanics*, 959, A31, 2023.

[3] D. Floryan. A fundamental limit on energy savings in controlled channel flow, and how to beat it. *Journal of Fluid Mechanics*, 954, R3, 2023.

[4] D. Floryan and M.D. Graham. Data-driven discovery of intrinsic dynamics. *Nature Machine Intelligence*, 4(12), 1113–1120, 2022.

- Cover image of journal

[5] D. Floryan and M.D. Graham. Discovering multiscale and self-similar structure with data-driven wavelets. *Proceedings of the National Academy of Sciences*, 118(1), e2021299118, 2021.

[6] M.D. Graham and D. Floryan. Exact coherent states and the nonlinear dynamics of wall-bounded turbulent flows. *Annual Review of Fluid Mechanics*, 53, 227–253, 2021 *(invited)*.

[7] T. Van Buren, D. Floryan, L. Ding, L.H.O. Hellström, and A.J. Smits. Turbulent pipe flow response to a step change in surface roughness. *Journal of Fluid Mechanics*, 904, A38, 2020.

[8] D. Floryan, T. Van Buren, and A.J. Smits. Swimmers' wake structures are not reliable indicators of swimming performance. *Bioinspiration and Biomimetics*, 15(2), 024001, 2020.

[9] D. Floryan and C.W. Rowley. Distributed flexibility in inertial swimmers. *Journal of Fluid Mechanics*, 888, A24, 2020.

[10] A. Goza, D. Floryan, and C.W. Rowley. Connections between resonance and nonlinearity in swimming performance of a flexible heaving plate. *Journal of Fluid Mechanics*, 888, A30, 2020.

[11] D. Floryan, T. Van Buren, and A.J. Smits. Large-amplitude oscillations of foils for efficient propulsion. *Physical Review Fluids*, 4(9), 093102, 2019.

[12] T. Van Buren, D. Floryan, and A.J. Smits. Scaling and performance of simultaneously heaving and pitching foils. *AIAA Journal*, 57(9), 3666–3677, 2019 *(invited)*.

[13] D. Floryan and C.W. Rowley. Clarifying the relationship between efficiency and resonance for flexible inertial swimmers. *Journal of Fluid Mechanics*, 853, 271–300, 2018.

[14] D. Floryan, T. Van Buren, and A.J. Smits. Efficient cruising for swimming and flying animals is dictated by fluid drag. *Proceedings of the National Academy of Sciences*, 115(32), 8116–8118, 2018 *(from the cover)*.

- Commentary: G.K. Taylor. Simple scaling law predicts peak efficiency in oscillatory propulsion. *Proceedings of the National Academy of Sciences*, 115(32), 8063–8065, 2018.

[15] T. Van Buren, D. Floryan, N. Wei, and A.J. Smits. Flow speed has little impact on propulsive characteristics of oscillating foils. *Physical Review Fluids*, 3(1), 013103, 2018.

[16] D. Floryan, T. Van Buren, and A.J. Smits. Forces and energetics of intermittent swimming. *Acta Mechanica Sinica*, 33(4), 725–732, 2017 *(invited)*.

[17] D. Floryan, T. Van Buren, C.W. Rowley, and A.J. Smits. Scaling the propulsive performance of heaving and pitching foils. *Journal of Fluid Mechanics*, 822, 386–397, 2017.

[18] T. Van Buren, D. Floryan, D. Quinn, and A.J. Smits. Non-sinusoidal gaits for unsteady propulsion. *Physical Review Fluids*, 2(5), 053101, 2017.

[19] T. Van Buren, D. Floryan, D. Brunner, U. Senturk, and A.J. Smits. Impact of trailing edge shape on the wake and propulsive performance of pitching panels. *Physical Review Fluids*, 2(1), 014702, 2017.

[20] S.T.M. Dawson, M.S. Hemati, D. Floryan, and C.W. Rowley. Lift Enhancement of High Angle of Attack Airfoils Using Periodic Pitching. AIAA Paper 2016–2069.

[21] D. Floryan and J.M. Floryan. Drag reduction in heated channels. *Journal of Fluid Mechanics*, 765, 353–395, 2015.

[22] J.W. Hofferth, R.A. Humble, D. Floryan, and W.S. Saric. High-Bandwidth Optical Measurements of the Second-Mode Instability in a Mach 6 Quiet Tunnel. AIAA Paper 2013-0378.

[23] M.Z. Hossain, D. Floryan, and J.M. Floryan. Drag reduction due to spatial thermal modulations. *Journal of Fluid Mechanics*, 713, 398–419, 2012.

Book Chapters

[1] T. Van Buren, D. Floryan, and A.J. Smits. "Bioinspired underwater propulsors," in *Bioinspired Structures and Design*, editors L. Daniel and W. Soboyejo. Cambridge University Press, 2020.

Presentations

Invited Talks

[1] Center for Fluid Mechanics, Brown University, Providence, RI, USA, June 8, 2023.

[2] Department of Mechanical Engineering and Materials Science, Duke University, Durham, NC, USA, March 16, 2023.

[3] Department of Civil and Environmental Engineering, University of Houston, Houston, TX, USA, November 18, 2022.

[4] Department of Mechanical Engineering, University of Delaware, Newark, DE, USA, November 11, 2022.

[5] Department of Mechanical Engineering, Dalian Maritime University, Dalian, China, September 20, 2022.

[6] AIAA Aviation Forum, Chicago, IL, USA, June 27–July 1, 2022.

[7] Data-Driven Physical Simulation webinar, Lawrence Livermore National Laboratory, Livermore, CA, USA, April 8, 2022.

[8] Intelligent and Bio-Inspired Mechanics online seminar, March 16, 2022.

[9] Department of Mechanical Engineering, Rice University, Houston, TX, USA, February 3, 2022.

[10] School of Physics, Georgia Institute of Technology, Atlanta, GA, USA, November 10, 2021.

[11] Institute of Mechanical Engineering, École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, September 23, 2021.

[12] Department of Mechanical Engineering and Materials Science, Duke University, Durham, NC, USA, March 23, 2021.

[13] Department of Mechanical Engineering, University of British Columbia, Vancouver, BC, Canada, March 16, 2021.

[14] Department of Mechanical Engineering, Carnegie Mellon University, Pittsburgh, PA, USA, March 9, 2021.

[15] School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA, USA, February 18, 2021.

[16] Department of Mechanical Engineering/College of Computing, Massachusetts Institute of Technology, Cambridge, MA, USA, February 11, 2021.

[17] Department of Mechanical Engineering, University of Houston, Houston, TX, USA, February 4, 2021.

[18] Department of Mechanical Engineering, Stanford University, Stanford, CA, USA, January 28, 2021.

[19] Department of Mechanical Engineering and Materials Science, Duke University, Durham, NC, USA, October 28, 2020.

[20] Department of Mechanical and Aerospace Engineering, University of California, Irvine, Irvine, CA, USA, March 10, 2020.

[21] Department of Mechanical Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA, January 27, 2020.

[22] Department of Power and Aeronautical Engineering, Warsaw University of Technology, Warsaw, Poland, November 8, 2019.

[23] Department of Mechanical Engineering and Computer Science, Częstochowa University of Technology, Częstochowa, Poland, November 7, 2019.

[24] Applied and Computational Mathematics Seminar, Department of Mathematics, University of Wisconsin-Madison, Madison, WI, USA, September 13, 2019.

[25] Department of Mechanical Engineering, Massachusetts Institute of Technology, Cambridge, MA, USA, February 21, 2019.

[26] Department of Chemical and Biological Engineering, University of Wisconsin–Madison, Madison, WI, USA, January 31, 2019.

[27] 47th AIAA Fluid Dynamics Conference, Denver, CO, USA, June 5–9, 2017.

Conference Presentations

[1] A. Rehman and D. Floryan. Dynamics and propulsive performance of a flexible oscillating foil in a wavy flow. Proceedings of the 76th Annual Meeting of the American Physical Society, Division of Fluid Dynamics, Washington, DC, USA, November 19–21, 2023.

[2] M. N. Mabrouk and D. Floryan. Group cohesion in the presence of three-dimensional hydrodynamic interactions. Proceedings of the 76th Annual Meeting of the American Physical Society, Division of Fluid Dynamics, Washington, DC, USA, November 19–21, 2023.

[3] T. Chen, D. Floryan, A. Prosperetti, and R. Ostilla Monico. Fully resolved particulate Rayleigh-Bénard convection. Proceedings of the 76th Annual Meeting of the American Physical Society, Division of Fluid Dynamics, Washington, DC, USA, November 19–21, 2023.

[4] D. Yudin, E. Watson, D. Floryan, and T. Van Buren. Optimal stiffness distribution in propulsive plates with time-periodic stiffness. Proceedings of the 76th Annual Meeting of the American Physical Society, Division of Fluid Dynamics, Washington, DC, USA, November 19–21, 2023.

[5] X. An, A. Mittal, D. Floryan, and C.W. Rowley. Swimming fast versus swimming efficiently. Proceedings of the 76th Annual Meeting of the American Physical Society, Division of Fluid Dynamics, Washington, DC, USA, November 19–21, 2023.

[6] D. Floryan. Minimal data-driven models of dynamics via an atlas of charts. Mathematical and Scientific Machine Learning, Providence, RI, USA, June 5–9, 2023.

[7] A. Rehman and D. Floryan. Active heaving and passive pitching of a foil in a wavy stream. DisCoVor Colloquium on Vortex-Dominated Flows, Breckenridge, CO, USA, May 16–19, 2023.

[8] D. Floryan, D. Yudin, and T. Van Buren. Propulsive performance of oscillating plates with time-periodic flexibility. DisCoVor Colloquium on Vortex-Dominated Flows, Breckenridge, CO, USA, May 16–19, 2023.

[9] D. Floryan. A fundamental limit on the balance of power in shear- and pressure-driven channel flow. Proceedings of the 75th Annual Meeting of the American Physical Society, Division of Fluid Dynamics, Indianapolis, IN, USA, November 20–22, 2022.

[10] D. Floryan, A. Guo, and M.D. Graham. Local approaches in physical and state spaces for reduced-complexity modeling of fluid flows. AIAA Aviation Forum, Chicago, IL, USA, June 27–July 1, 2022.

[11] D. Floryan, A. Guo, and M.D. Graham. Discovering spatially localized and multiscale structures in turbulent flows. Proceedings of the 19th U.S. National Congress on Theoretical and Applied Mechanics, Austin, TX, USA, June 19–24, 2022.

[12] D. Floryan and M.D. Graham. Charts and atlases for nonlinear data-driven dynamics on a manifold. Proceedings of the 74th Annual Meeting of the American Physical Society, Division of Fluid Dynamics, Phoenix, AZ, USA, November 21–23, 2021.

[13] D. Floryan, A. Guo, and M.D. Graham. A hierarchy of spatially localized, self-similar structures in turbulent pipe flow. Proceedings of the 74th Annual Meeting of the American Physical Society, Division of Fluid Dynamics, Phoenix, AZ, USA, November 21–23, 2021.

[14] D. Floryan, A. Guo, and M.D. Graham. Discovering localized, multidimensional, and multiscale structure with data-driven wavelets. Proceedings of the 25th International Congress of Theoretical and Applied Mechanics, Milan, Italy, August 22–27, 2021.

[15] D. Floryan and M.D. Graham. Revealing self-similar turbulent structure with a data-driven wavelet decomposition. Proceedings of the 73rd Annual Meeting of the American Physical Society, Division of Fluid Dynamics, Chicago, IL, USA, November 22–24, 2020.

[16] D. Floryan and M.D. Graham. Discovering multiscale structure using data-driven wavelets. Computing in Engineering Forum, Madison, WI, USA, September 29–October 1, 2020.

[17] D. Floryan, X. An, and C.W. Rowley. Efficient optimization of swimming gaits. Proceedings of the 72nd Annual Meeting of the American Physical Society, Division of Fluid Dynamics, Seattle, WA, USA, November 23–26, 2019.

[18] D. Floryan, T. Van Buren, and A.J. Smits. Performance and scaling of flexible inertial swimmers. Proceedings of the 11th International Symposium for Turbulence and Shear Flow Phenomena, Southampton, UK, July 30–August 2, 2019.

[19] D. Floryan and C.W. Rowley. Distributed flexibility in inertial swimmers. ONR MURI Review Meeting, Program Manager: Robert Brizzolara, Princeton, NJ, USA, April 2–3, 2019.

[20] D. Floryan, T. Van Buren, and A.J. Smits. Large-amplitude oscillations of foils for efficient propulsion. ONR MURI Review Meeting, Program Manager: Robert Brizzolara, Princeton, NJ, USA, April 2–3, 2019.

[21] D. Floryan, T. Van Buren, C.W. Rowley, and A.J. Smits. Big and slow: large-amplitude motions for highly efficient swimming. Proceedings of the 71st Annual Meeting of the American Physical Society, Division of Fluid Dynamics, Atlanta, GA, USA, November 18–20, 2018.

[22] D. Floryan and C.W. Rowley. Resonance in linear inviscid swimmers. ONR MURI Review Meeting, Program Manager: Robert Brizzolara, Bethlehem, PA, USA, September 27–28, 2018.

[23] D. Floryan and C.W. Rowley. Optimal stiffness distributions in linear inviscid swimmers. ONR MURI Review Meeting, Program Manager: Robert Brizzolara, Bethlehem, PA, USA, September 27–28, 2018.

[24] D. Floryan, T. Van Buren, and A.J. Smits. The birds and the bees (and the fish). Thousand Islands Fluid Dynamics Meeting, Gananoque, ON, Canada, April 27–29, 2018.

[25] D. Floryan, C.W. Rowley, and A.J. Smits. Distributed flexibility in inertial swimmers. Proceedings of the 70th Annual Meeting of the American Physical Society, Division of Fluid Dynamics, Denver, CO, USA, November 19–21, 2017.

[26] D. Floryan and C.W. Rowley. A framework for distributed flexibility in swimmers. ONR MURI Review Meeting, Program Manager: Robert Brizzolara, Boston, MA, USA, September 19–20, 2017.

[27] D. Floryan, T. Van Buren, C.W. Rowley, and A.J. Smits. Scaling laws for the performance of rigid propulsors intended for underwater locomotion. Proceedings of the 10th International Symposium for Turbulence and Shear Flow Phenomena, Chicago, IL, USA, July 6–9, 2017.

[28] D. Floryan, T. Van Buren, and A.J. Smits. Effects of combining heave, pitch, and flexibility on swimming performance. 47th AIAA Fluid Dynamics Conference, Denver, CO, USA, June 5–9, 2017.

[29] D. Floryan, C.W. Rowley, and A.J. Smits. Adjoint-based optimization of fish swimming gaits. ONR MURI Review Meeting, Program Manager: Robert Brizzolara, Charlottesville, VA, USA, March 9–10, 2017.

[30] D. Floryan, T. Van Buren, C.W. Rowley, and A.J. Smits. Scaling propulsive performance. ONR MURI Review Meeting, Program Manager: Robert Brizzolara, Charlottesville, VA, USA, March 9–10, 2017.

[31] D. Floryan, T. Van Buren, C.W. Rowley, and A.J. Smits. Scaling the propulsive performance of fish-like swimming. Sixth Annual Winter Workshop on Neuromechanics and Dynamics of Locomotion, New Orleans, LA, USA, January 19–20, 2017.

[32] D. Floryan, C.W. Rowley, and A.J. Smits. Adjoint-based optimization of fish swimming gaits. Proceedings of the 69th Annual Meeting of the American Physical Society, Division of Fluid Dynamics, Portland, OR, USA, November 20–22, 2016.

[33] D. Floryan, C.W. Rowley, and A.J. Smits. Towards adjoint-based optimization of fish swimming gaits. ONR MURI Review Meeting, Program Manager: Robert Brizzolara, Princeton, NJ, USA, September 29–30, 2016.

[34] D. Floryan, T. Van Buren, C.W. Rowley, and A.J. Smits. Fundamental analysis for pitch and heave motions. ONR MURI Review Meeting, Program Manager: Robert Brizzolara, Princeton, NJ, USA, September 29–30, 2016.

[35] D. Floryan, C.W. Rowley, and A.J. Smits. Thrust enhancement of oscillating foils. Complex Motion in Fluids Summer School, Zenderen, Netherlands, June 19–24, 2016.

[36] D. Floryan, T. Van Buren, C.W. Rowley, and A.J. Smits. Thrust enhancement of an oscillating foil. Thousand Islands Fluid Dynamics Meeting, Gananoque, ON, Canada, April 22–24, 2016.

[37] D. Floryan, T. Van Buren, C.W. Rowley, and A.J. Smits. Propulsive performance of complex swimming gaits. ONR MURI Review Meeting, Program Manager: Robert Brizzolara, West Chester, PA, USA, March 8–9, 2016.

[38] D. Floryan, T. Van Buren, C.W. Rowley, and A.J. Smits. Effects of actuation waveform shape on the performance of pitching and heaving panels. Proceedings of the 68th Annual Meeting of the American Physical Society, Division of Fluid Dynamics, Boston, MA, USA, November 22–24, 2015.

[39] D. Floryan, C.W. Rowley, and A.J. Smits. Optimizing gaits for fish swimming. ONR MURI Review Meeting, Program Manager: Robert Brizzolara, Bethlehem, PA, USA, September 21–22, 2015.

[40] D. Floryan, T. Van Buren, D.B. Quinn, C.W. Rowley, and A.J. Smits. Effects of actuation waveform shape on the performance of a pitching foil. Thousand Islands Fluid Dynamics Meeting, Gananoque, ON, Canada, May 1–3, 2015.

[41] D. Floryan and J.M. Floryan. Pressure Losses in Heated Channels. Proceedings of The Canadian Society for Mechanical Engineering International Congress 2014, Toronto, ON, Canada, June 1–4, 2014.

[42] D. Floryan and J.M. Floryan. Use of distributed heating for drag reduction. Thousand Islands Fluid Dynamics Meeting, Gananoque, ON, Canada, May 30–June 1, 2014.

Teaching Experience

University of Houston, Houston, TX Spring 2023
Instructor, Fluid Dynamics 2 (MECE 6397)
Graduate-level second course on fluid dynamics for graduate students in physics and engineering.

University of Houston, Houston, TX Spring 2022, Fall 2022
Instructor, Introduction to Fluid Mechanics (MECE 3363)

Introductory fluid mechanics course for mechanical engineers.

Princeton University, Princeton, NJ Spring 2017
Assistant in Instruction, Mechanics of Fluids (MAE 222)
Introductory fluid mechanics course for mechanical engineers.

Princeton University, Princeton, NJ Spring 2016
Assistant in Instruction, Automatic Control Systems (MAE 433)
Lab component of classical/modern controls course for mechanical engineers.

Cornell University, Ithaca, NY Fall 2012
Teaching Assistant, Introductory Fluid Mechanics (MAE 3230)
Introductory fluid mechanics course for mechanical engineers.

Cornell University, Ithaca, NY Fall 2010–Spring 2011
AEW Facilitator, Multivariable Calculus and Differential Equations
Academic Excellence Workshops in multivariable calculus and differential equations.

Outreach and Service

University and Departmental

- **Thermo-Fluids Coffee Hour** 2022–
  Organizer and host of weekly get-together for thermo-fluids community
- **Thermo-Fluids Qualifying Exam Committee** 2022–
  Member of Ph.D. qualifying exam committee in thermo-fluids area
- **Capstone Design** 2022–
  Technical mentor for senior capstone design projects
- **Princeton Alumni Schools Committee** 2022–
  Serving as alumni interviewer for undergraduate admissions
- **MECE Seminar Series** 2021–
  Organizer and host of the Mechanical Engineering department's weekly seminar
- **CBE Computing Seminar Committee** 2020–2021
  Organizer and host of the Chemical and Biological Engineering department's weekly seminar focused on computing
- **GSG MAE Representative** 2016–2019
  The Mechanical and Aerospace Engineering department's representative for the Graduate Student Government
- **MAE Graduate Student Committee** 2016–2019
  Member of the Mechanical and Aerospace Engineering department's graduate student committee, serving as a liaison between graduate students and the department
- **SEAS Orientation on Advising** 2016
  Guided new graduate students in the School of Applied and Engineering Science on navigating the advisor-advisee relationship

- **MAE Committee on Climate and Inclusion** 2015–2019
  Founding member of a committee whose goal is to assess the department's climate for underrepresented groups and make recommendations in the spirit of finding best practices that ensure all members of the department feel respected, included and supported by our community
- **Harlem Prep to Princeton** 2015–2019
  Organizer of an annual trip for Harlem Prep 4th graders in which students participate in lab demos in the Mechanical and Aerospace Engineering department
- **Gas Dynamics Lab Demos** 2015
  Organizer of an annual trip for Chinese middle school- and high school-aged students in which students participate in fluid dynamics lab demos

Professional

Review panels:

- National Science Foundation CBET division

Membership:

- American Institute of Aeronautics and Astronautics
- American Physical Society

Session chair:

- American Physical Society DFD Meeting (2017, 2021)
- USNC/TAM (2022)
- DisCoVor (2023)

Miscellaneous:

- AIAA discussion group on separated flows (2022–)
- American Physical Society DFD Meeting Student Luncheon discussion leader (2022)
- American Physical Society DFD Meeting Student Poster Competition judge (2022)
- Princeton faculty job interview panel (2022)

Reviewing

- AIAA Journal
- AIAA SciTech
- American Control Conference
- Bioinspiration and Biomimetics
- Experimental Thermal and Fluid Science
- Experiments in Fluids
- Fluid Dynamics Research

- Integrative and Comparative Biology
- International Journal of Heat and Fluid Flow
- International Journal of Robotics Research
- Journal of Fluid Mechanics
- Journal of Fluid Mechanics Rapids
- Journal of Fluids and Structures
- Nature Communications
- Nature Machine Intelligence
- Ocean Engineering
- Physical Review E
- Physical Review Fluids
- Physical Review Letters
- Physical Review X Energy
- Physics of Fluids
- PLOS One
- Proceedings of the Royal Society A
- Science Advances
- Scientific Reports
- Theoretical and Computational Fluid Dynamics

Mentorship

Doctoral students

- Freshteh Sotoudeh (UHouston) 2022–
- Abdur Rehman (UHouston) 2022–
- David Yudin (UDelaware), dynamically flexible swimmers 2020–
- Alex Guo (UW-Madison), structure of turbulence 2020–
- Alec Linot (UW–Madison), nonlinear dynamics of turbulence 2019–2021
- Carlos Perez De Jesus (UW–Madison), machine learning for turbulence 2019–2021
- Eric Yu (UW–Madison), fluid-structure interaction at small scales 2019–2021
- Kevin Zeng (UW–Madison), control of turbulence 2019–2021

Master's students

- Rodrigo Lisazo (ISAE-SUPAERO), body effects in fish swimming 2015

Undergraduate students

- Angle Vanegas (UHouston '24), vortex interactions — Spring 2023
- Minha Diwan (UHouston '24), swimmers in waves — Spring 2023
- Nicolas Betancourt (UHouston '22), stochastically excited elastic membrane in flow — Fall 2022
- Anisha Lal (Rice '24), pattern formation in wakes — Summer 2022
- Antonio Matias (UHouston '23), momentum transport in wakes — Fall 2021
- Hoang Le (Princeton '22), energy harvesting using fluid-structure interactions — Summer 2019
- Nick Chen (Princeton '20), energy harvesting using fluid-structure interactions — Summer 2017
- Nathan Wei (Princeton '17), cyber-physical fluids facility — 2016–2017
- Devon Hartsough (Princeton '18), robotic swimmers — Summer 2015
- Emile Oshima (Princeton '17), robotic swimmers — Summer 2015

Thesis committees

- Masoumeh Gharati (UHouston, Ph.D.) — 2023
- Saiprabhath Katchi (UHouston, Ph.D.) — 2022
- Oussama Romdhani (UHouston, M.Sc.) — 2022
- Vignesh Jeganathan (UHouston, Ph.D.) — 2022
- Steven Soriano (UHouston, M.Sc.) — 2022
- Deepak Mangal (UHouston, Ph.D.) — 2021

Last updated: July 31, 2023