

Shreyas Mandre
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Education

12/2006 Ph.D. Mathematics, The University of British Columbia
12/2002 M.S. Mechanical Engineering, Northwestern University
8/2000 B.Tech. Mechanical Engineering, Indian Institute of Technology Bombay

Professional Appointments

10/2025- Fellow, Queens' College, University of Cambridge
5/2023- University Associate Professor, Department of Engineering, University of Cambridge
8/2019-4/2023 Associate Professor, Mathematics Institute, University of Warwick
9/2010-6/2019 Assistant Professor, School of Engineering, Brown University
9/2009-8/2010 Research Associate, School of Engineering and Applied Sciences, Harvard University
9/2006-8/2009 Lecturer in Applied Mathematics, School of Engineering and Applied Sciences, Harvard University

External Grants

2022-2025	co-PI: Leverhulme Standard Grant <i>Investigating the role of bulk cytoplasmic flow in germlasm distribution</i> with PI: Karun Sampath.	£282k
2013-2017	co-PI: Human Frontier Science Program Young Investigator Award <i>The mechanics of the foot,</i> with PI:Madhusudhan Venkadesan and co-PI:Mahesh Bandi.	\$1050k
2013-2017	PI: Advanced Research Projects Agency - Energy <i>Customized Tidal Power Conversion Devices</i> , award DE-AR0000318, with Kenny Breuer and Heather Leslie (including the NSF Innovation Corps program, with Michael Miller and Thorne Sparkman).	\$3,465,143
2012-2015	co-PI: Air Force Office of Scientific Research <i>Cyber-physical systems to understand the dynamics of nonlinear aero-elastic systems for flexible MAVs and energy harvesting applications,</i> with PI:Kenny Breuer.	\$492877

Internal Grants

2011-2012	PI: Richard B. Salomon Faculty Research Award <i>On the development of a research program in thermoacoustics,</i>	\$15k
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Public Engagement

- Jun 2026 Research the subject of nearly a whole episode of *The Rest Is Science* with Hannah Fry.
- Ongoing Four books of lecture notes (<https://www.shreyasmandre.com/teaching/>), read by over a thousand people a year, with 26 video lectures.
- 2020 *Stiffness of the human foot and evolution of the transverse arch*, Nature 579, 97–100, the subject of a commissioned Nature News & Views, and covered in National Geographic, Physics World and Lower Extremity Review.
- 2014 Presented the ARPA-E hydrokinetic programme to the Bicameral Task Force on Climate Change, United States Congress, and at the ARPA-E Energy Innovation Summit, Washington DC.
- 2011 *Algorithm for a microfluidic assembly line*, Phys. Rev. Lett. 106, 094503, cover article and Editors' Suggestion.

Visiting Positions and Awards

- Apr 2019 Visiting Professor
Ecole Polytechnique Federale Lausanne
Lausanne Switzerland
- Mar 2019 Invited Professor by Chaire Total
Ecole Supérieure de Physique et de Chimie Industrielles,
Paris France
- Jun 2018 Distinguished Scholar Award
Geophysical Fluid Dynamics Summer School,
Woods Hole Oceanographic Institution.
- Jun 2016 - Aug 2016 &
Jun 2018 - Aug 2018 Guest Investigator
Geophysical Fluid Dynamics Summer School
Woods Hole Oceanographic Institution.
- Sep 2013 - Aug 2017 Human Frontier Science Program Young Investigator Award.
Aug 2013 Simons visitor, National Centre for Biological Sciences,
Tata Institute of Fundamental Research, Bangalore.
- Dec 2009 Harvard University Certificate of Teaching Excellence
- May 2010 Harvard University Certificate of Teaching Excellence
- Jun 2001 Geophysical Fluid Dynamics Fellowship,
Woods Hole Oceanographic Institution.

Manuscripts under review

- Yawar, A., Korpas, L., Mandre, S., and Venkadesan, M. Transverse contributions to the longitudinal stiffness of the human foot. *eLife*, revised manuscript under review.

Refereed Publications

1. Carlson, A., Poulain, S., Mandre, S., and Mahadevan, L., (2022). Elastohydrodynamics of contact in adherent sheets. *Journal of Fluid Mechanics*, 947, A16.
2. Mandre, S., (2022). Brachistochronous motion of a flat plate parallel to its surface immersed in a fluid. *Journal of Fluid Mechanics*, 939, A27.
3. Mandre, S., (2020). Work-minimizing kinematics for small displacement of an infinitely long cylinder. *Journal of Fluid Mechanics*, 893, R4.
4. Venkadesan, M., Yawar, A., Eng, C. M., Dias, M. A., Singh, D. K., Tommasini, S. M., Haims, A. H., Bandi, M. M., and Mandre, S.,. Stiffness of the human foot and evolution of the transverse arch. *Nature*,

- 579(7797):97–100, 2020.
5. Dhawale, N., Mandre, S., and Venkadesan, M., (2019). Dynamics and stability of running on rough terrains. *Royal Society Open Science*, 6:181729.
 6. Su, Y., Mandre, S., and Breuer, K. S., (2018). Confinement effects on energy harvesting by a heaving and pitching hydrofoil. *Journal of Fluids and Structures*, 84:233–242.
 7. Akella, V. S., Singh, D. K., Mandre, S., and Bandi, M. M., (2018). Dynamics of a camphoric acid boat at the air-water interface. *Physics Letters A*, 382(17):1176–1180.
 8. Sane, A., Mandre, S., and Kim, I., (2018). Surface tension of flowing soap films. *Journal of Fluid Mechanics*, 841:R2.
 9. Bandi, M. M., Akella, V. S., Singh, D. K., Singh, R. S., and Mandre, S., (2017). Hydrodynamic signatures of stationary Marangoni-driven surfactant transport. *Physical Review Letters*, 119:264501.
 10. Mandre, S., (2017). Axisymmetric spreading of a surfactant from a point source. *Journal of Fluid Mechanics*, 832:777–792.
 11. Kim, I., and Mandre, S., (2017). Marangoni elasticity of flowing soap films. *Physical Review Fluids*, 2(8):082001.
 12. Mukherjee, A., Mandre, S., and Mahadevan, L., (2017). Controllable biomimetic birdsong. *Journal of the Royal Society Interface*, 14:20170002.
 13. Kim, D., Strom, B., Mandre, S., and Breuer, K. S., (2017). Energy harvesting performance and flow structure of an oscillating hydrofoil with finite span. *Journal of Fluids and Structures*, 70:314–326.
 14. Venkadesan, M., Bandi, M. M., and Mandre, S., (2017). Biological feet: Evolution, mechanics and applications (Ch 7.1). In *Bioinspired Legged Locomotion: Models, Concepts, Control and Applications* (ed. M. Sharbafi and A. Seyfarth), page 450. Butterworth-Heinemann.
 15. Nguyen, K., Yu, N., Bandi, M. M., Venkadesan, M., and Mandre, S., (2017). Curvature-induced stiffening of a fish fin. *Journal of The Royal Society Interface*, 14:20170247.
 16. Singh, R., Bandi, M. M., Mahadevan, A., and Mandre, S., (2016). Linear stability analysis for monami in a submerged seagrass bed. *Journal of Fluid Mechanics*, 786:R1.
 17. Kaplan, C. N., Wu, N., Mandre, S., Aizenberg, J., and Mahadevan, L., (2015). Dynamics of evaporative colloidal patterning. *Physics of Fluids*, 27(9):092105.
 18. He, A., Nguyen, K., and Mandre, S., (2013). Capillary interactions between nearby interfacial objects. *Europhysics Lett.*, 102(3):38001.
 19. Mandre, S. and Brenner, M. P., (2012). The mechanism of a splash on a dry solid surface. *Journal of Fluid Mechanics*, 690:148.
 20. Wei, A., Mandre, S., and Mahadevan, L., (2012). The branch with the furthest reach. *Europhysics Letters*, 97:14005.
 21. Kolinski, J. M., Rubinstein, S. M., Mandre, S., Brenner, M. P., Weitz, D. A., and Mahadevan, L., (2012). Skating on a film of air: drops impacting on a surface. *Physical Review Letters*, 108(7):074503.
 22. Schneider, T. M., Mandre, S., and Brenner, M. P., (2011). Algorithm for a microfluidic assembly line. *Physical review letters*, 106(9):094503.
 23. Mandre, S. and Mahadevan, L., (2010). A generalized theory of viscous and inviscid flutter. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Science*, 466(2113):141–156.
 24. Mani, M., Mandre, S., and Brenner, M. P., (2010). Events before droplet splashing on a solid surface. *Journal of Fluid Mechanics*, 647:163–185.
 25. Mandre, S., Mani, M., and Brenner, M. P., (2009). Precursors to Splashing of Liquid Droplets on a Solid Surface. *Physical Review Letters*, 102(13):134502.
 26. Bird, J. C., Mandre, S., and Stone, H. A., (2008). Short-Time Dynamics of Partial Wetting. *Physical Review Letters*, 100(23):234501.
 27. Rust, A. C., Mandre, S., and Balmforth, N. J., (2007). The feasibility of generating low-frequency volcano seismicity by flow through a deformable channel. In S. J. Lane and J. S. Gilbert, editors, *Fluid motion in volcanic conduits: A source of seismic and acoustic signals*, pages 45–63.
 28. Balmforth, N. J., Ghadge, S. A., Kettapun, A., and Mandre, S., (2006). Bounds on double-diffusive convection. *Journal of Fluid Mechanics*, 569(1):29–50.

29. Chen, X. P., Mandre, S., and Feng, J. J., (2006). Partial coalescence between a drop and a liquid-liquid interface. *Physics of Fluids*, 18(5):051705.
30. Chen, X. P., Mandre, S., and Feng, J. J., (2006). An experimental study of the coalescence between a drop and an interface in Newtonian and polymeric liquids. *Physics of Fluids*, 18(9):092103.
31. Balmforth, N. J., and Mandre, S. (2004). Dynamics of roll waves. *Journal of Fluid Mechanics*, 514:1–33.
32. S. Lichter, A. Roxin, and S. Mandre. Mechanisms for Liquid Slip at Solid Surfaces. *Physical Review Letters*, 93(8):86001, 2004.
33. S. Ghosal and S. Mandre. A simple model illustrating the role of turbulence on phytoplankton blooms. *Journal of Mathematical Biology*, 46(4):333–346, 2003.

Patents

1. Mahesh Maruthi Bandi, Madhusudhan Venkadesan, Shreyas Dilip Mandre, System and method for obtaining force based on photoelasticity, WO 2015186356 A1, 2015.
2. Shreyas Mandre, Kenneth Breuer, Benjamin Strom, Michael Miller, Jennifer Franck, Daegyoum Kim, Kinetic energy harvesting using cyber-physical systems, US20140203558 A1 and WO2014113809 A1, 2014.

Refereed conference proceedings

1. Weiss, E., and Mandre, S., (2017) A Simple Model for Exploring and Optimizing the Performance of Hydrokinetic Turbine Arrays. Proceedings of the 5th Marine Energy Technology Symposium, Washington D.C.
2. Cardona, J. L., Miller, M. J., Derecktor, T., Winckler, S., Volkmann, K., Medina, A., Cowles, S., Lorick, R., Franck, J., Breuer, K. S., Mandre, S., (2016). Field-testing of a 1kW Oscillating Hydrofoil Energy Harvesting System. Proceedings of the 4th Marine Energy Technology Symposium.
3. Mandre, S., Mangan, N. M., Derecktor, T., Winckler, S., (2016) A comparison of hydrokinetic turbines forming a vertical fence along the length of a river or tidal channel with a conventional rectangular turbine array. Proceedings of the 4th Marine Energy Technology Symposium. Washington D. C..
4. Mangan, N. M., Mandre, S., (2016) Optimal distribution of riverine turbines in a linear array with systematic flow manipulation. Proceedings of the 24th International Congress of Theoretical and Applied Mechanics, Montreal, Canada.

Invited seminars

1. *Functional interpretation for transverse arch of human foot*, Schuster Colloquium Series, Mathematics, University of Manchester, Manchester UK, 2023.
2. *Functional interpretation for transverse arch of human foot*, Mathematics, University of Bristol, Bristol UK, 2022.
3. *Functional interpretation for transverse arch of human foot*, Warwick Medical School, University of Warwick, Coventry UK, 2022.
4. *Functional interpretation for transverse arch of human foot*, Mathematics Institute Colloquium, University of Warwick, Coventry UK, 2022.
5. *Functional interpretation for transverse arch of human foot*, Complexity Forum, University of Warwick, Coventry UK, 2022.
6. *Functional interpretation for transverse arch of human foot*, Department of Aerospace and Mechanical Engineering, University of Southern California, Los Angeles USA, 2022.
7. *Functional interpretation for transverse arch of human foot*, Engineering Sciences and Applied Mathematics, Northwestern University, Evanston USA, 2022.
8. S. Mandre, *Surfactants driven out of equilibrium by a flow*, Department of Mathematics, University of Manchester, Manchester UK, 2021.

9. S. Mandre, *Surfactants driven out of equilibrium by a flow*, Department of Mathematics, Imperial College London, London UK, 2019.
10. S. Mandre, *Functional interpretation for transverse arch of human foot*, Mathematics Institute, University of Warwick, Coventry UK, 2019.
11. S. Mandre, *Using scale invariance for analyzing transport of surfactant from a point source*, Mathematics Institute, University of Warwick, Coventry UK, 2019.
12. S. Mandre, *Surfactants driven out of equilibrium by a flow*, Department of Engineering, University of Aarhus, Aarhus Denmark, 2019.
13. S. Mandre, *Surfactants driven out of equilibrium by a flow*, Mathematical Institute, University of Oxford, Oxford UK, 2019.
14. S. Mandre, *Axisymmetric flow driven by a point source of surfactant*, Department of Applied Mathematics and Theoretical Physics, University of Cambridge, Cambridge UK, 2019.
15. S. Mandre, *Functional interpretation for transverse arch of human foot*, Department of Engineering, University of Cambridge, Cambridge UK, 2019.
16. S. Mandre, *Optimum pitching-heaving of a foil for extracting power from an incident freestream*, Department of Mechanical Engineering, Tufts University, Medford MA, 2018.
17. S. Mandre, *Surfactants driven out of equilibrium by a flow*, Laboratoire Matière et Systèmes Complexes, Université Paris Diderot, Paris, France, 2018.
18. S. Mandre, *Functional interpretation for transverse arch of human foot*, Mechanical Engineering, Ecole Polytechnique Federale Lausanne, Lausanne, Switzerland, 2018.
19. S. Mandre, *Surfactants driven out of equilibrium by a flow*, Department of Applied Mathematics and Theoretical Physics, University of Cambridge, Cambridge UK, 2018.
20. S. Mandre, *Using scale invariance for analyzing transport of surfactant from a point source*, Mathematics Institute, University of Warwick, Coventry UK, 2018.
21. S. Mandre, *Surfactant driven out of equilibrium by a flow*, Widely Applied Mathematics Seminar Series, Harvard University, Cambridge MA, 2018.
22. S. Mandre, *Spreading driven by Marangoni stresses from a point source of surfactant*, International Conference on Mathematical Analysis of Continuum Mechanics, Okinawa Institute of Science and Technology Graduate University, Okinawa Japan, 2017.
23. S. Mandre, *Spreading driven by Marangoni stresses from a point source of surfactant*, Making a Splash - Droplets, Jets and Other Singularities, Institute for Computational and Experimental Research in Mathematics, Brown University, Providence RI, 2017.
24. S. Mandre, *Systematic flow manipulation for hydrokinetic energy conversion*, Department of Mathematics, The University of British Columbia, BC Canada, 2017.
25. S. Mandre, *Functional interpretation for transverse arches of human foot*, Institute of Applied Mathematics - Pacific Institute of Mathematical Sciences Distinguished Alumni Colloquium, The University of British Columbia, BC Canada, 2017.
26. S. Mandre, M. Venkadesan, M. M. Bandi, *The structure, function, and evolution of the human foot*, Geophysical Fluid Dynamics Summer School, Woods Hole Oceanographic Institution, Woods Hole MA, 2016.
27. S. Mandre, *Flow optimization for unconventional approaches to hydrokinetic energy conversion*, Department of Mechanical Engineering, Yale University, New Haven CT, 2016.
28. S. Mandre, *Flow optimization for unconventional approaches to hydrokinetic energy conversion*, Graduate School of Oceanography, University of Rhode Island, Narragansett RI, 2016.
29. S. Mandre, *Flow optimization for unconventional approaches to hydrokinetic energy conversion*, Courant Institute of Mathematical Sciences, New York University, New York NY, 2016.
30. S. Mandre, *Flow optimization for unconventional approaches to hydrokinetic energy conversion*, School of Engineering and Applied Sciences, Harvard University, Cambridge MA, 2016.
31. S. Mandre, Andong He, Khoi Nguyen, Michael Miller, *Capillary attraction between nearby objects floating on a liquid interface*, Department of Mechanical Engineering, Massachusetts Institute of Technology, Cambridge MA, 2013.

32. S. Mandre, Andong He, Khoi Nguyen, Michael Miller, *Capillary attraction between nearby objects floating on a liquid interface*, Department of Mechanical Engineering, University of Massachusetts, Dartmouth MA, 2013.
33. S. Mandre, Andong He, Khoi Nguyen, Michael Miller, *Capillary attraction between nearby objects floating on a liquid interface*, Department of Mechanical Engineering, Tufts University, Somerville MA, 2013.
34. S. Mandre, Anja Slim, Xinjun Guo, *Dissolution driven convection for carbon dioxide sequestration: the stability problem* Department of Mathematics, Princeton University, Princeton, 2013.
35. S. Mandre, Anja Slim, Xinjun Guo, *Dissolution driven convection for carbon dioxide sequestration: the stability problem* Department of Geology and Geophysics, Yale University, New Haven, 2013.
36. S. Mandre, Andong He, Khoi Nguyen, Michael Miller, *Capillary attraction between nearby objects floating on a liquid interface*, National Centre for Biological Sciences, Tata Institute of Fundamental Research, Bangalore, India, 2013.
37. S. Mandre, *Waving of marine grass due to tidal currents*, Okinawa Institute of Technology Graduate University, Okinawa, Japan, 2013.
38. S. Mandre, Anja Slim, Xinjun Guo, *Dissolution driven convection for carbon dioxide sequestration: the stability problem* Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, India, 2013.
39. S. Mandre, Anja Slim, Xinjun Guo, *Linear stability of time-dependent flows: dissolution-driven convection*, Department of Mathematics, University of Wisconsin, Madison, 2013.
40. S. Mandre, Anja Slim, Xinjun Guo, *Hydrodynamic stability of time-dependent flows*, Geophysical Fluid Dynamics Program, Woods Hole Institute of Oceanography, Woods Hole, 2012.
41. S. Mandre, Anja Slim, Xinjun Guo, *Hydrodynamic stability of time-dependent flows*, Division of Applied Mathematics, Brown University, Providence 2010.
42. S. Mandre, *Mechanism of a splash*, i-Bio Seminar series, National Centre for Biological Sciences, Tata, Institute of Fundamental Research, Bangalore, India, 2012.
43. S. Mandre, *Mechanism of a splash*, Department of Mathematics, New Jersey Institute of Technology Newark, 2010.
44. S. Mandre, *Mechanism of a splash*, Division of Engineering, Brown University Providence, 2010.
45. S. Mandre, *Mechanism of a splash*, Department of Mathematics, University of New Hampshire Durham, 2010.
46. S. Mandre, M. Mani and M. P. Brenner, *Air cushion on droplet impact: a mechanism for sheet ejection*, James Frank Institute, University of Chicago, Chicago, 2010.
47. S. Mandre, M. Mani and M. P. Brenner, *Events before droplet splashing on a solid surface*, Department of Mathematics, University of California Berkeley, Berkeley, 2009.
48. S. Mandre, M. Mani and M. P. Brenner, *Precursors to splashing of a liquid droplet on a solid surface*, Dynamics Days, Gottingen, 2009.
49. S. Mandre, *The physics and mathematics of singing bottles*, Department of Mathematics, University of Alberta, Edmonton, 2009.
50. S. Mandre, *Lectures on convective and absolute instabilities*, Department of Chemical Engineering, Indian Institute of Technology, Mumbai
51. S. Mandre, M. Mani and M. P. Brenner, *Droplet impact as a precursor to splashing*, Department of Chemical Engineering, Indian Institute of Technology Bombay, Mumbai, 2008.
52. S. Mandre, *The physics and mathematics of singing bottles*, Department of Mathematics, MIT, Cambridge, 2008.
53. S. Mandre, *Roll waves and relatives*, Division of Engineering and Applied Sciences, Harvard University, Cambridge, 2006.
54. S. Mandre, *A flow induced elastic instability*, Department of Mechanical Engineering, Indian Institute of Technology Bombay, Mumbai, 2005.
55. S. Mandre, *Energy stability and finite amplitude thresholds*, Center for Nonlinear Sciences, Georgia Institute of Technology, Atlanta, 2005.
56. S. Mandre, *Some flow instabilities and their mechanisms*, Simple Persons Applied Math Seminar Series, Department of Mathematics, MIT, Cambridge MA, 2004.

Teaching

Courses taught at Harvard University:

Term	Course	Title
F2006	AM205	Practical Scientific Computing
S2007	AM105b	Ordinary and Partial Differential Equations
F2007	AM205	Practical Scientific Computing
S2008	AM105b	Ordinary and Partial Differential Equations
F2008	AM205	Practical Scientific Computing
S2009	AM105b	Ordinary and Partial Differential Equations

Courses taught at Brown University:

Term	Course	Title
F2010	ENGN 0030	Introduction to Engineering
S2011	ENGN 1710	Heat and Mass Transfer
F2011	ENGN 2912H	Interfacial Phenomena
S2012	ENGN 1710	Heat and Mass Transfer
F2012	ENGN 2912J	Asymptotic and Perturbation Methods
S2013	ENGN 1710	Heat and Mass Transfer
F2013	ENGN 2912H	Interfacial Phenomena
S2014	ENGN 1860	Advanced Fluid Mechanics
F2015	ENGN 2912J	Asymptotic and Perturbation Methods
S2016	ENGN 1860	Advanced Fluid Mechanics
F2016	ENGN 0810	Fluid Mechanics (co-taught w/K. Breuer)
S2017	ENGN 2912H	Interfacial Phenomena
F2017	ENGN 0810	Fluid Mechanics (co-taught w/J. Franck)
S2018	ENGN 2820	Fluid Mechanics II
S2018	ENGN 0810	Fluid Mechanics (co-taught w/K. Breuer)
F2018	ENGN 2810	Fluid Mechanics I
F2019	ENGN 0810	Fluid Mechanics (co-taught w/K. Breuer)

Courses taught at University of Warwick:

Term	Course	Title
S2020	MA3D1	Fluid Dynamics
F2020	MA244	Analysis III
S2021	MA3D1	Fluid Dynamics
S2022	MA3D1	Fluid Dynamics
S2022	MA9M3	Topics in Applied Mathematics

Courses taught at University of Cambridge:

Term	Course	Title
M2023	Part IA	Dimensional Analysis
M2024	Part IA	Dimensional Analysis
L2025	4A10	Flow Instability (co-taught w/G. R. Hunt)

Research supervision and mentoring

Supervision of Doctoral research

1. Ravi Singh (2015), "Hydrodynamic instability leading to Monami", Ph.D. thesis, Brown University, 2015.
2. Xinjun Guo (2015), "A vortex shedding model for unsteady fluid dynamics", Ph.D. thesis, Brown University, 2015.
3. Michael J. Miller (2018), "Research and development of oscillating hydrofoil for hydrokinetic power", Ph.D. thesis, Brown University, 2018.

Supervision of Masters research

1. Aakash Sane (2017), "Surface tension of flowing soap films", Sc.M. thesis, Brown University, 2017.
2. Tom Gent (2021), "Analytically solving the fluid mechanical brachistochrone problem of a flat plate moving normally to its surface", M. Sc. project, University of Warwick.
3. Chester Wilkinson (2021), "Analytically solving Brachistochronial motion of a semi-infinite plate in a two-dimensional fluid", M. Sc. project, University of Warwick.
4. Simeng Wang (2023), "The power output efficiency in large wind farms: A field data analysis", M. Sc. Project, University of Cambridge.
5. Ananay Joshi (2024), M. Phil. Project, University of Cambridge.

Supervision of Summer research

1. Paula Doubrawa (2016), "A vortex method for modelling multiple wakes", Program of Study in Geophysical Fluid Dynamics, Woods Hole Oceanographic Institution Technical Report WHOI-2019-03, 117-132.

Supervision of fourth year projects

1. Karine Ip Kiun Chong (2012), "Evaporation And Condensation Design at the Micro-scale Level".
2. Pablo Sanchez-Santaeufemia (2012), "Thermoacoustics with Flexible Boundaries".
3. Patrick O'Neil (2014), "Use of Gradient Based Optimization With Noise for Harvesting Tidal Energy".
4. Khoi Nguyen (2014), "An Experimental Investigation of the Coffee Ring Phenomenon for Biosensor Application".
5. Elliot Weiss (2017), "A computational study of systematic flow manipulation for turbine array".
6. Leland Kirshen (2017), "An experimental study of systematic flow manipulation for horizontal axis turbine".
7. Lily Board, Rob Sunnucks, and Miriam Revilla Alvarez, University of Warwick (2022).
8. Ahren Sampath and Carmen Raichs Fernandez, University of Cambridge (2023).
9. Louis Pender, University of Cambridge (2024).
10. Matthew Neilan-Bell, Nick Dobson, Olumide Apansile and Samuel Hinks, University of Cambridge (2025).

Supervision of summer research by visiting undergraduate student

1. Ning Yu, Tshinghua University (2015).

Supervision of undergraduate summer research

1. Leanne Block, Kenta Kondo, Michael Lee, Michael Manning, Isabel Scherl, Arianne Spaulding, Brown University (2016).
2. Aaron Brown, Reed Brown, Brown University (2018).
3. Lily Board, Adamya Paretha, Marcus Tranter, Tom Stopford, Rob Sunnucks and Miriam Revilla Alvarez, University of Warwick (2022).
4. Alex Watson, University of Cambridge (2026).

Postdoctoral researchers

1. Ildoo Kim, 2/2015-8/2017, Brown University (currently faculty at Konkuk University, S. Korea),
2. Marcelo A. Dias, 9/2012-8/2014, (co-advised w/ Tom Powers, currently faculty at University of Edinburgh, UK),
3. V. Ponnulakshmi Kartheeswaran, 9/2013-2/2015, (currently faculty at Indian Institute of Technology Goa),
4. Julie Albagnac, 3/2011-7/2012, (currently faculty at U. Toulouse, France),
5. Andong He (ICERM fellow), 9/2011 - 8/2012, (ex-faculty at U. Hawaii, tragically deceased).

Young visiting scientists hosted

1. Niall M. Mangan, Visting Lecturer (10/2015-12/2015) now at Northwestern University,
2. Mahesh M. Bandi, Adjunct Lecturer (9/2011-4/2012) now at the Okinawa Institute of Science and Technology.

Service

Advising:

1. Freshman and Sophomore advisor, Brown University – AY 2011-2019,
2. Concentration advisor, Brown University – AY 2016-2019,
3. TEAM (Team enhanced advising and mentoring, a program targeted to under-represented minorities) Freshman advisor, Brown University – AY 2011-2012,
4. Undergraduate personal tutoring, University of Warwick – AY 2019-2023
5. Postdoctoral mentor, Jiyizhe Zhang and Theodoros Papalas, University of Cambridge – 2023-present.

Administrative duties

1. Fluids Seminar Series organizer (Brown University) – AY 2010-2011,
2. Fluids and Thermal Sciences Graduate Representative (Brown University) – AY 2011-2012, 2012-2013, 2013-2014,
3. Member of the Fluids Faculty Search Committee (Brown University) - AY 2016-2017,
4. Applied Mathematics Seminar Series organizer (University of Warwick) – 2022-2023,
5. Mathematics Equality and Diversity Database Manager (University of Warwick) – 2021-2023,
6. Member of the Search Committee for Warwick Zeeman Lecturers (University of Warwick) – 2021.
7. Member of the Equality, Diversity and Inclusion Committee of the Mathematics Institute, University of Warwick – 2022-2023.
8. Member of the Advisory Committee of the Mathematics Institute, University of Warwick – 2022-2023.
9. Organizer of the Warwick Mathematics Institute peer mentorship – 2022-2023.

Service to the Community

Conference and workshop organizer

1. New England Workshop on Mechanics of Structures and Materials, MIT, Oct 2011.
2. New England Workshop on Mechanics of Structures and Materials, Brown University, Nov 2012.
3. Society of Engineering Sciences, 50th Annual Technical Meeting and ASME-AMD Annual Summer Meeting, Jul 2013.
4. Dynamics at Interfaces, Workshop organized at the Okinawa Institute of Science and Technology, Jun 9-13, 2014.
5. 68th Annual Meeting of the American Physical Society's Division of Fluid Dynamics, Nov 22-24, 2015.
6. Staff at the Geophysical Fluid Dynamics Summer School at Woods Hole Oceanographic Institution, Jun 21-Aug 25, 2016.
7. Staff at the Geophysical Fluid Dynamics Summer School at Woods Hole Oceanographic Institution, Jun 18-Aug 1, 2018.
8. Faculty at the Collaborative Experimental Design and Analysis Workshop at the Okinawa Institute of Science and Technology, Aug 16-23, 2018.

External reviewer

- Referee for
 - Proceedings of the National Academy of Sciences,
 - Journal of Fluid Mechanics,
 - Physics of Fluids,
 - Physical Review Fluids,
 - Journal of Experimental Biology,
 - Langmuir,
 - Ocean Engineering,
 - SIAM Journal of Applied Mathematics,
 - Journal of Fluids Engineering,
 - European Journal of Applied Mathematics,
 - Fluid Dynamics Research,
 - Journal of Engineering Mathematics,
 - American Journal of Physics.
- Grant reviewer for
 - The U.S. National Science Foundation,
 - The U.S. Department of Energy,
 - The U.S. Department of Defense,
 - The Natural Science and Engineering Council of Canada,
 - National Commission for Scientific and Technological Research of Chile,
 - Engineering and Physical Sciences Research Council, UK.