John O. Dabiri

Centennial Chair Professor
Graduate Aerospace Laboratories (GALCIT) and Mechanical Engineering
California Institute of Technology
Pasadena, CA 91125
Email: jodabiri@caltech.edu
Web: http://dabirilab.com

Education

Ph.D., Bioengineering with minor in Aeronautics (4/2005)
California Institute of Technology, Pasadena, CA
Thesis: Unsteady fluid mechanics of starting-flow vortex generators with time-dependent boundary conditions
Advisor: Morteza (Mory) Gharib

M.S., Aeronautics (6/2003)
California Institute of Technology, Pasadena, CA

B.S.E. *summa cum laude*, Mechanical and Aerospace Engineering (6/2001)
Princeton University, Princeton, NJ

Professional Experience

California Institute of Technology
Centennial Chair Professor (10/2019 – present)
Aeronautics and Mechanical Engineering

Professor with tenure (11/2010 – 6/2016)
Associate Professor with tenure (8/2009 – 10/2010); Assistant Professor (5/2005 – 8/2009)
Aeronautics and Bioengineering

Dean of Undergraduate Students (7/2014 – 6/2015)
Director, Center for Bioinspired Wind Energy (11/2010 – 6/2015)
Chair of the Faculty Board (1/2013 – 6/2014)

Stanford University
Full Professor with tenure (7/2015 – 9/2019)
Civil & Environmental Engineering and Mechanical Engineering

Senior Fellow, Precourt Institute for Energy (1/2018 – 9/2019)
Founding Director, Catalyst for Collaborative Solutions (11/2016 – 11/2017)
Senior Fellow, Center for Turbulence Research (8/2012 – 6/2013)

Research Fellowships and Assistantships

Bioengineering, California Institute of Technology (9/2001 – 4/2005)
Mechanical, Industrial and Manufacturing Eng., University of Toledo, OH (6/2001 – 9/2001)
Mechanical and Aerospace Engineering, Princeton University (9/1998 – 6/2001)
Aeronautics, California Institute of Technology (6/2000 – 8/2000)

Research Grants

Air Force Office of Scientific Research "Optimization of a Vertical Axis Wind Turbine for Remote Power Generation," (2026-2027, PI: XFlow Energy)
National Science Foundation (Ocean Technology and Interdisciplinary Coordination) "Comparative Study of Biohybrid Jellyfish for Ocean Measurement," (2025-2028, PI: Dabiri)
Caltech Center for Autonomous Systems and Technologies "Developing deep sea sensor packages for biohybrid jellyfish ocean exploration," (2025-2026, PI: Dabiri)
Office of Naval Research "Hydrodynamics and electromechanics of multifunctional biohybrid propulsors" (2024-2029, PI: Dabiri)
Gary Clinard Innovation Fund "Visual anemometry using natural vegetation" (2024-2025, PI: Dabiri)
National Science Foundation (Ocean Technology and Interdisciplinary Coordination) "Characterizing vertical swimming, payload capacity, and performance envelope of biohybrid robot jellyfish as future ocean monitoring platforms" (2023-2025, PI: Dabiri)
National Science Foundation (Fluid Dynamics) "2020 Alan T. Waterman Award" (2020-2025, PI: Dabiri)
National Science Foundation (Fluid Dynamics) "Seeing the wind: Leveraging flow-structure interactions for visual anemometry" (2020-2023, PI: Dabiri)
Gordon and Betty Moore Foundation "Wind farm in Igiugig Alaska" (2013-2026, PI: Dabiri)
Siemens Gamesa Renewable Energy "Development of adaptive online wind farm control" (2020-2023, PI: Dabiri)
Gordon and Betty Moore Foundation "Propulsive advantages of coordinating multiple jets by colonial marine organisms" (2019-2022, PI: K. Sutherland)
National Science Foundation (Fluid Dynamics) "Effect of helicity on the development of free-shear turbulence at high Reynolds number" (2018-2021, PI: Dabiri)
Woods Institute for the Environment "Bird conservation in wind energy parks by leveraging the avian optomotor response" (2017-2020, PI: Dabiri)
TomKat Center for Sustainable Energy "A commercial wind farm testbed for performance prediction and optimization tools" (2016-2018, PI: Dabiri)
Precourt Institute for Energy "Renewable Energy Systems Integration (RESI): Prototyping an Optimized Energy Infrastructure as Living Laboratory" (2016-2018, PI: Dabiri)
National Science Foundation (Particulate and Multiphase Processes) "Multiscale interactions between active particles and stratified fluids during collective vertical migration" (2015-2018, PI: Dabiri)
National Science Foundation (Fluid Dynamics) "Fluid mechanical basis of universal natural propulsor bending patterns" (2015-2018, PI: Dabiri)

National Science Foundation (Instrument Development for Biological Research) "Diver-operated imaging platform with complementary systems for quantifying aquatic organism interactions" (2015-2018, PI: Dabiri)
United States - Israel Binational Science Foundation "Drift-mediated mixing" (2012-2016, US PI: Dabiri)
Office of Naval Research "A wind energy solution for military base operations" (2012-2015, PI: Dabiri)
Gordon and Betty Moore Foundation "'Feasibility study of vertical axis turbines and arrays in rural communities located in Alaska's wild salmon systems" (2012-2013, PI: J. Peng)
National Science Foundation (Biological Oceanography) "Turbulence and suspension feeding: a new approach using the lobate ctenophore Mnemiopsis leidyi" (2011-2014, PI: Dabiri)
Gordon and Betty Moore Foundation "Center for Bio-inspired Engineering" (2010-2016, PI: Dabiri)
Office of Naval Research (Physical Sciences) "Beyond mimicry: bio-inspired propulsion via passive mechanisms" (2009-2014, PI: Dabiri)
National Science Foundation (Fluid Dynamics) "Flexible swimmers: reverse engineering a jellyfish" (2009-2011, PI: Dabiri)
National Science Foundation (Fluid Dynamics) "Optimizing flexible swimmers—from jellyfish to engineered propulsors" (2008-2011, PI: Dabiri)
National Science Foundation (Biological Oceanography) "Biomixing—a controversial mechanism influencing dynamics of marine ecosystems?" (2008-2010, PI: M. Dawson)
Office of Naval Research (Physical Sciences) "Optimal propulsion for hybrid screw-based, bio-inspired systems" (2008-2011, PI: Dabiri)
National Science Foundation (Physiological and Structural Systems) "In situ measurement of vertebrate swimming in natural environments" (2008-2009, PI: M. Gordon)
National Science Foundation (Energy for Sustainability) "Bio-inspired fluid dynamic energy conversion" (2007-2011, PI: Dabiri)
National Science Foundation (Ocean Technology) "Phase two development of a self-contained underwater velocimetry apparatus" (2007-2009, PI: Dabiri)
Office of Naval Research SBIR "Biomimetic sonobuoy" (2007-2010, PI: Triton Systems, Inc.)
National Science Foundation (Biological Oceanography) "Prediction of medusan predatory roles based on quantitative studies of animal-fluid interactions" (2006-2009, PI: Dabiri)

Honors and Awards

Research Achievement

Elected Fellow, American Association for the Advancement of Science (2026)
Cornell Barbara McClintock Life Sciences Lecture (2026)
National Medal of Science (2025)
J. Robert Oppenheimer Memorial Lecture, Los Alamos National Laboratory (2025)
Presidential Lecture, Simons Foundation (2024)
G. Evelyn Hutchinson Award, Assoc. for the Sciences of Limnology and Oceanography (2023)
Elected Fellow, American Institute for Medical and Biological Engineering (2023)
Keynote Lecture, International Symposium on Particle Image Velocimetry (2023)
Roger Revelle Commemorative Lecture, National Academies (2022)
Invited Lecture, AAAS Annual Meeting (2022)
Plenary Lecturer, US National Congress of Theoretical and Applied Mechanics (2022)
Baetjer Colloquium, Princeton University (2022)
President's Council of Advisors on Science and Technology (2021)
Secretary of Energy Advisory Board (2021)
Hassan Aref Memorial Lecture, Virginia Tech (2021)
Alan T. Waterman Award, National Science Foundation (2020)
Centennial Chair Professorship, California Institute of Technology (2019)
Invited Lecture, Microscale Ocean Biophysics Meeting (2019)
Sears Lecture, Woods Hole Oceanographic Institution (2018)
Invited Lecture, World Congress of Biomechanics (2018)
J.M. Burgers Lecture, The Netherlands (2018)
Plenary Lecturer, Ocean Sciences Meeting (2018)
Biomedical Engineering Distinguished Seminar, Boston University (2017)
Distinguished Mathematics Lecture, University of Oregon (2017)
Dourdeville Lecture, Brown University (2016)
Invited Speaker, Defense Science Board 60th Anniversary (2016)
Editorial Board, Journal of Fluid Mechanics (2016)
Invited Speaker, National Academy of Engineering Annual Meeting, Section 10 (2015)
Laura Randall Schweppe Endowed Lecture, University of Texas (2015)
Best Paper (Wind Energy), ASME Turbo Expo (2014)
Elected Fellow, American Physical Society (2014)
Winner, American Physical Society Gallery of Fluid Motion (2014)
Roddam Narasimha Distinguished Lecture, Indian Institute of Technology (2014)
Defense Science Study Group (2014)
Invitee, World Economic Forum Annual Meeting (2014)
Winner, American Physical Society Gallery of Fluid Motion (2013)
MIT Technology Review Magazine "TR35" Innovators Under 35 (2013)
Midwest Mechanics Lecturer (2013)
Plenary Lecturer, American Physical Society Division of Fluid Dynamics Meeting (2013)
Denis and Jean Wiesenburg Distinguished Lecturer, University of Southern Mississippi (2013)
Bloomberg Businessweek Magazine "Technology Innovator" (2012)
Senior Fellow, Stanford University Center for Turbulence Research (2012)
MacArthur Fellow (2010)
T. Francis Ogilvie Lectureship in Ocean Engineering, MIT (2010)

Presidential Early Career Award for Scientists and Engineers (2009)
Enzo Levi Lecture, National University of Mexico (2009)
Popular Science Magazine "Brilliant 10" Scientists (2008)
Office of Naval Research Young Investigator Award (2008)
Invitee, Summit of Experts in Biomechanics, U.S. National Committee for Biomechanics (2007)
Donald Coles Prize for Best Experiment, California Institute of Technology (2005)
Winner, American Physical Society Gallery of Fluid Motion (2004)
Oral Presentation Award, Southern California Biomedical Engineering Symposium (2002)
Sigma Xi National Research Honor Society Book Award, Princeton University (2001)
John Marshall II Memorial Prize for Independent Research, Princeton University (2001)
Morgan W. McKinzie Senior Thesis Prize Finalist with Distinction, Princeton University (2001)
Grade of A with Distinction (A+), B.S.E. Thesis, Princeton University (2001)
Nominee, Marcella and Joel Bonsall Prize for Technical Writing, California Institute of Technology (2000)

Teaching, Mentoring, and Service Achievement
Eugene L. Grant Award for Excellence in Teaching, Stanford University (2018)
Professor of the Month (February), California Institute of Technology (2012)
Outstanding Paper, Freshman Summer Institute, California Institute of Technology (2002)
Tau Beta Pi National Engineering Honor Society Prize (2001)
George Bienkowski Memorial Prize, Princeton University (2001)

Graduate Fellowships
Y. C. Fung Fellowship, California Institute of Technology (2001 – 2005)
Department of Defense Science and Engineering Graduate Fellowship (2001 – 2004)
Ford Foundation Graduate Fellowship (2001, declined)
Sir Frank Whittle Rolls Royce Fellowship in Propulsion, MIT (2001, declined)
Presidential Graduate Fellowship, Princeton University (2001, declined)
National Finalist, Hertz Foundation Fellowship (2001)

Academic and Leadership Achievement
Chair Line, American Physical Society Division of Fluid Dynamics (2019-2022)
Member-at-Large, American Physical Society Division of Fluid Dynamics ExComm (2014)
Member-at-Large, U.S. National Committee for Theoretical and Applied Mechanics (2013)
Harold Willis Dodds Achievement Award, Princeton University (2001)
Finalist, Pyne Prize, Princeton University (2001)
National Finalist, Rhodes Scholarship (2001)
National Finalist, British Marshall Scholarship (2001)
Outstanding Academic Achievement in the B.S.E. Program, Princeton University (1998 – 2000)
Academic Excellence in Engineering Coursework, Princeton Black Graduate Caucus (1999)
Academic Achievement in Engineering, National Association of Minority Engineers (1999)

Miscellaneous Honors and Awards
100 Black Board Members Making a Difference (2024)
Savoy Magazine Most Influential Black Corporate Directors (2021)
Stanford Fellows Program (2017-2019)

OZY Rising Stars (2015)
C-Suite Quarterly Innovation NextGen 10 (2013)
LA Weekly Magazine Best of LA (2013)
THE Magazine 50 Innovative Men of the Year (2012)
Ebony Magazine "Power 100" Most Influential Black Americans (2010)
Convocation Address, California Institute of Technology (2010)
Richard C. Biedebach Lecture, California Institute of Technology (2009)
William Randolph Hearst Scholarship, Princeton University (1997 – 2001)
Samuel Bayard Dod Scholarship, Princeton University (1997 – 2001)
The Boeing Company Undergraduate Scholarship (2000)
Class of 1907 Scholarship, Princeton University (2000)
National Achievement Scholarship (1997)
National Merit Scholarship Commendation (1997)

Publications

Students and Postdoctoral Scholars underlined.

154. Yoder NK, **Dabiri JO** (2026) "Measurements and modeling of swimming speed dependence on stroke frequency in scyphozoan jellyfish," submitted.

153. Mohebbi N, **Dabiri JO** (2026) "Buoyancy-dependent induced flow by vertically migrating swimmers," submitted.

152. Anuszczyk SR, **Dabiri JO** (2026) "Non-invasive measurement of metabolic rates of free-swimming jellyfish using volumetric laser scanning," submitted.

151. Goldshmid RH, **Dabiri JO**, Sader JE (2026) "Visual anemometry of natural vegetation from their leaf motion," submitted.

150. Lederer EK, O'Melia J, **Dabiri JO**, Gemmell BJ, Leftwich MC, Colin SP, Costello JH (2026) "Convergence of animal propulsor placement for optimal maneuverability in fluids," submitted.

149. Rutledge KM, Colin SP, Costello JH, Yoder NK, Anuszczyk SR, Sutherland KR, Gemmell BJ, **Dabiri JO** (2026) "Biohybrid robotic jellyfish for swimming-enhanced vertical ocean profiling," *Biomimetics* 11(5): 325. https://dabirilab.com/s/Ru_etal_Biomimetics2026.pdf

148. **Dabiri JO**, Leonard A (2025) "A model for Reynolds-dependent linear instability in wall-bounded shear flows," Arxiv 2503.17451. https://arxiv.org/pdf/2503.17451.pdf

147. **Dabiri JO**, Mohebbi N, Fu MK (2025) "Persistent laminar flow at Reynolds numbers exceeding 100,000," Arxiv 2212.02488. https://arxiv.org/pdf/2212.02488.pdf

146. Anuszczyk SR, Yoder N, Costello JH, **Dabiri JO**, Gemmell BJ, Rutledge KM, Colin SP (2025) "Increasing the reliability and versality of jellyfish biohybrid vehicles via species selection and rhopalia removal," *Biomimetics* 10(12): 810. https://dabiri.squarespace.com/s/An_etal_Biomimetics2025.pdf

145. Fernandez M, Wang T, Tunnicliffe G, Dortilus D, Gunnarson PJ, **Dabiri JO**, Goldman DI (2025) "AquaMILR+: Design of an untethered limbless robot for complex aquatic terrain navigation," IEEE International Conference on Robotics and Automation (ICRA) 12316-12322. https://dabiri.squarespace.com/s/Fe_etal_ICRA2025.pdf

144. Xu NW, Lenczewska O, Wieten SE, Federico CA, **Dabiri JO** (2025) "Ethics of biohybrid robotic jellyfish modification and invertebrate research," *Bioinspiration and Biomimetics* 20: 033001. https://dabirilab.com/s/Xu_etal_BB2025.pdf

143. Gunnarson PJ, **Dabiri JO** (2025) "Surfing vortex rings for energy-efficient propulsion," *PNAS Nexus* 4: pgaf031. https://dabirilab.com/s/GuDa_PNASNexus2025.pdf

142. Han H, et al. [26 authors] (2024) "Imaging-guided bioresorbable acoustic hydrogel microrobots," *Science Robotics* 9: eadp3593. https://dabirilab.com/s/Han_etal_SciRobot2024.pdf

141. Mohebbi N, Hwang J, Fu MK, **Dabiri JO** (2024) "Measurements and modeling of induced flow in collective vertical migrations," *Journal of Fluid Mechanics* 1001: A50. https://dabirilab.com/s/MoHwFuDa_JFM2024.pdf

140. Wei NJ, El Makdah A, Hu J, Kaiser F, Rival D, **Dabiri JO** (2024) "Wake dynamics of wind turbines in unsteady streamwise flow conditions," *Journal of Fluid Mechanics* 1000: A66. https://dabirilab.com/s/Wei_etal_JFM2024.pdf

139. **Dabiri JO**, Leonard A (2024) "Linear instability of viscous parallel shear flows: revisiting the perturbation no-slip condition," *Journal of Fluid* Mechanics 996: A47. https://dabirilab.com/s/DaLe_JFM2024.pdf

138. Gunnarson PJ, **Dabiri JO** (2024) "Fish-inspired tracking of underwater turbulent plumes," *Bioinspiration and Biomimetics* 19: 056024. https://dabirilab.com/s/GuDa_BB2024.pdf

137. **Dabiri JO** (2024) "Do swimming animals mix the ocean?," *American Scientist* 112: 222-229. https://dabirilab.com/s/Da_AmSci2024.pdf

136. Anuszczyk SR, **Dabiri JO** (2024) "Electromechanical enhancement of live jellyfish for ocean exploration," *Bioinspiration and Biomimetics* 19: 026018. https://dabirilab.com/s/AnDa_BB2024.pdf

135. Xu NW, **Dabiri JO** (2024) "The creation of an augmented jellyfish: Ethical considerations from a scientific perspective," In *Transanimalism*, Ch. 8, pp. 127-139. https://dabirilab.com/s/XuDa_TA2024.pdf

134. Costello JH, Colin SP, Gemmell BJ, **Dabiri JO**, Kanso E (2024) "Turning kinematics of the scyphomedusa *Aurelia aurita*," *Bioinspiration and Biomimetics* 19: 026005. https://dabirilab.com/s/CoCoGeDaKa_BB2024.pdf

133. **Dabiri JO** (2023) "Do swimming animals mix the ocean?," *Limnology and Oceanography Bulletin* 10.1002/lob.10614. https://dabirilab.com/s/Dabiri_LOB2023.pdf

132. Gharaati M, Wei NJ, **Dabiri JO**, Martinez-Tossas LA, Yang D (2023) "Large-eddy simulations of turbulent flows in arrays of helical- and straight-bladed vertical-axis wind turbines," *Journal of Renewable and Sustainable Energy* 15: 063309. https://dabirilab.com/s/Gh_etal_JRSE2023.pdf

131. **Dabiri JO**, Howland MF, Fu MK, Goldshmid RH (2023) "Visual anemometry for physics-informed inference of wind," *Nature Reviews Physics* 5: 597-611. https://dabirilab.com/s/DaHoFuGo_NRP2023.pdf

130. Wei NJ, **Dabiri JO** (2023) "Power-generation enhancements and upstream flow properties of turbines in unsteady inflow conditions," *Journal of Fluid Mechanics* 966: A30. https://dabirilab.com/s/WeDa_JFM2023.pdf

129. Costello JH, Colin SP, Gemmell BJ, **Dabiri JO**, EA Kanso (2023) "A fundamental propulsive mechanism employed by swimmers and flyers throughout the animal kingdom," *Journal of Experimental Biology* 226: jeb245346. https://dabirilab.com/s/Co_etal_JEB2023.pdf

128. **Dabiri JO***, Sullivan KD*, Carter A, Fung I, Pacala S, Press W (2023) "Modernizing wildland firefighting to protect our firefighters: Report to the President," *Executive Office of the President of the United States*.
*Co-leads
https://dabirilab.com/s/DaSu_etal_PCAST2023.pdf

127. Fu MK, **Dabiri JO** (2023) "Magnetic signature of vertically migrating aggregations in the ocean," *Geophysical Research Letters* 50: e2022GL101441. https://dabirilab.com/s/FuDa_GRL2023.pdf

126. Du Clos KT, Gemmell BJ, Colin SP, Costello JH, **Dabiri JO**, Sutherland KR (2022) Distributed propulsion enables fast and efficient swimming modes in physonect siphonophores," *Proceedings of the National Academy of Sciences of the USA* 119 (49): e2202494119. https://dabirilab.com/s/Du_etal_PNAS2022.pdf

125. Xu NW, **Dabiri JO** (2022) "Bio-inspired ocean exploration," *Oceanography* 35 (2): 35-48. https://dabirilab.com/s/XuDa_Oceanography2022.pdf

124. Yang J, Yin Y, Landauer AK, Buyuktozturk S, Zhang J, Summey L, McGhee A, Fu MK, **Dabiri JO**, Franck C (2022) "SerialTrack: ScalE and Rotation Invariant Augmented Lagrangian Particle Tracking," *SoftwareX* 19: 101204. https://dabirilab.com/s/Ya_etal_SoftwareX2022.pdf

123. Gharaati M, Xiao S, Wei NJ, Martinez-Tossas LA, **Dabiri JO**, Yang D (2022) "Large eddy simulation of helical- and straight-bladed vertical axis wind turbines in atmospheric boundary layer turbulence," *Journal of Renewable and Sustainable Energy* 14: 053301. https://dabirilab.com/s/Gh_etal_JRSE2022.pdf

122. Howland MF, Quesada J, Martinez JP, Larranaga F, Yadav N, Chawla JS, Sivaram V, **Dabiri JO** (2022) "Collective wind farm operation based on a predictive model increases utility-scale energy production," Nature Energy, DOI 10.1038/s41560-022-01085-8. https://dabirilab.com/s/Ho_etal_NatureEnergy2022.pdf

121. Sun JJ, Ryou S, Goldshmid R, Weissbourd B, **Dabiri JO**, Anderson DJ, Kennedy A, Yue Y, Perona P (2022) "Self-supervised keypoint discovery in behavioral videos," 2022 Conference on Computer Vision and Pattern Recognition (CVPR). https://dabirilab.com/s/Ho_etal_WES2022.pdf

120. Howland MF, Ghate AS, Quesada J, Martinez JP, Zhong W, Larranaga F, Lele SK, **Dabiri JO** (2022) "Optimal closed-loop wake steering, Part 2: Diurnal cycle atmospheric boundary layer conditions," *Wind Energy Science* 7: 345-365. https://dabirilab.com/s/Ho_etal_WES2022.pdf

119. Wei NJ, **Dabiri JO** (2022) "Phase-averaged dynamics of a periodically surging wind turbine," *Journal of Renewable and Sustainable Energy* 14: 013305. https://dabirilab.com/s/WeDa_JRSE2022.pdf

118. Cardona JL, **Dabiri JO** (2022) "Wind speed inference from environmental flow-structure interactions. Part 2: Leveraging unsteady kinematics," *Flow* 2: E1. https://dabirilab.com/s/CaDa_Flow2022.pdf

117. Gunnarson P, Mandralis I, Novati G, Koumoutsakos P, **Dabiri JO** (2021) "Learning efficient navigation in vortical flow fields," *Nature Communications* 12: 7143. https://dabirilab.com/s/GuMaNoKoDa_NComm2021.pdf

116. Fu MK, Houghton IA, **Dabiri JO** (2021) "A single-camera, 3D scanning velocimetry system for quantifying active particle aggregations," *Experiments in Fluids* 62: 168. https://dabirilab.com/s/FuHoDa_EIF2021.pdf

115. Kanso E, Lopes RM, Strickler JR, **Dabiri JO**, Costello JH (2021) "Teamwork in the viscous oceanic microscale," *Proceedings of the National Academy of Sciences of the USA* 118 (29) e2018193118. https://dabirilab.com/s/Ka_etal_PNAS2021.pdf

114. Cardona JL, Bouman KL, **Dabiri JO** (2021) "Wind speed inference from environmental flow-structure interactions," *Flow* 1: E4. http://dabirilab.com/s/CaBoDa_Flow2021.pdf

113. Gemmell BJ, **Dabiri JO**, Colin SP, Costello JH, Sutherland KR, Townsend JP (2021) "Biological jet propulsion in marine invertebrates," *Journal of Experimental Biology* 224: jeb222083. https://dabirilab.com/s/Ge_etal_JEB2021.pdf

112. Abrams MJ, Tan FH, Basinger T, Heithe ML, Li Y, Raffiee M, Leahy P, **Dabiri JO**, Gold DA, Goentoro LA (2021) "A conserved strategy for inducing appendage regeneration," *eLife* 10: e65092.
https://dabirilab.com/s/Ab_etal_EL2021.pdf

111. Xu NW, Townsend JP, Costello JH, Colin SP, Gemmell BJ, **Dabiri JO** (2021) "Developing biohybrid robotic jellyfish (Aurelia aurita) for free-swimming tests in the laboratory and in the field," *Bio-protocol* 11 (07): e3974.
http://dabirilab.com/s/Xu_etal_Bioprotocol2021.pdf

110. Hoover AP, Xu NW, Gemmell BJ, Colin SP, Costello JH, **Dabiri JO**, Miller L (2021) "Neuromechanical wave resonance in jellyfish swimming," *Proceedings of the National Academy of Sciences of the USA* 118 (11): e2020025118.
http://dabirilab.com/s/Ho_etal_PNAS2021.pdf

109. Wei NJ, Brownstein ID, Cardona JL, Howland MF, **Dabiri JO** (2021) "Near-wake structure of full-scale vertical-axis wind turbines," *Journal of Fluid Mechanics* 914: A17.
http://dabirilab.com/s/We_etal_JFM2021.pdf

108. Howland MF, **Dabiri JO** (2021) "Influence of wake model superposition and secondary steering on model-based wake steering control with SCADA data assimilation," *Energies* 14: 52.
http://dabirilab.com/s/HoDa_Energies2021.pdf.

107. Costello JH, Colin SP, **Dabiri JO**, Gemmell BJ, Lucas KN, Sutherland KR (2021) "The hydrodynamics of jellyfish swimming," *Annual Review of Marine Science* 13: 5.1-5.22.
http://dabirilab.com/s/Co_etal_ARMS2021.pdf

106. Howland MF, Gonzalez C, Martinez JP, Quesada J, Larranaga F, Yadav N, Chawla J, **Dabiri JO** (2020) "Influence of atmospheric conditions on the power production of utility-scale wind turbines in yaw misalignment," *Journal of Renewable and Sustainable Energy* 12: 063307.
http://dabirilab.com/s/Ho_etal_JRSE2020.pdf

105. Xu NW, Townsend JP, Costello JH, Colin SP, Gemmell BJ, **Dabiri JO** (2020) "Field testing of biohybrid robotic jellyfish to demonstrate enhanced swimming speeds," *Biomimetics* 5 (4): 64.
http://dabirilab.com/s/Xu_etal_Biomimetics2020.pdf.

104. Howland MF, Ghate AS, Lele SK, **Dabiri JO** (2020) "Optimal closed-loop wake steering, Part 1: Conventionally neutral atmospheric boundary layer conditions," *Wind Energy Science* 5: 1315-1338.
http://dabirilab.com/s/HoGhLeDa_WES2020.pdf

103. Colin SP, Costello JH, Sutherland KR, Gemmell BJ, **Dabiri JO**, DuClos K (2020) "The role of suction thrust in the metachronal paddles of swimming invertebrates," *Scientific Reports* 10: 17790.
http://dabirilab.com/s/Co_etal_SR2020.pdf

102. Ouillon R, Houghton IA, **Dabiri JO**, Meiburg E (2020) "Active swimmers interacting with stratified fluids during collective vertical migration," *Journal of Fluid Mechanics* 902: A23.
http://dabirilab.com/s/OuHoDaMe_JFM2020.pdf

101. **Dabiri JO**, Colin SP, Gemmell BJ, Lucas KN, Leftwich MC, Costello JH (2020) "Jellyfish and fish solve the challenges of turning dynamics similarly to achieve high maneuverability," *Fluids* 5: 106.
http://dabirilab.com/s/Da_etal_Fluids2020.pdf

100. **Dabiri JO** (2020) "Theoretical framework to surpass the Betz limit using unsteady fluid mechanics," *Physical Review Fluids* 5: 022501(R).
http://dabirilab.com/s/Da_PRF2020.pdf

99. Xu NW, **Dabiri JO** (2020) "Low-power microelectronics embedded in live jellyfish enhance propulsion," *Science Advances* 6: eaaz3194.
http://dabirilab.com/s/XuDa_SciAdv2020c.pdf

98. Du Clos KT, **Dabiri JO**, Costello JH, Colin SP, Morgan JR, Fogerson SM, Gemmell BJ (2019) "Thrust generation during steady swimming and acceleration from rest in anguilliform swimmers," *Journal of Experimental Biology* 222: jeb212464.
http://dabirilab.com/s/Du_etal_JEB19.pdf

97. **Dabiri JO** (2019) "Landmarks and frontiers in biological fluid dynamics," *Physical Review Fluids* 4: 110501.
http://dabirilab.com/s/Da_PRF19.pdf

96. Cardona JL, Howland MF, **Dabiri JO** (2019) "Seeing the wind: Visual wind speed prediction with a coupled convolutional and recurrent neural network," 33rd Conference on Neural Information Processing Systems (NeurIPS 2019), Vancouver, Canada.
http://dabirilab.com/s/CaHoDa_NeurIPS19.pdf

95. Wilhelmus MM, Nawroth JC, Rallabandi B, **Dabiri JO** (2019) "Effect of swarm configuration on fluid transport during vertical collective motion," *Bioinspiration and Biomimetics* 15: 015002.
http://dabirilab.com/s/WiNaRaDa_BB19.pdf

94. Hui I, Cain BE, **Dabiri JO** (2019) "Environmental activism and wind turbine preferences in California," *Wind Energy* 22: 1733-1745.
http://dabirilab.com/s/HuCaDa_WE19.pdf

93. Howland MF, Lele SK, **Dabiri JO** (2019) "Wind farm power optimization through wake steering," *Proceedings of the National Academy of Sciences of the USA* 116 (29): 14495-14500.
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Invited Lectures

118. "Jellyfish-inspired Engineering," *Barbara McClintock Life Sciences Lecture*, *Cornell University*, April 21, 2026, Ithaca, NY.

117. "Biological propulsion in (and of?) the ocean," *Department of Biological and Environmental Engineering, Cornell University*, April 20, 2026, Ithaca, NY.

116. "Jellyfish-inspired Engineering," *Air Products Distinguished Lecture, Pennsylvania State University*, October 8, 2025, University Park, PA.

115. "Jellyfish-inspired Engineering," *J. Robert Oppenheimer Memorial Lecture*, June 2, 2025, Los Alamos, NM.

114. "Bioinspired ocean exploration," *American Physical Society March Meeting*, March 4, 2024, Minneapolis, MN.

113. "Bioinspired ocean exploration," *Mechanical and Aerospace Engineering Seminar, University of California at Irvine*, October 20, 2023, Irvine, CA.

112. "Analysis tools for Lagrangian data extremes," *15th International Symposium on Particle Image Velocimetry*, June 19-21, 2023, San Diego, CA.

111. G. Evelyn Hutchinson Award Lecture, *ASLO Aquatic Sciences Meeting*, June 4-9, 2023, Palma de Mallorca, Spain.

110. "Bioinspired ocean exploration," *Samuel Ginn College of Engineering Seminar, Auburn University*, March 15, 2023, Auburn, AL.

109. "Bioinspired ocean exploration," *Roger Revelle Commemorative Lecture, National Academies*, April 28, 2022, Washington, D.C. and virtual.

108. "Bioinspired ocean exploration," *Baetjer Colloquium, Princeton University*, April 8, 2022, Princeton, N.J. and virtual.

107. "Bioinspired ocean exploration," *AAAS Annual Meeting*, February 18, 2022 (virtual).

106. "Bioinspired ocean exploration," *Geophysical Fluid Dynamics Laboratory Seminar Series, Princeton University*, April 8, 2021 (virtual).

105. "Bioinspired ocean exploration," *Hassan Aref Memorial Lecture, Virginia Tech*, April 7, 2021 (virtual).

104. "Bioinspired ocean exploration," *Department of Mechanical Engineering Seminar Series, Johns Hopkins University*, April 1, 2021 (virtual).

103. "Biological propulsion in (and of?) the ocean," *Friday Evening Lecture, Marine Biological Laboratory*, August 2, 2019, Woods Hole, MA.

102. "Using ideas from fluid dynamics to analyze biological data," *Theory Lunch, Harvard Medical School*, February 22, 2019, Boston, MA.

101. "Hydrodynamics of collective swimming at intermediate Reynolds numbers," *Microscale Ocean Biophysics 5.0*, January 16, 2019, Whistler, Canada.

100. "Biological propulsion in (and of?) the ocean," *GALCIT Colloquium, California Institute of Technology*, December 7, 2018, Pasadena, CA.

99. "From jellyfish and wind turbines to genomics: dealing with data extremes in complex systems," *Math Across Campus Lecture, University of Washington*, November 9, 2018, Seattle, WA.

98. "Unsupervised clustering for coherent structure identification and Lagrangian data assimilation," *Geophysical Fluid Dynamics Summer Program*, July 31, 2018, Woods Hole, MA.

97. "Biological propulsion in (and of?) the ocean," *Sears Lecture, Woods Hole Oceanographic Institution*, July 30, 2018, Woods Hole, MA.

96. "Biological propulsion in (and of?) the ocean," *World Congress of Biomechanics*, July 12, 2018, Dublin, Ireland.

95. "Biological propulsion in (and of?) the ocean," *J. M. Burgers Lecture*, June 5, 2018, Lunteren, Netherlands.

94. "Next-generation wind energy," *TransAlta Future Technology Workshop*, April 10, 2018, Calgary, Alberta.

93. "Biological propulsion in (and of?) the ocean," *Ocean Sciences Meeting*, February 13, 2018, Portland, OR.

92. "Do swimming animals mix the ocean?" *Discovery Lecture Series, Cabrillo Marine Aquarium*, December 1, 2017, San Pedro, CA.

91. "Next-generation wind energy," *Energy @ Stanford and SLAC*, September 12, 2017, Stanford, CA.

90. "The role of fluid forces in aquatic animal morphogenesis," *Biomedical Engineering Distinguished Seminar, Boston University*, September 8, 2017, Boston, MA.

89. "Jellyfish, Wind Turbines, and Turbulence: Dealing with Data Extremes in Complex Flows," *Distinguished Mathematics Lecture, University of Oregon*, April 4, 2017, Eugene, OR.

88. "Opportunities and challenges for next-generation wind energy," *Dana M. Dourdeville Lecture on Engineering in Service to Society, Brown University*, November 11, 2016, Providence, RI.

87. "Opportunities and challenges for next-generation wind energy," *Mechanical and Aerospace Engineering Seminar Series, The Ohio State University*, October 28, 2016, Columbus, OH.

86. "Leveraging biology for persistent undersea sensing," *Defense Science Board 60th Anniversary*, September 20, 2016, Washington, D.C.

85. "Opportunities and challenges for next-generation wind energy," *Seminar Series on Issues in Environmental Science, Technology and Sustainability*, *Stanford University*, June 30, 2016, Stanford, CA.

84. "Do swimming animals mix the ocean?" *Earth System Science Seminar Series*, *Stanford University*, May 4, 2016, Stanford, CA.

83. "Opportunities and challenges for next-generation wind energy," *New Faculty Seminar*, *Stanford University*, April 26, 2016, Stanford, CA.

82. "Opportunities and challenges for next-generation wind energy," *National Academy of Engineering Annual Meeting, Mechanical Engineering Section*, October 5, 2015, Washington, D.C.

81. "Opportunities and challenges for next-generation wind energy," *Energy @ Stanford and SLAC*, September 10, 2015, Stanford, CA.

80. "Ocean mixing by swimming animals," *Laura Randall Schweppe Endowed Lecture, University of Texas*, May 14, 2015, Port Aransas, TX.

79. "Jellyfish-inspired engineering," *Math and Physics Guest Lecture, Azusa Pacific University*, April 6, 2015, Azusa, CA.

78. "Bioinspired wind energy: from fish schools and sea grass to better wind farms," *Keck Science Department Seminar, Claremont Colleges*, November 20, 2014, Claremont, CA.

77. "Bioinspired wind energy: from fish schools and sea grass to better wind farms," *Physics Colloquium, University of Texas at Austin*, November 5, 2014, Austin, TX.

76. "The roles of flexibility, vorticity, and pressure in efficient propulsion," *World Congress of Biomechanics*, July 6-11, 2014, Boston, MA.

75. "Bioinspired wind energy: from fish schools and sea grass to better wind farms," *O. M. Stewart Colloquium, University of Missouri at Columbia*, April 28, 2014, Columbia, MO.

74. "Bioinspired wind energy: from fish schools and sea grass to better wind farms," *Roddam Narasimha Distinguished Lecture, Indian Institute of Technology Gandhinagar*, January 31, 2014, Ahmedabad, India.

73. "A new school of thought for wind energy technology," *Mechanical Engineering Seminar, Stanford University*, December 10, 2013, Palo Alto, CA.

72. "Do swimming animals mix the ocean?," *American Physical Society Division of Fluid Dynamics Annual Meeting*, November 24-26, 2013, Pittsburgh, PA.

71. "Bioinspired wind energy: from fish schools and sea grass to better wind farms," *Offshore Wind IGERT Seminar Series, University of Massachusetts Amherst*, November 22, 2013, Amherst, MA.

70. "Bioinspired wind energy: from fish schools and sea grass to better wind farms," *Midwest Mechanics Seminar Series: University of Michigan, Michigan State University, University of Notre Dame, Northwestern University and University of Wisconsin at Madison*, November 4-8, 2013.

69. "Biogenic ocean mixing," *Workshop on Physical-Biological Interactions*, October 6-11, 2013, Eilat, Israel. Delivered by M. Martinez-Ortiz.

68. "Bioinspired wind energy: from fish schools and sea grass to better wind farms," *Midwest Mechanics Seminar Series: Purdue University, University of Illinois at Urbana-Champaign, Illinois Institute of Technology, Iowa State University, University of Minnesota*, September 23-27, 2013.

67. "Do swimming animals mix the ocean?," *Miller Institute Interdisciplinary Symposium*, *UC Berkeley*, June 7-9, 2013, Marshall, CA.

66. "Do swimming animals mix the ocean?," *Marine Science Seminar Series*, *Duke University*, May 1, 2013, Durham, NC.

65. "Do swimming animals mix the ocean?," *Denis and Jean Wiesenburg Distinguished Lecture in Ocean Science*, *University of Southern Mississippi*, April 23, 2013, Hattiesburg, MS.

64. "Bio-inspired propulsion," *Mechanical Engineering Seminar Series*, *Vanderbilt University*, April 19, 2013, Nashville, TN.

63. "Jellyfish-inspired engineering," *Evolutionary Morphology Seminar Series*, *University of Chicago*, February 7, 2013, Chicago, IL.

62. "A new approach to wind energy," *California Energy Commission*, December 14, 2012, Sacramento, CA.

61. "Do swimming animals mix the ocean?," *Gordon and Betty Moore Foundation*, December 11, 2012, Palo Alto, CA.

60. "Flexibility and vortex shedding in live and robotic jellyfish," *Fluid and Elasticity Conference*, November 14-16, 2012, La Jolla, CA.

59. "Jellyfish-inspired engineering," *CiBER-IGERT Seminar*, *UC Berkeley*, November 8, 2012, Berkeley, CA.

58. "Vortex-enhanced propulsion," *Center for Turbulence Research Tea*, *Stanford University*, November 2, 2012, Palo Alto, CA.

57. "Bioinspired wind energy: from fish schools and eel grass to wind farm," *Fluid Mechanics Seminar Series*, *Stanford University*, October 30, 2012, Palo Alto, CA.

56. "Jellyfish-inspired Engineering," *Comparative Physiology Invited Speaker Series*, *University of British Columbia*, October 22, 2012, Vancouver, Canada.

55. "Nature's propulsion methods," *29th Symposium on Naval Hydrodynamics*, August 26-31, 2012, Gothenburg, Sweden.

54. "Jellyfish-inspired engineering," *Department of Physics and Astronomy Colloquium*, *Pomona College*, February 28, 2012, Pomona, CA.

53. "A global approach to wind energy," *Global Alliance of Technological Universities Workshop*, December 7-8, 2011, Mumbai, India.

52. "A new approach to wind energy," *Mechanical Engineering Seminar Series*, *Carnegie Mellon University*, November 18, 2011, Pittsburgh, PA.

51. "Lagrangian fluid dynamic models for analysis of planktonic predator-prey systems and small-scale fluid motions," *Workshop on Coherent Structures in Dynamical Systems*, May 16-20, 2011, Leiden, Netherlands.

50. "Jellyfish-inspired engineering," *California State University at Dominguez Hills*, April 7, 2011, Carson, CA.

49. "Organisms causing flow: Darwinian mixing," *2011 Journal of Experimental Biology Symposium*, March 14-18, 2011, Cambridge, United Kingdom. Delivered by K. Katija.

48. "A new approach to wind energy," *Center for Environmental and Applied Fluid Mechanics Seminar, Johns Hopkins University*, March 5, 2011, Baltimore, MD.

47. "Vertical-axis wind turbines revisited," *Los Alamos National Laboratory Turbine-Turbine Interaction Workshop*, March 2-3, 2011, Los Alamos, NM.

46. "Jellyfish-inspired propulsion," *Society for Integrative and Comparative Biology Symposium: Bioinspiration: Applying Mechanical Design to Experimental Biology*, January 3-7, 2011, Salt Lake City, UT.

45. "Do swimming animals mix the ocean?," *Center for Fluid Mechanics, Turbulence, and Computation, Brown University*, November 2, 2010, Providence, RI.

44. "Do swimming animals mix the ocean?," *Monterey Bay Aquarium Research Institute Seminar*, October 20, 2010, Monterey Bay, CA.

43. "Do swimming animals mix the ocean?," *Ecology and Evolutionary Biology Seminar*, *University of California at Los Angeles*, October 6, 2010, Los Angeles, CA.

42. "Order-of-magnitude enhancement of wind power density via optimized vertical-axis wind turbine arrays," *Resnick Institute Sustainable Energy and Infrastructure Forum*, September 16-17, 2010, Pasadena, CA.

41. "Using vortices for locomotion," *University of Minnesota Institute for Mathematics and Its Applications Workshop on Natural Locomotion in Fluids and on Surfaces: Swimming, Flying, and Sliding*, June 1-5, 2010, Minneapolis, MN.

40. "Unsteady hydrodynamics in bio-inspired propulsion," *T. Francis Ogilvie Lecture, Massachusetts Institute of Technology*, May 7, 2010, Cambridge, MA.

39. "Fish schooling as a basis for vertical axis wind turbine farm design," *First World Summit on Small Wind Turbines*, March 19, 2010, Husum, Germany. Delivered by R.W. Whittlesey.

38. "A Darwinian mechanism for biogenic ocean mixing," *Ecology Seminar Luncheon*, *Scripps Institution of Oceanography*, March 10, 2010, La Jolla, CA.

37. "Jellyfish-inspired Engineering," *Alabama School for Math and Science*, November 19, 2009, Mobile, AL.

36. "A Darwinian mechanism for biogenic ocean mixing," *Colloquium Series, Dauphin Island Sea Lab*, November 19, 2009, Dauphin Island, AL.

35. "Jellyfish-inspired Engineering," *Civil and Environmental Engineering Seminar*, *Stanford University*, November 13, 2009, Palo Alto, CA.

34. "A Darwinian mechanism for biogenic ocean mixing," *Hopkins Marine Station Seminar*, *Stanford University*, November 12, 2009, Palo Alto, CA.

33. "Jellyfish-inspired Engineering," *Virginia Air and Space Museum Sigma Lecture*, November 3, 2009, Hampton, VA.

32. "Unsteady hydrodynamics in bio-inspired propulsion," *NASA Langley Research Center*, November 3, 2009, Hampton, VA.

31. "Jellyfish-inspired Engineering," *Cabrillo Marine Aquarium Friends Lecture*, September 18, 2009, San Pedro, CA.

30. "Fluid dynamic constraints on morphology and propulsion of medusa at low Reynolds numbers," *Thematic Conference on Gelatinous Plankton of the Adriatic Sea*, *University of Dubrovnik*, May 12-13, 2009, Dubrovnik, Croatia.

29. "A Darwinian mechanism for biogenic ocean mixing," *Environmental Fluid Mechanics and Hydrology Seminar*, *Stanford University*, May 4, 2009, Palo Alto, CA.

28. "Unsteady hydrodynamics in bio-inspired propulsion," *2009 Enzo Levi Lecture, National University of Mexico*, April 24, 2009, Mexico City, Mexico.

27. "Jellyfish-inspired Engineering," *Earnest C. Watson Lecture, California Institute of Technology*, April 22, 2009, Pasadena, CA.

26. "Unsteady hydrodynamics in bio-inspired propulsion," *College of Engineering Seminar*, *University of Michigan*, February 19, 2009, Ann Arbor, MI.

25. "Unsteady hydrodynamics in bio-inspired propulsion," *IGERT Seminar Series, Cornell University*, January 22, 2009, Ithaca, NY.

24. "The role of fluid forces in aquatic animal morphogenesis," *Minisymposium on Flow-Biology Interactions, International Conference of the American Society of Civil Engineers Engineering Mechanics Institute*, May 18-21, 2008, Minneapolis, MN.

23. "Lagrangian studies of animal swimming and aquatic predator-prey interactions," *Applied Mechanics Colloquium, Harvard University*, April 23, 2008, Cambridge, MA.

22. "Lagrangian studies of animal swimming and aquatic predator-prey interactions," *Mechanics Seminar Series, Massachusetts Institute of Technology*, April 22, 2008, Cambridge, MA.

21. "The role of fluid forces in aquatic animal morphogenesis," *Biophysics Seminar Series, Princeton University*, April 21, 2008, Princeton, NJ.

20. "Lagrangian studies of animal swimming and aquatic predator-prey interactions," *Biomechanics Seminar Series, University of California at San Diego*, April 9, 2008, La Jolla, CA.

19. "Lagrangian studies of animal swimming and aquatic predator-prey interactions," *Focus Session on the Fluid Dynamics of Animal Motion, American Physical Society March Meeting*, March 10-14, 2008, New Orleans, LA.

18. "Measuring unsteady efficiency and performance of biological and bio-inspired propulsors," *Aerospace and Mechanical Engineering, University of Southern California*, November 14, 2007, Los Angeles, CA.

17. "Measuring unsteady efficiency and performance of biological and bio-inspired propulsors," *Aeronautics and Astronautics*, *University of Washington*, November 5, 2007, Seattle, WA.

16. "Measuring unsteady efficiency and performance of biological and bio-inspired propulsors," *Mechanical Engineering, Stanford University*, October 16, 2007, Palo Alto, CA.

15. "Measuring unsteady efficiency and performance of biological and bio-inspired propulsors," *Colloquium on Nature-Inspired Fluid Mechanics,* October 8-9, 2007, Darmstadt, Germany.

14. "Vorticity-free analyses of animal swimming measurements," *Symposium on Dynamics and Control of Aquatic Locomotion*, *SIAM Dynamical Systems Meeting*, May 28-June 1, 2007, Snowbird, UT.

13. "Jellyfish-inspired diagnostics for heart failure and vehicle propulsive efficiency," *Center for Biologically Inspired Design, Georgia Institute of Technology*, April 23, 2007, Atlanta, GA.

12. "Non-invasive studies of animal propulsion and sensing," *Aerospace Engineering and Engineering Mechanics, San Diego State University*, April 12, 2007, San Diego, CA.

11. "Non-invasive studies of animal propulsion and sensing," *Mechanical and Aerospace Engineering, University of California at Los Angeles*, January 19, 2007, Los Angeles, CA.

10. "The role of animal-fluid interactions in shaping medusan morphological diversity," *Ecology and Evolutionary Biology*, *University of California at Irvine*, October 13, 2006, Irvine, CA.

9. "Estimating locomotive forces from wake measurements," *World Congress of Biomechanics*, July 29-August 4, 2006, Munich, Germany.

8. "Progress toward the non-invasive determination of animal swimming and feeding dynamics," *15th U.S. National Congress on Theoretical and Applied Mechanics*, June 25-30, 2006, Boulder, CO.

7. "Non-invasive studies of animal propulsion and sensing," *Mechanical Engineering, Stanford University*, May 9, 2006, Palo Alto, CA.

6. "Non-invasive studies of animal swimming and feeding," *Center for Interdisciplinary Research in Fluid Physics Seminar, University of California at Santa Barbara*, March 1, 2006, Santa Barbara, CA.

5. "Mechanics of biological propulsion," *Global Enterprise for Micro-Mechanics and Molecular Medicine Colloquium*, October 11-13, 2005, Boston, MA.

4. "Optimal vortex ring formation in biological flows," *Conference on Vortex Rings and Filaments in Classical and Quantum Systems*, June 6-10, 2005, Trieste, Italy.

3. "Jellyfish swimming and the dynamics of animal vortex wakes, revisited," *International Congress of Physiological Sciences*, March 28-30, 2005, Pasadena, CA.

2. "Optimal vortex formation as a unifying principle for biological fluid transport," *Mechanical and Aerospace Engineering, Princeton University*, December 13, 2004, Princeton, NJ.

1. "Optimal vortex formation as a unifying principle in biological propulsion," *Mechanical and Industrial Engineering, University of Illinois at Urbana-Champaign*, November 8, 2004, Urbana, IL.

Conference Proceedings and Abstracts

Students and Postdoctoral Scholars underlined.

230. Fu MK, **Dabiri JO** (2026) "Examining how fluid motion affects the quantum spin relaxation of nitrogen-vacancy (NV) centers in diamond," *Bulletin of the American Physical Society Global Physics Summit*, March 15-20, Denver, CO.

229. Yoder N, **Dabiri JO** (2026) "Robotically augmented jellyfish for deep ocean sensing," *Bulletin of the American Physical Society Global Physics Summit*, March 15-20, Denver, CO.

228. Mohebbi N, **Dabiri JO** (2026) "Collective behavior shapes aggregate fluid dynamics in brine shrimp (*Artemia salina*) migration," *Society of Integrative and Comparative Biology Annual Meeting*, January 3-7, Portland, OR

227. Anuszczyk SR, **Dabiri JO** (2026) "Electrojellies and their energetic wakes," *Society of Integrative and Comparative Biology Annual Meeting*, January 3-7, Portland, OR

226. Fu MK, **Dabiri JO** (2025) "Examining how fluid motion affects the quantum spin relaxation of nitrogen-vacancy (NV) centers in diamond," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 23-25, Houston, TX.

225. Anuszczyk SR, Phaychanpheng K, **Dabiri JO** (2025) "Soft bodied and hardwired: Quantifying biohybrid jellyfish wake hydrodynamic," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 23-25, Houston, TX.

224. Yoder N, **Dabiri JO** (2025) "Swimming performance of robotically controlled jellyfish in three dimensional trajectories," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 23-25, Houston, TX.

223. Fu MK, **Dabiri JO** (2025) "Towards quantum-enhanced flow sensing methods using nitrogen-vacancy (NV) centers in diamond," *American Physical Society Global Physics Summit*, March 16-21, Anaheim, CA.

222. Rutledge KM, **Dabiri JO** (2025) "Assessing the capabilities of biohybrid robotic jellyfish for vertical ocean profiling," *Society of Integrative and Comparative Biology Annual Meeting*, January 3-7, Atlanta, GA.

221. Mohebbi N, Fu MK, **Dabiri JO** (2025) "Collective behavior and emergent fluid dynamics during vertical migration," *Society of Integrative and Comparative Biology Annual Meeting*, January 3-7, Atlanta, GA.

220. Anusczcyk SR, **Dabiri JO** (2025) "A non-invasive technique for metabolic rates of free-swimming jellyfish," *Society of Integrative and Comparative Biology Annual Meeting*, January 3-7, Atlanta, GA.

219. Yoder N, **Dabiri JO** (2025) "Frequency impact on swimming mechanics of robotically-controlled jellyfish," *Society of Integrative and Comparative Biology Annual Meeting*, January 3-7, Atlanta, GA.

218. Fu MK, **Dabiri JO** (2024) "Towards quantum-enhanced flow sensing methods using nitrogen-vacancy (NV) centers in diamond," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 24-26, Salt Lake City, UT.

217. Goldshmid RH, **Dabiri JO**, Sader JE (2024) "Leaf motion for flow characterization: generalizing visual anemometry," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 24-26, Salt Lake City, UT.

216. Rutledge KM, **Dabiri JO** (2024) "Biohybrid robot jellyfish act as buoyancy-controlled vertical profiling samplers," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 24-26, Salt Lake City, UT.

215. Anuszczyk SR, **Dabiri JO** (2024) "Propulsive efficiency of robotically controlled jellyfish for ocean exploration," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 24-26, Salt Lake City, UT.

214. Gunnarson PJ, **Dabiri JO** (2024) "Surfing vortex rings for energy-efficient propulsion," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 24-26, Salt Lake City, UT.

213. Yoder N, **Dabiri JO** (2024) "Impact of swimming frequency on robotically-controlled jellyfish swimming dynamics," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 24-26, Salt Lake City, UT.

212. Wei NJ, Fleisher AY, Kurelek JW, Rival DE, **Dabiri JO**, Hultmark M (2024) "Traveling waves in the wakes of dynamically controlled wind turbines," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 24-26, Salt Lake City, UT.

211. Mohebbi N, Shendrikar SR, Fu MK, **Dabiri JO** (2024) "Simultaneous fluid flow and active particle tracking in three dimensions during collective swimming," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 24-26, Salt Lake City, UT.

210. Wei NJ, El Makdah A, Hu J, Kaiser F, Rival DE, **Dabiri JO** (2024) "Wake structure of a periodically surging turbine," *TORQUE 2024*, Florence, Italy.

209. Rutledge KM, **Dabiri JO** (2024) "Complex flow in stingray nostril geometry may passively enhance odor capture," *Society of Integrative and Comparative Biology Annual Meeting*, January 2-6, Seattle, WA.

208. Anuszczyk SR, **Dabiri JO** (2024) "Robotically controlled jellyfish: Biomechanics of modified bell shapes," *Society of Integrative and Comparative Biology Annual Meeting*, January 2-6, Seattle, WA.

207. Mohebbi N, Hwang J, Fu MK, **Dabiri JO** (2024) "Experiments and modelling of swarming induced fluid velocity," *Society of Integrative and Comparative Biology Annual Meeting*, January 2-6, Seattle, WA.

206. Goldshmid RH, Liu H, Shen L, **Dabiri JO** (2023) "Towards generalization of visual anemometry using honami wave theory," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 19-21, Washington, DC.

205. Rutledge KM, **Dabiri JO** (2023) "Hydrodynamics of passive environmental DNA (eDNA) detection," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 19-21, Washington, DC.

204. Anuszczyk SR, **Dabiri JO** (2023) "Robotically controlled jellyfish: Modifying swimming dynamics with mechanical forebodies," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 19-21, Washington, DC.

203. Gunnarson PJ, **Dabiri JO** (2023) "Fish-inspired navigation via flow sensing in an autonomous robotic swimmer," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 19-21, Washington, DC.

202. Yoder N, Wei NJ, **Dabiri JO** (2023) "Unsteady flow effects on surging hydrokinetic turbines," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 19-21, Washington, DC.

201. Wei NJ, El Makdah A, Hu J, Kaiser F, Rival DE, **Dabiri JO** (2023) "Unsteady flows can help turbines surge ahead in power production," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 19-21, Washington, DC.

200. Mohebbi N, Hwang J, Fu MK, **Dabiri JO** (2023) "An analytical model of induced flow velocity by vertically migrating swarms informed by 3D organism tracking," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 19-21, Washington, DC.

199. Mohebbi N, Fu MK, **Dabiri JO** (2023) "Experiments and models of swarming during diurnal vertical migrations," *ASLO Aquatic Sciences Meeting*, June 4-9, Palma de Mallorca, Spain.

198. Anuszczyk SR, **Dabiri JO** (2023) "Enhanced swimming and physiological limits of robotically controlled *Aurelia aurita* jellyfish," *ASLO Aquatic Sciences Meeting*, June 4-9, Palma de Mallorca, Spain.

197. Rutledge K, Murphy C, Gordon MS, **Dabiri JO** (2023) "Sensing chemicals in the marine environment: stingray chemoreception," *ASLO Aquatic Sciences Meeting*, June 4-9, Palma de Mallorca, Spain.

196. Gunnarson PJ, **Dabiri JO** (2022) "Fish-inspired navigation via flow sensing in an autonomous robotic swimmer," *ASLO Aquatic Sciences Meeting*, June 4-9, Palma de Mallorca, Spain.

195. Rutledge K, Gordon MS, **Dabiri JO** (2023) "Fluid dynamics of chemical scent detection in stingrays," *Society for Integrative and Comparative Biology Annual Meeting*, January 3-7, Austin, TX.

194. Anuszczyk SR, **Dabiri JO** (2023) "Enhanced swimming and hydrodynamic efficiency of robotically controlled *Aurelia aurita*," *Society for Integrative and Comparative Biology Annual Meeting*, January 3-7, Austin, TX.

193. Mohebbi N, Fu MK, **Dabiri JO** (2023) "3D aggregation dynamics of vertically migrating brine shrimp at different swarm densities," *Society for Integrative and Comparative Biology Annual Meeting*, January 3-7, Austin, TX.

192. Costello JH, Colin SP, Gemmell BJ, **Dabiri JO**, Kanso E (2023) "Turning kinematics of the scyphomedusa *Aurelia aurita*," *Society for Integrative and Comparative Biology Annual Meeting*, January 3-7, Austin, TX.

191. Wei NJ, El Makdah A, Hu J, Kaiser F, Rival DE, **Dabiri JO** (2022) "Realizing the potential of periodically surging turbines for increased power production," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 20-22, Indianapolis, IN.

190. Fu MK, **Dabiri JO** (2022) "Magnetic signature of vertically migrating aggregations in the ocean," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 20-22, Indianapolis, IN.

189. Mohebbi N, Fu MK, **Dabiri JO** (2022) "Tracking plankton configurations during vertical migration at different densities," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 20-22, Indianapolis, IN.

188. Anuszczyk SR, **Dabiri JO** (2022) "Hydrodynamic efficiency of robotically controlled *Aurelia aurita* in a vertical water treadmill," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 20-22, Indianapolis, IN.

187. Rutledge K, Murphy CT, Gordon MS, **Dabiri JO** (2022) "Fluid dynamics of chemical scent detection in stingrays," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 20-22, Indianapolis, IN.

186. Gunnarson PJ, **Dabiri JO** (2022) "Fish-inspired navigation via flow sensing in an autonomous robotic swimmer," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 20-22, Indianapolis, IN.

185. Goldshmid R, **Dabiri JO** (2022) "Physical constraints on visual anemometry from vegetation displacement statistics," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 20-22, Indianapolis, IN.

184. Xu NW, Townsend J, Costello JH, Colin SP, Gemmell BJ, **Dabiri JO** (2022) "Biohybrid robotic jellyfish for potential applications in biology, soft robotics, and ocean exploration," *Bulletin of the American Physical Society March Meeting*, March 14-18, 2022, Chicago, IL.

183. Costello JH, Colin SP, Gemmell BJ, **Dabiri JO**, Kutherland KR (2022) "Translating while rotating - swimming by the scyphomedusae Aurelia aurita," *Ocean Sciences Meeting*, February 24 – March 4 (virtual).

182. Rutledge K, Murphy C**, Dabiri JO**, Gordon MS (2022) "Fluid dynamics of chemical scent detection in stingrays," *Ocean Sciences Meeting*, February 24 – March 4 (virtual).

181. Mohebbi N, Xu NW, **Dabiri JO** (2022) "Seawater battery for microscale sensing platforms," *Ocean Sciences Meeting*, February 24 – March 4 (virtual).

180. Goldshmid R, **Dabiri JO** (2022) "Visual AnemomeTree: using deep learning to predict wind speeds from videoclips of swaying trees in nature," *Ocean Sciences Meeting*, February 24 – March 4 (virtual).

179. Wei NJ, **Dabiri JO** (2022) "The influence of wave-induced surge oscillations on the power production of floating offshore wind turbines," *Ocean Sciences Meeting*, February 24 – March 4 (virtual).

178. Gunnarson PJ, Mandralis I, Novati G, Koumoutsakos P, **Dabiri JO** (2022) "Robotic implementation of online deep reinforcement learning for autonomous underwater navigation," *Ocean Sciences Meeting*, February 24 – March 4 (virtual).

177. Fu MK, **Dabiri JO** (2022) "Towards quantum-enhanced sensors for ocean science using nitrogen-vacancy (NV) centers in diamond," *Ocean Sciences Meeting*, February 24 – March 4 (virtual).

176. Gunnarson PJ, Mandralis I, Novati G, Koumoutsakos P, **Dabiri JO** (2021) "Robotic implementation of online deep reinforcement learning for autonomous underwater navigation," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 21-23, Phoenix, AZ.

175. Fu MK, **Dabiri JO** (2021) "Towards quantum-enhanced flow sensing using nitrogen-vacancy (NV) centers in diamond," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 21-23, Phoenix, AZ.

174. Howland MH, Gonzalez CM, Martinez JJP, Quesada JB, Larranaga FP, Yadav NK, Chawla JS, Sivaram V, **Dabiri JO** (2021) "Wind farm flow control: Demonstrating potential at utility-scale," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 21-23, Phoenix, AZ.

173. Mohebbi N, Xu NW, **Dabiri JO** (2021) "Influence of flow on seawater battery fouling," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 21-23, Phoenix, AZ.

172. Goldshmid R, **Dabiri JO** (2021) "Visual AnemomeTree: using deep learning to predict wind speeds from videoclips of swaying trees in nature," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 21-23, Phoenix, AZ.

171. Wei NJ, **Dabiri JO** (2021) "Why the long phase? Disambiguating the dynamics of a periodically surging wind turbine," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 21-23, Phoenix, AZ.

170. Fu MK, Houghton IA, **Dabiri JO** (2021) "Reconstructing configurations of zooplankton aggregations and their biogenic flows with 3D scanning velocimetry," *DARS-SWARM2021*, June 1-4 (virtual).

169. Du Clos KT, Gemmell BJ, Colin SP, Costello JH, **Dabiri JO**, Sutherland KR (2021) "Synchronous swimming in siphonophores yields higher maximum speeds but lower efficiency and higher cost of transport," *Society for Integrative and Comparative Biology Annual Meeting*, January 3-February 28 (virtual).

168. Colin SP, Costello JH, Sutherland KR, Gemmell BJ, **Dabiri JO**, DuClos K (2021) "The role of suction thrust in the metachronal paddles of swimming invertebrates," *Society for Integrative and Comparative Biology Annual Meeting*, January 3-February 28 (virtual).

167. Howland MF, **Dabiri JO** (2020) "Influence of atmospheric boundary layer wind speed and direction shear on utility-scale yaw misaligned turbines," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 22-24, Chicago, IL (virtual).

166. Cardona JL, **Dabiri JO** (2020) "Response of flexible cantilevered cylinders in wind," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 22-24, Chicago, IL (virtual).

165. Xu NW, Townsend J, Costello JH, Colin SP, Gemmell BJ, **Dabiri JO** (2020) "Field testing of biohybrid robotic jellyfish to demonstrate enhanced swimming speeds," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 22-24, Chicago, IL (virtual).

164. Gunnarson PJ, Mandralis I, Novati G, Koumoutsakos P, **Dabiri JO** (2020) "Deep reinforcement learning for efficient navigation in vortical flow fields," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 22-24, Chicago, IL (virtual).

163. Fu MK, Houghton IA, **Dabiri JO** (2020) "Quantifying biogenic turbulence through 3D scanning particle image velocimetry," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 22-24, Chicago, IL (virtual).

162. Wei NJ, **Dabiri JO** (2020) "Placing Betz on the improvement of wind turbine efficiencies through unsteady streamwise motion," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 22-24, Chicago, IL (virtual).

161. Kanso E, Lopes RM, Strickler JR, **Dabiri JO**, Costello JH (2020) "Teamwork in the viscous oceanic microscale," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 22-24, Chicago, IL (virtual).

160. Xu NW, **Dabiri JO** (2020) "Robotic control of live jellyfish swimming to enhance propulsion," *Bulletin of the American Physical Society March Meeting*, March 2-4, Denver, CO.

159. Houghton IA, **Dabiri JO** (2020) "Alleviation of hypoxia by biologically generated mixing from aggregations of centimeter-scale swimmers," *Ocean Sciences Meeting*, February 16-21, San Diego, CA.

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30. **Dabiri JO**, Katija K (2007) "Progress toward 3D wake structure measurements of aquatic animals using SCUVA," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 18-20, Salt Lake City, UT.

29. Katija K, **Dabiri JO** (2007) "Energetics of jellyfish locomotion determined from field measurements using a Self-Contained Underwater Velocimetry Apparatus (SCUVA)," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 18-20, Salt Lake City, UT.

28. Peng J, **Dabiri JO** (2007) "Optimal stroke patterns for a model jellyfish swimmer with thin, flexible body," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 18-20, Salt Lake City, UT.

27. Trevino LA, **Dabiri JO** (2007) "Experimental comparison of steady and unsteady propulsion of a self-propelled swimmer," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 18-20, Salt Lake City, UT.

26. Katija K, **Dabiri JO** (2007) "Real-time field measurements of *Aurelia aurita* using a self-contained underwater velocimetry apparatus (SCUVA)," *Second International Jellyfish Blooms Symposium*, June 24-27, Brisbane, Australia.

25. Peng J, **Dabiri JO** (2007) "Hydrodynamic force evaluation based on vortex structure," *Southern California Symposium on Flow Physics*, April 7, Pasadena, CA.

24. Katija K, **Dabiri JO** (2007) "Dynamics of tethered versus free-swimming jellyfish: A motivating argument for the Self-Contained Underwater Velocimetry Apparatus (SCUVA)," *Southern California Symposium on Flow Physics*, April 7, Pasadena, CA.

23. Katija K, **Dabiri JO** (2007) "Tethering versus free-swimming: a wake analysis of *Aurelia aurita*," *Society for Integrative and Comparative Biomechanics Annual Meeting*, January 3-7, Phoenix, AZ.

22. Costello JH, Colin SP, **Dabiri JO** (2007) "Morphological diversity of medusan lineages in shaped by animal-fluid interactions," *Proceedings of the American Society of Limnology and Oceanography 2007 Aquatic Sciences Meeting*, February 4-9, Santa Fe, NM.

21. **Dabiri JO** (2006) "A vorticity-free approach to wake-based swimming/flying force estimation," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 19-21, Tampa, FL.

20. Peng J, **Dabiri JO** (2006) "Identification of vortex structures in the wake of swimming and flying animals," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 19-21, Tampa, FL.

19. Katija K, **Dabiri JO** (2006) "Dynamics of tethered versus free-swimming animals: a wake structure comparison," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 19-21, Tampa, FL.

18. Shadden SC, Katija K, **Dabiri JO**, Marsden JE (2006) "Transport induced by vortex formation," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 19-21, Tampa, FL.

17. Peng J, **Dabiri JO** (2006) "Determination of vortex structures in the wake of swimming and flying animals," *World Congress of Biomechanics*, July 29-August 4, Munich. Germany.

16. Katija K, Gharib M, **Dabiri JO** (2006) "Flow-induced flutter of prosthetic heart valves," *World Congress of Biomechanics*, July 29-August 4, Munich. Germany.

15. **Dabiri JO** (2005) "On the estimation of swimming and flying forces from wake measurements," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 20-22, Chicago, IL.

14. Katija K, Gharib M, **Dabiri JO** (2005) "Characterization of fluid flow through a simplified heart valve model," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 20-22, Chicago, IL.

13. Shadden SC, **Dabiri JO**, Marsden JE (2005) "Geometry of unsteady flows," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 20-22, Chicago, IL.

12. Thomas AMP, **Dabiri JO**, Mohseni K, Burdick JW (2005) "Synthetic jet propulsion for small underwater vehicles," *14th International Symposium on Unmanned Untethered Submersible Technology*, August 21-24, Durham, NH.

11. **Dabiri JO**, Colin SP, Costello JH, Gharib M (2005) "Flow patterns generated by oblate medusan swimmers: *in situ* observation and analysis," *Proceedings of the American Society of Limnology and Oceanography 2005 Aquatic Sciences Meeting*, February 20-25, Salt Lake City, UT.

10. **Dabiri JO**, Gharib M (2004) "Fluid transport by pulsed-jet swimmers: entrainment and added mass in vortex wakes," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 21-23, Seattle, WA.

9. Krueger PS, **Dabiri JO**, Gharib M (2004) "The formation number of vortex rings formed in the presence of uniform background co-flow," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 21-23, Seattle, WA.

8. **Dabiri JO**, Morell R, Thompson N, Gharib M (2003) "Vortex rings as an essential feature of animal swimming," *International Symposium on Aqua Bio-mechanisms*, September 14-17, Honolulu, HI.

7. Krueger PS, **Dabiri JO**, Gharib M (2003) "Swimming performance limits in vortex ring-based propulsive mechanisms," *International Symposium on Aqua Bio-mechanisms*, September 14-17, Honolulu, HI.

6. **Dabiri JO**, Milano M, Gharib M (2003) "Generalization and optimization of biological and biomimetic ejection mechanisms," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 23-25, East Rutherford, NJ.

5. **Dabiri JO**, Gharib M (2002) "Toward empirical evaluation of left ventricle function: a novel mathematical mapping," *Joint Meeting of the IEEE Engineering in Medicine and Biology Society and the Biomedical Engineering Society*, October 23-26, Houston, TX.

4. **Dabiri JO**, Krueger PS, Gharib M (2002) "The effect of uniform background flow on vortex ring formation and pinch-off," *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 24-26, Dallas, TX.

3. **Dabiri JO** (2002) "Ejection mechanisms and kinematics of the left ventricle," *Proceedings of the 2002 Southern California Biomedical Engineering Symposium*, January 18, Los Angeles, CA.

2. **Dabiri JO** (2000) "Analysis of ejection mechanisms and vortex dynamics during hydrozoan jelly locomotion," *Proceedings of the 2000 California Institute of Technology Fellowship Seminars*, August 15 and September 18, Pasadena, CA.

1. **Dabiri JO** (1999) "Analysis and optimization of small-scale rotor blades using computational fluid dynamics and experimental methods," *Proceedings of the Ninth NASA Space Grant Conference*, August 15, Hoboken, NJ.

Patents and Patent Applications

"Self-Contained Underwater Velocimetry Apparatus" U.S. Patent No. 7,864,305
"Two-Dimensional Array of Turbines" U.S. Patent No. 8,545,168
"Methods and systems for comparing vertical axis turbine arrays and providing configurations thereof" U.S. Patent No. 8,949,097 and 9,399,981
"V-shaped arrangements of turbines" U.S. Patent No. 9,175,669
"Devices and methods for harvesting power from arrays of wind turbines" U.S. Patent No. 9,214,811
"Tissue-engineered pumps and valves and uses thereof" U.S. Patent No. 9,669,141

Teaching Experience

California Institute of Technology
Instructor (2005 – present)
Biological Flows: Propulsion (Aeronautics/Bioengineering 242; one-term course). *Newly developed course*. Taught 2005-2006, 2006-2007, 2010-2011, 2021-2022.
Biomechanics (Bioengineering 5/105; one-term course). Taught 2009-2010, 2011-2012. *Taught as a Freshman Seminar in 2011-2012.*
Experimental Methods (Aeronautics/Applied Physics 104; three-term course). Taught 2007-2008, 2008-2009, 2020-2021, 2023-2024, 2024-2025, 2025-2026.
Fluid Mechanics (Mechanical Engineering 19; two-term course). Taught 2011-2012, 2013-2014.

Participating Faculty (2006)
Frontiers in Dynamical Systems (Control and Dynamical Systems 273).

Guest Lecturer (2002 – 2005)
Bio-fluid Mechanics (Bioengineering/Aeronautics 243, 2003 – 2005).
Advanced Fluid Mechanics (Aeronautics 201, 2002).

Research Co-mentor (2002 – 2004)
Summer Undergraduate Research Fellowship Program

Stanford University
Instructor (2015 – 2019)
Fluid Mechanics (Mechanical Engineering). Taught 2016-2017.
Mechanics of Fluids (Civil and Environmental Engineering). Taught 2015-2016.
Physics of Wind Energy (Civil and Environmental Engineering and Mechanical Engineering). *Newly developed course.* Taught 2015-2016, 2017-2018.
Principles of Mechanical Measurements (Mechanical Engineering). *Newly developed course.* Taught 2018-2019.

Participating Faculty (2018)
Mechanical Engineering Senior Design Capstone

Princeton University
Study Hall Instructor (2000 – 2001)
Freshman Physics and Mathematics

Tutor (1998 – 2000)
Freshman Physics and Mathematics

Laboratory Instructor (1998 – 1999)
Introduction to Computer Science

Professional Service

Board of Directors, NVIDIA Corporation (2020 – present)
Board of Trustees, Gordon and Betty Moore Foundation (2020 – present)
Board of Trustees, Princeton University (2026 – present)
Advisory Board, XPRIZE Wildfire (2023 – present)
Guest Editor, *Proceedings of the National Academy of Sciences* (2012 – present)
President's Council of Advisors on Science and Technology (2021 – 2025)
Secretary of Energy Advisory Board (2021 – 2025)
Board of Directors, Hypothesis Fund (2022 – 2024)
Editorial Board, *Journal of the Royal Society Interface* (2014 – 2023)
National Academies of Science, Engineering, and Medicine Committee on Science, Technology, and Law (2020 – 2023)
Chair, American Physical Society Division of Fluid Dynamics (2021)
Vice Chair, American Physical Society Division of Fluid Dynamics (2019 – 2020)
Scientific Consultant, "NOPE" (2022, Directed by Jordan Peele)
Editorial Board, *Journal of Fluid Mechanics* (2016 – 2020)
Referee (2005 – present)
Bioinspiration and Biomimetics, *Chaos*, *Computers and Fluids*, *European Journal of Fluid Mechanics*, *Experimental Mechanics*, *Experiments in Fluids*, *Geophysical Research Letters*, *Integrative and Comparative Biology*, *International Journal of Marine Sciences*, *Journal of Computational Physics*, *Journal of Experimental Biology*, *Journal of Fluid Mechanics*, *Journal of Fluids and Structures*, *Journal of Nonlinear Science*, *Journal of Visualization*, *Nature Energy*, *Ocean Modelling*, *Physical Review Letters*, *Physics Letters A*, *Physics of Fluids*, *Proceedings of the National Academy of Sciences*, *Proceedings of the Royal Society A*, *Research Letters in Ecology*, *Scientia Marina*, *Theoretical and Computational Fluid Dynamics*, National Science Foundation (mail and panel review), U.S. Agency for International Development
American Physical Society Division of Fluid Dynamics, Fluid Dynamics Prize Committee (2024 – present; Vice Chair, 2024; Chair, 2025)
American Physical Society Division of Fluid Dynamics Fellowship Committee (2017 – 2020; Chair, 2020)
American Physical Society Division of Fluid Dynamics Program Committee (Chair, 2020)
Co-Organizer, Future Leaders in Mechanical and Aerospace Engineering (2020 – present)
Advisory Council, Princeton University Department of Mechanical and Aerospace Engineering

(2015 – present)
Co-Chairman (with T. Zohdi), AmeriMech Symposia, U.S. National Committee for Theoretical and Applied Mechanics, (2015 – 2018)
Advisor to X, the Moonshot Factory at Alphabet (2018 – 2019)
Member, American Physical Society Division of Fluid Dynamics ExComm (2014 – 2017)
Board of Advisors, University of California at Riverside Department of Mechanical Engineering (2016 – 2018)
Member, U.S. National Committee for Theoretical and Applied Mechanics, (2013 – 2016)
Organizing Committee, International Conference on Theoretical and Applied Mechanics (2016)
External Research Advisory Committee, Cabrillo Marine Aquarium (2007 – 2015)
Defense Science Study Group (2014 – 2015)
Organizing Committee, NSF Workshop on Fluid Dynamics of Living Systems (2014)
Organizing Committee, SIAM Conference on Applications of Dynamical Systems (2013)
Guest Editor, Special Issue on Wind Energy, *Journal of Turbulence* (2013)
American Physical Society Committee on Media and Science Relations (2013 – 2014)
American Physical Society Andreas Acrivos Award Committee (2010 – 2011, 2015 – 2016; Chair, 2011; Vice Chair, 2015)
Organizing Committee, American Physical Society Division of Fluid Dynamics 2010 Meeting (2006 – 2010)
Minisymposium Co-Organizer, "Wind Energy Fluid Dynamics," American Physical Society Division of Fluid Dynamics Meeting (2011)
Minisymposium Co-Organizer, "Biological Perspectives on Locomotion," American Physical Society Division of Fluid Dynamics Meeting (2010)
Minisymposium Organizer, "Lagrangian Coherent Structures in Fluid Flows," American Physical Society Division of Fluid Dynamics Meeting (2008)
Handling Editor, *Theoretical and Computational Fluid Dynamics* (2007 – 2009)
Guest Editor, Special Issue on Lagrangian Coherent Structures, *Chaos* (2009)

Academic Service

California Institute of Technology
Academic Freedom and Tenure Committee (2024 – present)
First-Year Academic Advisor (2023 – present)
Faculty Athletics Committee (2023 – present)
Faculty Liaison, Women's Basketball Team (2023 – present)
Housner Fund Committee (2022 – present)
Executive Committee, Resnick Sustainability Institute (2019 – 2025)
Building Committee, Resnick Sustainability Institute (2019 – 2025)
Chair, Aerospace Faculty Search Committee (2022 – 2024)
Director, Translational Science Facilities, Resnick Sustainability Institute (2019 – 2022)
Committee on Diversity, Equity and Inclusion, Division of Engineering and Applied Science (2020 – 2022)
Committee on Diversity, Equity and Inclusion, Division of Geological and Planetary Sciences (2020 – 2021)
Committee on Patents and Relations with Industry (2020 – present; Chair, 2021 – 2022)

Dean of Undergraduate Students (2014 – 2015)
Director, Center for Bioinspired Wind Energy (2010 – 2015)
Faculty Board (2007 – 2015; Vice Chair, 2011 – 2012; Chair, 2013 – 2014; *ex officio*, 2014 – 2015)
Board of Trustees Institute-Alumni Relations Committee (*ex officio*, 2013 – 2015)
Institute Administrative Council (*ex officio*, 2013 – 2015)
Committee on Undergraduate Education (*ex officio*, 2013 – 2015)
Curriculum Committee (*ex officio*, 2013 – 2015)
Core Curriculum Steering Committee (*ex officio*, 2013 – 2015)
Convocations Committee (*ex officio*, 2013 – 2015)
Scholarships and Financial Aid Committee (*ex officio*, 2013 – 2015)
Student Life and Housing Committee (*ex officio*, 2013 – 2015)
Undergraduate Academic Standards and Honors Committee (*ex officio*, 2013 – 2015)
Administrative Management Council (*ex officio*, 2013 – 2014)
Athenaeum House Committee (*ex officio*, 2013 – 2014)
Committee on Online Education (2013 – 2014)
Faculty Committee on Membership and Bylaws (Chair *ex officio*, 2011 – 2012)
Convocation Committee (*ex officio*, 2011 – 2012)
Summer Undergraduate Research Fellowship Administrative Committee (2009 – 2014)
Review Committee, Senior Research Fellow, Associate and Lecturer Appointments (2006 – 2015)
Faculty Co-chair, Graduate Student-Faculty Colloquium (2012)
Faculty Search Committee, (Applied Physics, 2007 – 2008; Bioengineering, 2006 – 2009; Biology, 2006 – 2010; Mechanical Engineering, 2009 – 2011)
Faculty Club Advisor, Techers for a Sustainable Future (2013 – 2015)
Faculty Club Advisor, Caltech Christian Fellowship (2013 – 2015)
Faculty Club Advisor, Korean Campus Crusade for Christ (2013 – 2015)
Bioengineering Undergraduate Curriculum Committee (2007 – 2009)
Graduate Admissions Committee (Aeronautics, 2005 – present; Bioengineering, 2007 – 2008)
GALCIT Awards Committee (2009)
GALCIT Machine Shop Committee (2007 – 2008)
Selection Committee, Richard Bruce Chapman Memorial Award in Hydrodynamics (2009)
Selection Committee Chair, Demetriades-Tsafka Prize in Bioengineering/Related Fields (2007)
Panel Member, Academic Job Search, Women-Mentoring-Women Program (2008)
Panel Member, New Faculty Seminar (2008)
Panel Member, Caltech Project for Effective Teaching (2007)
Coordinator, GALCIT Colloquium (2013 – 2014)
Coordinator, GALCIT Research Conference (2006 – 2007, 2010 – 2011)
Coordinator, Bioengineering Seminar Series (2005 – 2006)
Coordinator, Freshman Summer Institute Research Program (2003 – 2008)
Coordinator, Biomechanics Colloquium (2003 – 2004)
Student Representative, Option in Bioengineering (2002)
Graduate Review Board (2002)
Graduate Student Council Board of Directors (2001 – 2002)

Stanford University

Academic Council Advisory Board (2018)
Board of Directors, Center for Advanced Study in the Behavioral Sciences (2018 – 2020)
Academic Advisory Council, Center for Advanced Study in the Behavioral Sciences (2018 – 2020)
Board of Trustees Committee on Development (2018 – 2019)
Long-Range Planning Design Team Co-Chair, Flexible Resources (2018 – 2019)
Committee on Undergraduate Admissions and Financial Aid (2017 – 2019)
Undergraduate Advisory Council, Vice Provost for Undergraduate Education (2018 – 2019)
Strategic Advisory Council, TomKat Center for Sustainable Energy (2018 – 2019)
Hasso Plattner Institute of Design (d.school) Director's Council (2018 – 2019)
Faculty Affordability Committee (2018 – 2019)
Long-Range Planning Area Steering Group for Research (2017 – 2018)
Elected Member, Senate of the Academic Council (2017 – 2019)
Steering Committee, Senate of the Academic Council (2018 – 2019)
Director of Graduate Studies, Mechanical Engineering (2018 – 2019)
Graduate Curriculum Committee, Mechanical Engineering (2015 – 2019)
Committee on Graduate Student Experience, Mechanical Engineering (2016 – 2019; Co-chair 2016)
Vision Committee, Civil and Environmental Engineering (2017 – 2019)
Frontiers in Civil and Environmental Engineering Seminar Series Committee (2016 – 2019)
Faculty Resource Advisor, DARE (Diversifying Academia, Retaining Excellence) Doctoral Fellowship Program (2016 – 2019)
Selection Advisory Committee, DARE (Diversifying Academia, Retaining Excellence) Doctoral Fellowship Program (2016 – 2019)
Faculty Athletics Fellow, Men's Soccer Team (2016 – 2019)
Founding Director, Catalyst for Collaborative Solutions (2016 – 2017)
Center for Turbulence Research Steering Committee (2015 – 2017)
Coordinator, Fluid Mechanics Seminar Series (Winter term, 2015 – 2016)

Princeton University

Alumni Schools Committee, Princeton University (2001 – 2004)
Undergraduate Engineering Committee, Princeton University (2000 – 2001)
School of Engineering Leadership Council, Princeton University (2000)

Other

Professional Staff Selection Committee, University of Toledo (2001)

Current Graduate Students & Postdoctoral Scholars

Nathan Nguyen, B.S. (Georgia Institute of Technology)
Noa Yoder, B.S. (Massachusetts Institute of Technology), M.S. (Caltech)

Former Graduate Students & Postdoctoral Scholars

Simon Anuszczyk, Ph.D. (Aeronautics), 2026
Maggie Brown, M.S. (Aeronautics), 2025
Nina Mohebbi, Ph.D. (Aeronautics), 2025
Peter J. Gunnarson, Ph.D. (Aeronautics), 2024
Nathan J. Wei, Ph.D. (Aeronautics), 2023
Malaika Cordeiro, M.S. (Bioengineering), 2023
Jennifer L. Cardona, Ph.D. (Mechanical Engineering), 2021
Michael F. Howland, Ph.D. (Mechanical Engineering), 2020
Nicole W. Xu, Ph.D. (Bioengineering), 2020
Valerie A. Troutman, Ph.D. (Mechanical Engineering), 2019
Isabel A. Houghton, Ph.D. (Civil and Environmental Engineering), 2019
Ian D. Brownstein, Ph.D. (Mechanical Engineering), 2018
Kristy L. Schlueter-Kuck, Ph.D. (Mechanical Engineering), 2018
Anna Craig, Ph.D. (Mechanical Engineering), 2017
Monica Martinez Wilhelmus, Ph.D. (Mechanical Engineering), 2015
Daniel Araya, Ph.D. (Aeronautics), 2015
Robert W. Whittlesey, Ph.D. (Aeronautics), 2013
Clara O'Farrell, Ph.D. (Control and Dynamical Systems), 2013
Janna C. Nawroth, Ph.D. (Biology), 2012
Kakani Katija Young, Ph.D. (Bioengineering), 2010
Lydia Ann Ruiz, Ph.D. (Mechanical Engineering), 2009
Jifeng Peng, Ph.D. (Bioengineering), 2009
Madeline Diane Miller, M.S. (Mechanical Engineering), 2009
Cole D. Lepine, M.S. (Control and Dynamical Systems), 2008
Ann-Marie Polsenberg-Thomas, Ph.D. (Mechanical Engineering), 2006

Roni Hilel Goldshmid, Postdoctoral Scholar (Aerospace), 2024
Kelsi Rutledge, Postdoctoral Scholar (Aerospace), 2024
Matthew Fu, Postdoctoral Scholar (Aeronautics), 2022
Michael Howland, Postdoctoral Scholar (Aeronautics), 2021
Mahdi Abkar, Postdoctoral Scholar (Mechanical Engineering), 2017
Matthias Kinzel, Postdoctoral Scholar (Aeronautics), 2014
Janna C. Nawroth, Postdoctoral Scholar (Bioengineering), 2013
Kelly Rakow Sutherland, Postdoctoral Scholar (Bioengineering), 2011
Shawn C. Shadden, Postdoctoral Scholar (Bioengineering), 2006

Ph.D. Dissertation Committees

Tristan Villanueva, Mechanical Engineering, Caltech
Grace Chen, Chemistry, Caltech
Xiaotian Ma, Medical Engineering, Caltech
Alejandro Stefan Zavala, Aeronautics, Caltech
Hong Han, Medical Engineering, Caltech
Yuting, Huang, Mechanical Engineering, Caltech
Sze Chai Leung, Mechanical Engineering, Caltech
Zein Sadak, Mechanical and Materials Engineering, Portland State
Scott Bollt, Aeronautics, Caltech (Ph.D. 2026)
Shichen Liu, Chemical Engineering, Caltech (Ph.D. 2026)
Soyoung Shin, Chemical Engineering, Caltech (Ph.D. 2026)
Meredith Hooper, Aeronautics, Caltech (Ph.D. 2025)
Ioannis Mandralis, Aeronautics, Caltech (Ph.D. 2025)
Sean Devey, Aeronautics, Caltech (Ph.D. 2025)
Stephanie O'Gara, Mechanical Engineering, Caltech (Ph.D. 2025)
Eric Ballouz, Mechanical Engineering, Caltech (Ph.D. 2025)
Sorina Lupu, Aeronautics, Caltech (Ph.D. 2025)
Tanner Harms, Aeronautics, Caltech (Ph.D. 2024)
Jean Sebastien Spratt, Aeronautics, Caltech (Ph.D. 2024)
Victor Dorobantu, Computing and Mathematical Sciences, Caltech (Ph.D. 2023)
Emily Palmer, Aeronautics, Caltech (Ph.D. 2023)
Kelsi Rutledge, Ecology and Evolutionary Biology, UCLA (Ph.D. 2023)
Peter Renn, Aeronautics, Caltech (Ph.D. 2023)
Ethan Pickering, Mechanical Engineering, Caltech (Ph.D. 2021)
Anna-Katharina von Krauland, Civil and Environmental Engineering, Stanford
Emile Oshima, Aeronautics, Caltech (Ph.D. 2022)
Ellande Tang, Aeronautics, Caltech (Ph.D. 2022)
Nils Tack, Biology, University of South Florida (Ph.D. 2022)
Ryan Song, Mechanical Engineering, Caltech (Ph.D. 2022)
Chris Dougherty, Aeronautics, Caltech (Ph.D. 2022)
Scott Katalenich, Civil and Environmental Engineering, Stanford (Ph.D. 2020)
Lei Fang, Civil and Environmental Engineering, Stanford (Ph.D. 2020)
Giacomo Lamberti, Civil and Environmental Engineering, Stanford (Ph.D. 2020)
Brooke Husic, Chemistry, Stanford (Ph.D. 2019)
Alexander Ioannidis, Computational and Mathematical Engineering, Stanford (Ph.D. 2019)
Michelle DiBenedetto, Civil and Environmental Engineering, Stanford (Ph.D. 2019)
Ben Hightower, Mechanical Engineering, Stanford (Ph.D. 2019)
David Ching, Mechanical Engineering, Stanford (Ph.D. 2019)
Diana Chin, Mechanical Engineering, Stanford (Ph.D. 2019)
Haripriya Mukundarjan, Bioengineering, Stanford (Ph.D. 2019)
Aditya Ghate, Aeronautics and Astronautics, Stanford (Ph.D. 2018)
Daniel Borup, Mechanical Engineering, Stanford (Ph.D. 2018)
Rivers Ingersoll, Mechanical Engineering, Stanford (Ph.D. 2017)
Santiago Padron, Aeronautics and Astronautics, Stanford (Ph.D. 2017)
Uche Monu, Electrical Engineering, Stanford (Ph.D. 2017)

Justin Briggs, Materials Science and Engineering, Stanford (Ph.D. 2017)
Hsieh-Chen Tsai, Mechanical Engineering, Caltech (Ph.D. 2016)
Kevin Ryan, Mechanical Engineering, Stanford (Ph.D. 2016)
Clara Druzgalski, Mechanical Engineering, Stanford (Ph.D. 2016)
Georgios Katsikis, Bioengineering, Stanford (Ph.D. 2016)
Reeve Dunne, Mechanical Engineering, Caltech (Ph.D. 2015)
Julia Cosse, Aeronautics, Caltech (Ph.D. 2014)
Joy Zhao, Electrical Engineering, Caltech (Ph.D. 2014)
Adrianus Aria, Aeronautics, Caltech (Ph.D. 2013)
Hesham Azizgolshani, Bioengineering, Caltech (Ph.D. 2013)
Philipp Boettcher, Aeronautics, Caltech (Ph.D. 2012)
Wendian Shi, Electrical Engineering, Caltech (Ph.D. 2012)
Pablo Abad-Manterola, Mechanical Engineering, Caltech (Ph.D. 2011)
John Meier, Mechanical Engineering, Caltech (Ph.D. 2011)
Daegyoum Kim, Aeronautics, Caltech (Ph.D. 2010)
Jeff Krimmel, Mechanical Engineering, Caltech (Ph.D. 2010)
Philip DuToit, Control and Dynamical Systems, Caltech (Ph.D. 2009)
Jennifer Franck, Mechanical Engineering, Caltech (Ph.D. 2009)
Brian Kot, Ecology and Evolutionary Biology, UCLA (Ph.D. 2009)
Ben Lin, Bioengineering, Caltech (Ph.D. 2009)
Mike Liu, Bioengineering, Caltech (Ph.D. 2009)
Emily McDowell, Bioengineering, Caltech (Ph.D. 2009)
Gwyneth Card, Bioengineering, Caltech (Ph.D. 2008)
Derek Rinderknecht, Bioengineering, Caltech (Ph.D. 2008)
Kunihiko Taira, Mechanical Engineering, Caltech (Ph.D. 2008)
Laurence Loumes, Aeronautics, Caltech (Ph.D. 2007)
Shawn Shadden, Control and Dynamical Systems, Caltech (Ph.D. 2006)

Undergraduate Research Advisees

Parnika Singh (2026)
Kyra Phaychanpheng (2025, SURF)
Siddhartha Shendrikar (2024, SURF)
Giannka Garcia Picache (2023, WAVE)
Joonha Hwang (2023, SURF)
Shelby Madruga (2022, AMP)
Danna Xue (2018, SURI)
Hannah Williams (2018, SURI)
Kelyn Wood (2017 – 2018, SURI, SUPER)
Marina Dimitrov (2017, SURI)
Carrie von Muench (2016 – 2017)
Minh Ngo Duc (2016 – 2017, SURI)
Sara Berg-Love (2016 – 2017, SURI)
Claudia Brunner (2016)
Shalini Majumdar (2014)
Leslie Timms (2014)

Vivian Huang (2013 – 2014, SURF)
Nicole Xu (2013, SURF)
Kelsey Lucas (2013)
Aditya Bhattaru (2012)
Matthew Fu (2012, SURF, Senior Thesis, Mechanical Engineering)
Timea Kosztin (2012)
Katherine Taylor (2012, SURF)
Anna Craig (2011 – 2012, SURF, Senior Thesis, Applied Physics)
Megan Larisch (2011, SURF)
Quinn Mulligan (2011, SURF)
Brad Saund (2011, SURF)
Garrett Lewis (2010 – 2011, Senior Thesis, Applied Physics)
Joseph Laurenti (2010, SURF)
Caitlin Regan (2010, SURF)
Karthik Balakrishnan (2008 – 2009, Senior Thesis, Mechanical Engineering)
Brant Belson (2006, SURF)
Fei Yang (2008, SURF)
Zhonglin Zhang (2007 – 2008, Senior Thesis, Control and Dynamical Systems)

Professional Affiliations

American Association for the Advancement of Science
American Geophysical Union
American Institute for Aeronautics and Astronautics
American Physical Society
American Society of Mechanical Engineers
IEEE Engineering in Medicine and Biology Society
Sigma Xi National Research Honor Society
Society for Integrative and Comparative Biology
Tau Beta Pi National Engineering Honor Society