Kakani Katija (Young)

7700 Sandholdt Rd.
Moss Landing, CA 95039

(831) 775-1952
kakani@mbari.org

EDUCATION

California Institute of Technology, Pasadena, CA — April 2010
PhD, Bioengineering Option

California Institute of Technology, Pasadena, CA — June 2005
MS, Aeronautics Option

University of Washington, Seattle, WA — June 2004
BS, Aeronautics and Astronautics

RESEARCH EXPERIENCE

Principal Engineer, Monterey Bay Aquarium Research Institute — **2017-present**
- Bioinspiration Lab
- Deep Ocean Inspiration Group (DOIG)
- Big Ocean, Big Data and FathomNet

Visiting Associate Professor in Aerospace, California Institute of Technology — **2021-present**
In situ fluid-structure interactions, robotics

Research Associate, National Museum of Natural History, Smithsonian Institution — **2017-present**
Polychaete movement ecology

Postdoctoral Fellow, Monterey Bay Aquarium Research Institute — **2015-2017**
- DeepPIV: Flow from the surface to seafloor
- Biomechanics and ecology of deep-sea invertebrates
- Invertebrate (squid, jellies) tagging

Research Associate, Hopkins Marine Station, Stanford University — **2014-2015**
- Fluid transport mechanisms of swimming animals
- Invertebrate (squid, jellies) tagging

Postdoctoral Scholar & Investigator, Woods Hole Oceanographic Institution — **2010-2014**
Biogenic mixing by schooling organisms

Graduate Researcher, California Institute of Technology — **2004-2010**
- Jellyfish propulsion for bio-inspired design, advised by JO Dabiri
- Lagrangian coherent structures (LCS) for bio-propulsion
- Vortex ring interactions with heart valve leaflets, advised by M Gharib

Undergraduate Researcher, University of Washington — **2003-2004**
- Effects of acceleration profiles on Rayleigh-Taylor flow, advised by RE Breidenthal
- Mars Gravity Biosatellite, advised by AP Bruckner

DEVELOPMENT EXPERIENCE

EyeRIS (Remote Imaging System) — **2019-present**

Principal Investigator. Lightfield imaging systems for volumetric particle characterizations, 3D particle tracking, and surface reconstructions on ROVs/AUVs.

StealthCam **2019-present**

Principal Investigator. Multispectral imaging system to enable studies of animal behavioral response to wavelength of light.

ROV-VR (Virtual Reality) **2019-present**

Engineering contributor. Deep sea, virtual reality imaging system deployed from a remotely operated vehicle.

Miniature Isopycnal Floats (MinIons) **2019-present**

Co-Principal Investigator. Autonomous, low-cost, Lagrangian floats to study vertical export for geochemical cycling. Evaluating stereo imaging systems for quantification of particle flux rates.

ML (Machine Learning) Tracking **2018-present**

Principal Investigator. Integration of machine learning detection and classification algorithms to automate the acquisition and long-duration tracking of visual targets.

FathomNet **2018-present**

Principal Investigator. Image training set for machine learning algorithms using existing and future underwater imagery and video.

Mesobot **2017-2020**

Co-Principal Investigator. Underwater vehicle with fluid sampling and stereo cameras to autonomously track midwater animals for more than 24 hrs. Contributed to overall vehicle design and stereo tracking algorithms.

DeepPIV (Particle Image Velocimetry) **2015-present**

Principal Investigator and Project Manager. Deep sea, laser-sheet imaging system deployable from a remotely operated vehicle to measure particle fields and 3D reconstructions.

Invertebrate Tag (ITAG) **2014-2019**

Co-Principal Investigator. Biologging tags to measure organismal vital rates and environmental parameters on soft-bodied invertebrates (e.g., squid and jellyfish).

Self-Contained Underwater Velocimetry Apparatus (SCUVA) **2007-2010**

Engineer. Scuba-diver based laser-sheet imaging system to measure particle fields. With JO Dabiri (Caltech).

PROFESSIONAL SERVICE ACTIVITIES

Society of Integrative and Comparative Biology

Member at Large, Executive Committee (2020-2023)

National Geographic Society and Partners

National Geographic Explorer: Outreach projects with NG Education, NG Kids, NG Live, NG Learning

MBARI Service Activities

- *External Review Committee*: Report and presentation contributor
- *Search Committees*: Embedded Systems Software Engineer, EyeRIS Research Engineer, ML-Tracking Research Engineer, Bioinspiration Lab Research Engineering Technician, JellyMove Research Assistant, Principal Engineer (general), Principal Investigator (microbiology), MiniROV/Electrical Engineer
- *Other Committees*: Shipboard telepresence
- *Design Reviews*: DeepPIV, EyeRIS, ROV-VR, StealthCam, Mesobot

Research Proposal Reviewer

National Science Foundation Division of Ocean Sciences (OTIC and BO), Division of Integrative Organismal Systems (IDBR), Antarctic Organisms and Ecosystems; National Oceanic and Atmospheric Administration Aquarius, National Geographic Society Expeditions Council, Schmidt Ocean Institute

Journal Reviewer

Journal of Experimental Biology, Deep Sea Research Part II, Journal of Geophysical Research, Bioinspiration and Biomimetics, Physics of Fluids, Journal of Fluid Mechanics, Estuaries and Coasts, Marine Technology Society Journal, Proceedings of the National Academy of Sciences, Biology Letters, Nature, Science

Society Membership

Professional Association of Diving Instructors, American Academy of Underwater Sciences, Divers Alert Network, American Geophysical Union, American Physical Society, American Society of Limnology and Oceanography, Society of Integrative and Comparative Biology, Deep-Sea Biology Society

HONORS and AWARDS

Invited Attendee, US Frontiers of Engineering Symposium, National Academy of Engineering, Virtual.	2020-2021
TEDx Speaker, Catalina High School, Monterey, CA	2019
Assistant Professor of Mechanical Engineering, University of Colorado, Boulder – Declined	2017
Assistant Professor of Zoology, University of British Columbia – Declined	2017
Assistant Professor of Ocean Resources Engineering, University of Hawaii – Declined	2017
Assistant Professor of Biology, Occidental College – Declined	2016
TED Women Speaker, Monterey, CA	2015
Postdoctoral Fellow, Monterey Bay Aquarium Research Institute	2015
TED Youth Speaker, Brooklyn, NY	2014
Kavli Frontiers Fellow, National Academy of Sciences	2013
National Geographic Society Emerging Explorer	2011
Women's Champion – 1st Annual Cape Cod Oktoberfest Keg Toss	2011
Devonshire Postdoctoral Fellow, Woods Hole Oceanographic Institution	2010
Assistant Professor of Mechanical Engineering, University of Colorado, Colo. Spr.– Declined	2010
Assistant Professor of Engineering Science and Mechanics, Virginia Tech – Declined	2009
NASA Academy, Ames Research Center	2004
NASA Reduced Gravity Student Flight Opportunities Program	2004
Sigma Gamma Tau: National Aerospace Honor Society	2003

U.S. Olympic Figure Skating Team, Second Alternate	2002
Edy Award for Best U.S. Nationals Performance, Pro Skater's Association	2001
Phi Theta Kappa: National Two-Year College Honor Society	2000
U.S. International Figure Skating Team Member	1999-2003
1st Place, United States National Championships, Novice Ice Dancing	1999

PUBLICATIONS and PATENTS (underline – mentee; * - shared first authorship)

Allentoft-Larsen MC, Gonzalez BC, Daniels J, Katija K, Osborn K, Worsaae K (2021). "Muscular adaptations in swimming scale worms (Polynoidae, Annelida)." *Royal Society Open Science* 8: 210541.

Katija K, Orenstein E, Schlining B, Lundsten L, Barnard K, Sainz G, Boulais O, Woodward B, and Bell KC (2021). "FathomNet: A global underwater image training set for enabling artificial intelligence in the ocean." *arXiv*: 2109.14646.

Yoerger DR, Govindarajan AF, Howland JC, Llopiz JK, Wiebe PH, Curran M, Fujii J, Gomez-Ibanez D, Katija K, Robison BH, Hobson BW, Risi M, Rock SM (2021). "Mesobot: A hybrid underwater robot for multidisciplinary investigation of the Ocean Twilight Zone." *Science Robotics*, 6:55.

Katija K, Schlining B, Lundsten L, Barnard K, Sainz G, Boulais O, Woodward B, Croff Bell KL (2021). "FathomNet: An open, underwater image repository for automated detection and classification of midwater and benthic animals." *Marine Technology Society Journal*, 55:3, 136-137.

Byron ML, Murphy DW, Katija K, Hoover AP, Daniels J, Garayev K, Takagi D, Kanso E, Gemmell BJ, Ruszczyk M, Santhanakrishnan A (2021). "Metachronal motion across scales: Current challenges and future directions." *Integrative and Comparative Biology*, icab105.

Daniels J, Aoki N, Havassy J, Katija K, Osborn KJ (2021). "Metachronal swimming with flexible legs: A kinematics analysis of the midwater polychaete *Tomopteris*." *Integrative and Comparative Biology*, icab059.

Hoover A, Daniels J, Nawroth J, Katija K (2021). "A computational model for tail undulation and fluid transport in the giant larvacean." *Fluids*, 6:88.

Katija K, Roberts PLD, Daniels J, Lapides A, Barnard K, Risi M, Ranaan BY, Takahashi J, Woodward BG (2021). "Visual tracking of deepwater animals using machine learning-controlled robotic underwater vehicles." *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, 860-869.

Boulais O, Woodward B, Lundsten L, Barnard K, Schlining B, Bell KC, Katija K (2020). "*FathomNet*: An underwater image training database for ocean exploration and discovery." *arXiv*: 2007.00114.

Masmitja I, J Navarro, S Gomariz, J Aguzzi, B Kieft, T O'Reilly, K Katija, PJ Bouvet, C Fannjiang, M Vigo, P Puig, A Alcocer, G Vallicrosa, N Palomeras, M Carreras, J Del-Rio, JB Company (2020). "Mobile robotic platforms for the acoustic tracking of deep-sea demersal fishery resources." *Science Robotics,* 5:48, eabc3701.

Katija K, Troni G, Daniels J, Lance K, Sherlock RE, Sherman AD, Robison BH (2020). "DeepPIV reveals the 3D structure of giant larvacean mucus houses in the Ocean Twilight Zone." *Nature*, 583, 78-82.

Flaspohler G, Mooney TA, Katija K, Fontes J, Afonso P, Shorter KA (2019). "Quantifying the swimming gaits of veined squid (*Loligo forbesii*) using bio-logging tags. *J. Exp. Biol*., 222: jeb198226.

Fannjiang C, Mooney TA, Shorter KA, Mann D, Katija K (2019). "Augmenting biologging with supervised machine learning to study in situ behavior of the medusa *Chrysaora fuscescens*." *J. Exp. Biol.*,

22: 16.

Choy CA, Robison BH, Gagne TO, Erwin B, Firl E, Halden RU, Hamilton JA, Katija K, Lisin SE, Rolsky C, Van Houtan KS (2019). The vertical distribution and biological transport of marine microplastics across the epipelagic and mesopelagic water column. *Nature Sci. Rep.*, 9: 7843.

Katija K*, Choy CA*, Sherlock RE, Sherman AD, Robison BH (2017). "From the surface to the seafloor: How giant larvaceans transport microplastics into the deep sea." *Science Advances,* e1700715.

Katija K, Sherlock RE, Sherman AD, Robison BH (2017). "New technology reveals role of giant larvaceans in oceanic carbon cycling." *Science Advances*, e1602374.

Katija K, Sherman AD, Robison BH (2016). "DeepPIV: Fluid visualizations from the ocean surface to the seafloor." *APS-DFD Gallery of Fluid Motion,* doi:10.1103/APS.DFD.2016.GFM.V0085.

Fossette S, Katija K, Goldbogen JA, Bograd S, Patry W, Howard MJ, Knowles T, Haddock SHD, Bedell L, Hazen EL, Robison BH, Mooney TA, Shorter KA, Bastian T, Gleiss AC (2016). "How to tag a jellyfish? A methodological review and guidelines to successful jellyfish tagging." *Journal of Plankton Research*, doi:10.1093/plankt/fbw073.

Katija K (2015). "Morphology alters fluid transport and the ability of organisms to mix oceanic waters." *Integrative and Comparative Biology,* 55(4): 698-705.

Mooney, T.A.*, K. Katija*, K.A. Shorter*, T. Hurst, J. Fontes, and P. Afonso (2015). "ITAG: An eco-sensor for fine-scale behavioral measurements of soft-bodied marine invertebrates." *Animal Biotelemetry*, 3: 31.

Katija K, S.P. Colin, J.H. Costello, and H. Jiang (2015). "Ontogenetic propulsive transitions by medusae *Sarsia tubulosa.*" *Journal of Experimental Biology*, 218: 2333-2343.

Lucas K, Colin SP, Costello JH, Katija K, Klos E (2013). "Fluid interactions that enable stealth predation by the upstream foraging hydromedusa *Craspedacusta sowerbyi*." *Biological Bulletin*, vol. 225(1), pp. 60-70.

Katija K, Jiang H (2013). "Swimming by medusae *Sarsia tubulosa* in the viscous vortex ring limit." *Limnology and Oceanography: Fluids and Environments*, vol. 3, pp. 103-118.

Colin SP, Costello JH, Katija K, Seymour J, Kiefer K (2013). "Propulsion in Cubomedusae: Mechanisms and Utility." *PlOs One,* vol. 8(2), e56393.

Katija K (2012). "Biogenic inputs to ocean mixing." *Journal of Experimental Biology*, vol. 215, pp. 1040-1049.

Katija K, Colin SP, Dabiri JO, Costello JH (2011). "Quantitatively measuring in situ flows using a self-contained underwater velocimetry apparatus (SCUVA)." *Journal of Visualized Experiments*, vol. 56, e2615.

Katija K, Colin SP, Dabiri JO, Costello JH (2011). "Comparison of flows generated by *Aequorea victoria*: A coherent structure analysis." *Marine Ecological Progress Series*, vol. 435, pp. 111-123.

Dabiri JO, Young KK, Costello JH, Colin SP (2011) "Self-contained underwater velocimetry apparatus." *US Patent*, No. 7864305.

Dabiri JO, Colin SP, Katija K, Costello JH (2010). "A wake-based correlate of swimming performance and foraging behavior in seven co-occurring jellyfish species." *Journal of Experimental Biology,* vol. 213(8), pp. 1217-1225.

Katija K, Dabiri JO (2009). "A viscosity-enhanced mechanism for biogenic ocean mixing." *Nature*, vol. 460, pp. 624-626.

Rosenfeld M, Katija K, Dabiri JO (2009) "Circulation generation and vortex ring formation by static conic nozzles." *Journal of Fluids Engineering*, vol. 131(9).

Katija K, Dabiri JO (2008) "Real-time field measurements of aquatic animal-fluid interactions using a self-contained underwater velocimetry apparatus (SCUVA)." *Limnology and Oceanography: Methods,* vol. 6, pp. 162-171.

Shadden SC, Katija K, Rosenfeld M, Marsden JE, Dabiri JO (2007) "Transport and stirring induced by vortex formation." *Journal of Fluid Mechanics,* vol. 593, pp. 315-331.

PUBLICATIONS in PREPARATION (underline – advised student; * - shared first authorship)

Katija K, Daniels J, Sherlock RE, Sherman AD, Robison BH (2020). "Giant larvacean mucus house construction as revealed by DeepPIV."

Roberts PLD, Ruhl H, Sherman AD, Katija K (2020). "EyeRIS: Enabling three-dimensional particle and surface visualizations in the deep sea."

CONFERENCE and WORKSHOP PROCEEDINGS (* - invited, ** - plenary, underline – advisee)

Katija K** (2021). "Fantastic beasts and where to find them: Observing animals in the ocean's midwaters." *8th Annual Southwest Regional Meeting of Organismal Biologists*, October 23. Virtual.

16th Deep Sea Biology Symposium, September 12-17. Hybrid (virtual and in-person).

- Sainz G, Mehta K, Orenstein E, Huffard C, Katija K, Smith K (2021). "Machine learning facilitates study of *Benthocodon pedunculata* population variability in the benthic boundary layer at Station M over > 30 years." Virtual (poster).
- Katija K, Schlining B, Lundsten L, Barnard KS, Sainz G, Orenstein E, Boulais O, Woodward B, Croff Bell K (2021). "FathomNet: An open underwater image database for training AI." Virtual (poster).
- Nawroth J, Hoover AP, Daniels J, Katija K (2021). "Developing workflows for bioinspired design studies on rare, deep-sea animals." Virtual (oral).

Katija K, Schlining B, Lundsten L, Barnard K, Sainz G, Boulais O, Woodward B, Bell KC (2021). "FathomNet: An Open, Underwater Image Repository for Automated Detection and Classification of Midwater and Benthic Animals." *Ocean Visions Summit*, May 18-21. Virtual (poster).

Katija K, Cromwell M, Delaney D, Woodward B, Bell KC (2021). "FathomNet: Explore our ocean using artificial intelligence." *National Academy's Ocean Decade Ocean Shot,* February 3-4. Virtual (poster).

Katija K, Roberts PLD, Daniels J, Lapides A, Barnard K, Risi M, Ranaan BY, Woodward BG, Takahashi J

(2021). "Visual tracking of deepwater animals using machine learning-controlled robotic underwater vehicles."*IEEE Winter Conference on Applications of Computer Vision,* January 5-9. Virtual.

Society of Integrative and Comparative Biology Annual Meeting, January 3-7, Virtual.

- Katija K, Roberts PLD, Daniels J, Henthorn R, Klimov D, Ruhl H, Sherman AD (2021). "*EyeRIS* (Remote Imaging System): A novel, in situ lightfield imaging system that enables time-resolved three-dimensional visualizations of particles and animals in the deep sea."
- Strock S, Daniels J, Katija K, Colin SP, Costello JH (2021). "Coordination of jet propulsion among physonect siphonophores."
- Kahn A, Daniels J, Lord JP, Katija K, Barry JP (2021). "Factors affecting respiration and water processing by deep-sea sponges."
- Hoover A, Daniels J, Osborn KJ, Katija K (2021). "A fluid-structure model for the parapodia of tomopterids."
- Daniels J, Katija K*, Aoki N, Havassy J, Mushegian N, Osborn KJ (2021). "Metachronal moves in the midwater: Swimming of the polychaete *Tomopteris.*"

Katija K** (2020). "Fantastic beasts and where to find them: Giant larvaceans in the ocean's midwaters." *International Congress on Invertebrate Morphology,* August 2-9, Vienna, Austria. (canceled due to COVID-19)

Katija K** (2020). "Searching for life in another final frontier, the ocean's midwaters." *International Planetary Probes Workshop: Ocean Worlds,* June 8-12, Monterey, CA. (canceled due to COVID-19)

ASLO Ocean Sciences Meeting, February 16-21, San Diego, CA.

- Daniels J, Kahn AS, Lord J, Katija K, Barry JP (2020). "Characterizing animal-fluid interactions in the deep sea benthos using combined *DeepPIV* and respiration measurements."
- Yoerger D, Curran M, Fujii J, Gomez-Ibanez D, Govindarajan A, Howland J, Llopiz J, Wiebe PH, Hobson B, Katija K, Risi M, Robison BH, Rock S, Brier JA, Wilkinson CJ (2020). "At-sea testing of the *Mesobot* midwater robot."
- Roberts P, Erickson J, Klimov D, Henthorn R, Sherman AD, Ruhl H, Katija K (2020). "In situ, three-dimensional imaging of centimeter-scale biophysical interactions and particle distributions with the deep-sea plenoptic camera *EyeRIS*."
- Cones S, Katija K, Shorter KA, Jensen F, Mann D, Afonso P, Fontes J, Wang AZ, Mooney TA (2020). "Diel vertical migrations and climb-and-glide ascents in veined squid (*Loligo forbesi*)."
- Litvin SY, Barry JP, Lovera C, Boch CA, Burton EJ, DeVogelaere AP, Graves D, Guilderson TP, Kahn AS, Katija K, Kecy CD, King C, Kuhnz L, McGill P, Sherman AD (2020). "The Deep-Sea Coral Observatory (DiSCO) project."
- Sugar JT, Omand M, Adams A, Katija K, Wang AZ, Buesseler K, Yoerger D, Cetinic I, Rossby HT (2020). "MINIONS: Small, cheap, Lagrangian floats for measurement of the biological carbon pump."
- Sherman A, Katija K, Risi M, Rock S, Roberts P, Graves D (2020). "The *MiniROV*: A multidisciplinary research and development tool for deep-sea exploration."
- Katija K, Woodward B, Schlining B, Lundsten L, Barnard K, Bell KLC (2020). "Towards an open, underwater image repository (*FathomNet*) for automated detection and classification of

midwater and benthic targets using machine learning."

Society of Integrative and Comparative Biology Annual Meeting, January 3-7, Austin, TX.

- Daniels J, Osborn K, Aoki N, Havassy J, Mushegian N, Katija K (2020). "A midwater polychaete on the move: Swimming of *Tomopteris*."
- Hoover AP, Katija K (2020). "Manse and Tail: Flow structures and morphological constraints of the filtration feeding mechanisms by giant larvaceans."
- Katija K, Govindarajan A, Llopiz J, Wiebe P, Breier J, Hobson B, Risi M, Robison B, Rock S, Yoerger D (2020). "Mesobot: Toward autonomous observations of organismal behavior in the ocean's midwaters."
- Li D, Katija K, Gilly WF (2020). "Hydrodynamic constraints on jet propulsion in squid paralarvae at intermediate Reynolds numbers."

Daniels J, Osborn K, Aoki N, Havassy J, Mushegian N, Katija K (2019). "Swimming of the midwater polychaete *Tomopteris*." *13th International Polychaete Conference*, August 8, 2019, Long Beach, CA.

3rd Marine Imaging Workshop, June 24-28, Victoria BC, Canada.

- Daniels J, Sherman AD, Graves D, Kecy CD, Klimov D, Erickson E, Robison BH, Katija K (2019). "In situ 2D flow measurements and scanned 3D reconstructions in midwater and benthic environments using *DeepPIV*."
- Katija K, Woodward B, Schlining B, Lundsten L, Barnard K, Bell KLC (2019). "*FathomNet*: An open, underwater image repository for automated detection and classification of midwater and benthic targets using machine learning."
- Roberts PLD, Katija K, Sherman AD, Erickson J, Ruhl HE (2019). "A three-dimensional, high-resolution, in situ particle and flow imaging instrument (*EyeRIS*)."

Litvin SY, Barry J, Lovera C, Boch CA, Burton EJ, DeVogelaere AP, Graves D, Guilderson TP, Kahn AS, Katija K, Kecy C, King C, Kuhnz LA, McGill P, Sherman AD (2019). "The Deep-Sea Coral Observatory (DiSCO) Project." *7th International Symposium on Deep-Sea Corals*, July 29-August 2, Cartagena, Colombia.

Masmitja I, Gomariz S, Del Rio J, Kieft B, O'Reilly TO, Aguzzi J, Bouvet PJ, Fannjiang C, Katija K (2019). "Area-only method for underwater object tracking using autonomous surface vehicles." *IEEE/MTS OCEANS Meeting*, June 17-20, Marseille, France.

Omand M, Sugar J, Buesseler K, Durkin C, Estapa M, Cetinic I, D'Asaro E, Lee C, Rossby HT, Wang A, Adams A, Katija K, Michel A, Yoerger D, Felderman E (2019). "Upcoming EXPORTS technology: Trap cameras, Snocam, and Minions." *NASA EXPORTS Science Meeting*, May 6-8, Williamsburg, VA.

Society of Integrative and Comparative Biology Annual Meeting, January 3-7, Tampa, FL.

- Kahn AS, Lord JP, Katija K, Barry JP (2019). "Respiration and water processing by glass sponges in Sur Ridge, a dense, deep-water coral and sponge habitat."
- Fannjiang C, Katija K (2019). "Using machine learning to deduce fine-scale behavior of jellyfish (*Chrysaora fuscescens*) in Monterey Bay."
- Katija K, Aoki N, Harned A, Mushegian N, Daniels J, Osborn K (2019). "Locomotion in tomopterids: How do these gelatinous holopelagic worms swim?"

15th Deep Sea Biology Symposium, September 13th, Monterey, CA.

- Katija K, Sherman A, Sherlock R, Robison B (2018). "New technology reveals the structure and function of deep-sea, giant larvacean mucus houses."
- Robison B, Reisenbichler K, Sherlock R, Choy A, Katija K, Osborn K, Hoving HJ (2018). "Are giant larvaceans a missing link in deep-sea food webs?"
- Havassy J, Katija K, Aoki N, Harned A, Mushigian N, Murthy S, Osborn K (2018). "The kinematics of Tomopteris swimming: differences between power and recovery strokes."
- Aoki N, Katija K, Harned A, Havassy J, Mushigian N, Murthy S, Osborn K (2018). "A biomechanical description of tomopterid polychaetes using high-speed video analysis."
- Katija K, Govindarajan A, Llopiz J, Wiebe P, Risi M, Hobson B, Breier J, Robison BH, Rock S, Yoerger D (2018). "Mesobot: A new autonomous underwater vehicle for tracking and sampling animals and particles in midwater."

Katija K, Bell KC, Woodward B, et al (2018). "Big Ocean, Big Data (BOBD) Workshop: Towards automating the detection and classification of targets in underwater imagery and video." *MBARI BOBD Workshop*, May 24-25th, Moss Landing, CA.

ASLO Ocean Sciences Meeting, February 11-16, Portland, OR.

- Yoerger D, Breier JA, Curran M, Fujii J, German CR, Gomez-Ibanez D, Govindarajan A, Hobson B, Howland J, Katija K, Llopiz J, Pontbriand C, Risi M, Robison BH, Rock S, Wiebe PH (2018). "Mesobot: An autonomous underwater vehicle for tracking and sampling midwater targets."
- Mooney TA, Flaspohler GE, Caruso F, Katija K, Fontes F, Afonso P, Shorter KA (2018). "Fine-scale locomotion patterns of the veined squid, *Loligo forbesi*, measured using a novel bio-logging tag."
- Katija K, Sherman AD, Sherlock RE, Robison BH (2018). "DeepPIV: Elucidating small-scale zooplankton-particle interactions in the deep sea."

Katija K, Sherlock RE, Sherman AD, Robison BH (2018). "DeepPIV reveals how mucus houses of deep sea, giant larvaceans are built." *Society of Integrative and Comparative Biology Annual Meeting*, January 3-7, San Francisco, CA.

Katija K* (2017). "DeepPIV: Measuring carbon fluxes in the mesopelagic using particle image velocimetry." *Pump It Up Workshop*, September 28-29, Woods Hole, MA.

Ocean Carbon and Biogeochemistry Workshop, June 29th, Woods Hole, MA.

- Yoerger DR, Llopiz JK, Wiebe PH, Govindarajan AF, German CR, Robison BH, Katija K, Rock S (2017). "The Mesobot: a robot for investigating the ocean interior."
- Katija K* (2017). "DeepPIV: Measuring fine-scale fluid motion at depth."

Katija K, Sherman AD, Robison BH (2017). "Giant larvaceans: Differences in tail kinematics lead to enhanced filtration rates in mucus houses." *Society of Integrative and Comparative Biology Annual Meeting*, January 5-8, New Orleans, LA.

Katija K, Sherman AD, Robison BH (2016). "Giant larvaceans: Biologically equivalent flapping flexible foils exhibit bending modes that enhance fluid transport." *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting*, November 20-22, Portland, OR.

Aoki N, Mushegian N, Katija K, Osborn KJ (2016). "A kinematic description of locomotion in the marine

polychaete genus *Tomopteris.*" *Smithsonian Institute Summer Undergraduate Research Symposium*, August 5, Washington DC.

Osborn KJ, Aoki N, Mushegian N, Biancani L, Katija K (2016). "A closer look at tomopterid biology." *12th International Polychaete Conference*, August 1-5, Cardiff, Wales.

ASLO Ocean Sciences Meeting, February 21-26, New Orleans, LA.

- Yoerger DR, Llopiz JK, Wiebe PH, Govindarajan AF, German CR, Robison BH, Katija K, Rock S (2016). "The Mesobot: a robot for investigating the ocean interior."
- Katija K, Shorter A, Flaspohler G, Mooney TA, Hurst T, Fontes J, Afonso P (2016). "ITAG: A fine-scale measurement platform to inform organismal response to a changing ocean."
- Katija K, Sherman A, Graves D, Klimov D, Kecy C, Robison BH (2016). "Elucidating Small-Scale Animal-Fluid Interactions in the Deep Sea."

Society of Integrative and Comparative Biology Annual Meeting, January 3-7, Portland, OR.

- Katija K, Sherman A, Graves D, Klimov D, Kecy C, Robison BH (2016). "Revealing the structure and function of deep-sea, giant larvacean mucus houses."
- Baumer A, Leftwich MC, Katija K (2016). "Larvacean locomotion: a kinematic investigation using ROV-sampled, high-definition videos."

Katija K*, Sherman A, Graves D, Klimov D, Kecy C, Robison BH (2015). "DeepPIV: Measuring in situ biological-fluid interactions from the surface to the benthos." *American Geophysical Union Fall Meeting* in session *Quantifying complex ecohydraulic interactions using field, flume, and numerical methodologies*, December 14-18, San Francisco, CA.

Bulletin of the American Physical Society Division of Fluid Dynamics Meeting, November 22-24, Boston, MA.

- Katija K, Sherman A, Graves D, Klimov D, Kecy C, Robison BH (2015). "DeepPIV: Particle image velocimetry measurements using deep-sea remotely operated vehicles."
- Baumer A, Katija K, Leftwich MC (2015). "Larvacean kinematics: a biological model of flapping flexible foils."

19th Annual MBARI Intern Symposium, August 12, 2015, Moss Landing, CA.

- Black S, Hobson B, Sherman AD, Katija K (2015). "Jellies in the ocean: Are they truly drifters?"
- Baumer A, Katija K (2015). "Larvacean locomotion: A kinematic investigation."

Katija K* (2015). "Biogenic inputs to ocean mixing: evidence from swimming medusae, copepods, and euphausiids." *Unsteady aquatic locomotion with respect to eco-design and mechanics: Society of Integrative and Comparative Biology Meeting,* January 3-7, 2015, West Palm Beach, FL.

Hannon MC, Katija K (2014). "Jet-propelled swimming by siphonophores, a colonial gelatinous zooplankton." *SACNAS National Conference*, October 16-18, Los Angeles, CA.

Mooney TA, Katija K, Shorter A, Hurst T, Fontes J, Afonso P (2014). "Concurrent measures of fine-scale behaviors and basic oceanographic parameters in the veined squid, *Loligo forbesi.*" *5th International Bio-logging Science Symposium*, September 22-27, Strasbourg, France.

Katija K* (2014). "Surviving in the oceans: Elucidating in situ animal-fluid interactions." *Fluid Dynamics of Living Systems, National Science Foundation*, September 15-16, Arlington, VA.

Katija K* (2013). “Quantitatively measuring in situ flows using a self-contained underwater velocimetry apparatus (SCUVA).” *2013 U.S. Kavli Frontiers of Science Symposium, National Academy of Sciences,* November 6-8, Irvine, CA.

Katija K* (2013). “Wake-based studies of jellyfish swimming to inform bio-inspired underwater vehicle design.” *Research Coordination Network on Neuromechanics and Dynamics of Locomotion Winter Workshop on Locomotion*, January 16, New Orleans, LA.

Katija K* (2012). “Jellyfish as models for propulsion.” *AmeriMech 2012: Mechanics in Biology*, December 10, Blacksburg, VA.

Katija K, Jiang H, Colin SP, Costello JH (2012). “Ontogenetic propulsive transitions from viscous to inertial flow regimes in the medusae *Sarsia tubulosa*.” *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting,* November 18-20, San Diego, CA.

Katija K, Jiang H, Colin SP, Costello JH (2012). “Ontogenetic propulsive transitions from viscous to inertial flow regimes.” *American Society of Limnology and Oceanography Ocean Sciences Meeting*, February 20-24, Salt Lake City, UT.

Katija K, Jiang H, Colin SP, Costello JH (2012). “Ontogenetic propulsive transitions from viscous to inertial flow regimes.” *Society for Integrative and Comparative Biology Annual Meeting*, January 3-7, Charleston, SC.

Katija K* (2011). “Biogenic inputs to ocean mixing.” *Journal of Experimental Biology Symposium – Integrating Biomechanics and Ecology*, March 14-18, 2011, Cambridge, United Kingdom.

Katija K, Colin SP, Costello JH, Dabiri JO (2011). “Effect of in situ background flow on fluid transport by swimming animals.” *Aspen Center for Physics Winter Conference on Ocean Biophysics*, January 16-22, Aspen, CO.

Katija K (2010). “Vortex formation and swimming efficiency in seven co-occurring jellyfish species.” *WHOI Postdoctoral Symposium*, November 16, 2010.

Katija K, Dabiri JO (2010). “A Darwinian mechanism for biogenic ocean mixing.” *American Society of Limnology and Oceanography Ocean Sciences Meeting*, February 22-26, Portland, OR.

Katija K, Dabiri JO (2009). “A Darwinian mechanism for biogenic ocean mixing.” *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting,* November 22-24, Minneapolis, MN.

Katija K, Dabiri JO (2009). "A Darwinian mechanism for biogenic ocean mixing." *Southern California Symposium on Flow Physics*, April 18, La Jolla, CA.

Katija K, Dabiri JO (2008). “Mixing efficiency of swimming animals in stratified fluids.” *Bulletin of the American Physical Society Division of Fluid Dynamics Meeting,* November 23-25, San Antonio, TX.

Katija K, Dabiri JO (2008). “Vortex formation and swimming efficiency in seven co-occurring jellyfish species.” *International Congress of Theor. and App. Mech.*, August 25-29, Adelaide, Australia.

Katija K, Dabiri JO (2008). “Energetics of jellyfish locomotion determined from field measurements using a self-contained underwater velocimetry apparatus (SCUVA).” *Society of Integrative and Comparative Biology Annual Meeting*, January 2-6, San Antonio, TX.

Katija K, Dabiri JO (2007). "Energetics of jellyfish locomotion determined from field measurements using a self-contained underwater velocimetry apparatus (SCUVA)." *American Geophysical Union Fall Meeting*, December 10-14, San Francisco, CA.

Bulletin of the American Physical Society Division of Fluid Dynamics Meeting, November 18-20, Salt Lake City, UT.

- Katija K, Dabiri JO (2007). "Energetics of jellyfish locomotion determined from field measurements using a self-contained underwater velocimetry apparatus (SCUVA)."
- Dabiri JO, Katija K (2007). "Progress toward 3D wake structure measurements of aquatic animals using SCUVA."

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, Gold Coast, Australia.

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.

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

Bulletin of the American Physical Society Division of Fluid Dynamics Meeting, November 19-21, Tampa, FL.

- Katija K, Dabiri JO (2006) "Dynamics of tethered versus free-swimming animals: A wake structure comparison."
- Shadden SC, Katija K, Dabiri JO, Marsden JE (2006). "Transport induced by vortex formation."

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

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.

Boulware JC, Axup J, Young KK, Breidenthal R (2004). "The effects of varying acceleration functions on Rayleigh-Taylor flow in a microgravity environment: A Vomit Comet experiment." *University of Washington's Seventh Annual Undergraduate Research Symposium*, May 14, Seattle, WA.

Young KK, Bruckner A (2004). "The Mars Gravity Biosatellite Project: System architecture and mission summary." *University of Washington's Seventh Annual Undergraduate Research Symposium*, May 14, Seattle, WA.

FUNDING AWARDS

National Science Foundation Convergence Accelerator Track E (2021-2022) **$747,174**

Ocean Vision AI: Scaling up visual observations of life in the ocean using artificial intelligence. PI: K Katija; Co-PIs: H Ruhl (MBARI), L Takayama and A Forbes (UCSC), B Woodward (CVision AI).

National Science Foundation BIO-IOS-PMB (2021-2023) **$318,112**
Functional design of siphonophore propulsion. PI: SP Colin (RWU); Co-PIs: JH Costello (Providence), K Katija. $736,861 total.

Gordon and Betty Moore Foundation (2019-2022) **$1,284,097**
EyeRIS (Remote Imaging System): A three-dimensional, high-resolution, autonomous particle and flow imaging instrument. PI: K Katija; Co-PIs: AD Sherman, H Ruhl. (MBARI).

Schmidt Ocean Institute, RV *Falkor* (2019-2021) **$97,565**
ROV-based 3D reality capture, specimen encapsulation, and tissue voucher sampling to explore and describe midwater biodiversity in the deep sea. PI: B Phillips (URI); Co-PIs: R Wood (Harvard), D Gruber (CUNY), K Katija. $708,618 total.

National Oceanic Partnership Program and NSF-GEO-OTIC (2018-2021) **$126,317**
Minions: A Low-Cost Float for Distributed, Lagrangian Observations of the Biological Carbon Pump. PI: M Omand (URI); Co-PIs: K Buesseler, ZA Wang (WHOI), A Adams (MIT), K Katija. $1,280,841 total.

National Oceanic and Atmospheric Administration OER (2018-2020) **$54,000**
Toward an open underwater platform. PI: KC Bell (NGS/MIT Media Lab); Co-PIs: B Woodward (CVision AI), K Katija.

National Geographic Society: Here Be Dragons (2018-2019) **$25,000**
Big Ocean, Big Data: Towards an open ocean community platform for automated image classification in the deep sea. PI: K Katija; Co-PIs: KC Bell (NGS/MIT Media Lab), B Woodward (CVision AI). $123,085 total.

National Science Foundation GEO-OTIC
- *EAGER - Integrating machine learning on autonomous platforms for target-tracking operations using stereo imagery.* PI: K Katija. (2018-2020) **$323,007**
- *Mesobot: a robot for investigating the ocean interior.* PI: D Yoerger (WHOI); Co-PIs: S Rock (Stanford), C Breier (UTRGV), K Katija. $1,939,070 total. (2017-2020) **$431,534**

National Science Foundation BIO-IDBR (2016-2019) **$74,624**
*A high-resolution bio-sensor to simultaneously measure the behavior, vital rates, and environment of key marine organisms***.** PI: TA Mooney (WHOI); Co-PIs: A Shorter (Univ. Mich.), K Katija. $727,674 total.

Monterey Bay Aquarium Research Institute (Packard Foundation; 2015-present)
- *Deep Sea Bioinspiration*. PI: K Katija; PM: J Daniels. (2020-2021)
- *Multi-spectral StealthCAM*. PI: K Katija; PM: C Kecy, with K Benoit-Bird. (2020-2021)
- *ROV-Virtual Reality*. PI: SHD Haddock; PM: B Erwin; E Martin, K Katija. (2020-2021)
- *FathomNet*. PI: K Katija; PM: L Lundsten; K Smith, J Barry, B Schlining. (2020-2021)
- *Telepresence.* PI: K Katija, PM: E Martin; B Erwin, D Caress (2020-2021)

- *Deep Sea Bioinspiration*. PI: K Katija; PM: J Daniels. (2019-2020)
- *Multi-spectral StealthCAM*. PI: K Katija; PM: C Kecy, with K Benoit-Bird. (2019-2020)
- *ROV-Virtual Reality*. PI: SHD Haddock; PM: B Erwin; E Martin, K Katija. (2019-2020)
- *FathomNet*. PI: K Katija; PM: L Lundsten; K Smith, J Barry, B Schlining. (2019-2020)
- *Deep Sea Bioinspiration*. PI: K Katija. (2018-2019)
- *DeepPIV*: *From the surface to the benthos*. PI: K Katija; PM: AD Sherman. (2018-2019)
- *Deep Sea Bioinspiration*. PI: K Katija. (2017-2018)
- *DeepPIV*: *From the surface to the benthos*. PI: K Katija; PM: AD Sherman, with J Barry, B Robison. (2017-2018)
- *DeepPIV: Feasibility study to expand from 2D to 3D flow measurements*. PI: AD Sherman, PM: K Katija, with B Robison. (2017-2018)
- *DeepPIV: From the surface to the benthos*. PI: AD Sherman; PM: K Katija, with D Graves. (2016-2017)
- *DeepPIV: From the surface to the benthos*. PI: AD Sherman; PM: K Katija. (2015-2016)

WHOI Green Innovative Technology Award (2012-2014) **$74,328**
PI: A Mooney; Co-PIs: T Hurst, K Shorter, K Katija.

WHOI Interdisciplinary Research Award (2011-2013) **$98,109**
PI: K Katija; Co-PIs: H Jiang, G Lawson, P Wiebe.

National Geographic Society Expeditions Council Grant (2011-2012) **$14,120**
PI: K Katija.

WHOI Green Innovative Technology Award (2010-2012) **$74,614**
PI: K Katija; Co-PIs: H Jiang, N Farr, R Schmitt.

National Geographic Society Emerging Explorer Award (2011) $10,000

ASLO Ocean Sciences Meeting Travel Grant (2010) – Declined

NSF Graduate Student Research Fellowship (2009-2010)

ICTAM/USNC Travel Grant (2008)

ASEE National Defense Science and Engineering Graduate Fellowship (2006-2009)

Graduate Research Assistantship, California Institute of Technology (2004-2006)

Mary Gates Endowment for Students, Research and Leadership Grant (2003-2004)

NSF/CSEM Success in Engineering and Math Scholarship (2003)

Lance Erik Fogde Endowed Scholarship, Aeronautics and Astronautics (2003-2004)

University of Washington Opportunity Grant (2002-2003)

United States Federal Pell Grant (2000-2002)

FIELD EXPERIENCE

Schmidt Ocean Institute's Designing the Future (Chief Scientist: B Phillips)	R/V *Falkor*; San Diego, CA	August 2021
MBARI Machine Learning-Tracking (ML-Tracking) (Chief Scientist: K Katija)	R/V *Fulmar*; Monterey, CA	2020-
Schmidt Ocean Institute's Designing the Future (Chief Scientist: B Phillips)	R/V *Falkor*; Honolulu, HI	Oct 2019
MBARI Ocean Imaging cruises (Chief Scientist: D Caress)	R/Vs *Western Flyer* and *Rachel Carson*; Moss Landing, CA	2019-
MBARI Bioinspiration Lab cruises (Chief Scientist: K Katija)	R/Vs *Western Flyer* and *Rachel Carson*; Moss Landing, CA	2018-
MBARI Benthic Ecology cruises (Chief Scientist: J Barry)	R/Vs *Western Flyer* and *Rachel Carson*; Moss Landing, CA	2016-
Jellyfish tagging using ITAG	R/V *Paragon*; Moss Landing, CA	2015-
MBARI Midwater Ecology cruises (Chief Scientist: B Robison)	R/Vs *Western Flyer* and *Rachel Carson*; Moss Landing, CA	2015-
Squid tagging using ITAG	Horta, Azores, Portugal	May 2014, Mar 2013
Stanford@SEA cruise (Chief Scientist: Barbara Block)	R/V *Seamans*, Honolulu, HI to Palmyra Atoll	Mar 2014
PIV and kinematic measurements of midwater fauna	R/V *Tioga*; Wilkinson Basin	Dec 2011, Jul 2011
SCUVA measurements on colonial gelatinous zooplankton	Liquid Jungle Lab, Panama	Mar 2011
PIV measurements on cubomedusae	Queensland, Australia	Jan 2010
Gelatinous Zooplankton research cruise	R/V *Nase More*; Adriatic Sea	May 2009, May 2008
Jellyfish biomixing in marine lakes;	Tourist Lake, Palau	Oct 2008, Jan 2008
SCUVA measurements on jellies	Marine Biological Laboratory, Woods Hole, MA	Aug 2008, Aug 2007
SCUVA measurements on jellies	Friday Harbor Laboratory; Friday Harbor, WA	Mar 2007

INVITED SEMINARS

"Developing imaging technologies to search for, discover, and understand biology in the deep sea."

- *Department of Organismic and Evolutionary Biology, Harvard University, October 14, 2021. Virtual.*
- *Department of Biology, Woods Hole Oceanographic Institution, April 1, 2021. Virtual.*

"Novel imaging tools to illuminate life in the deep sea."

- *Department of Ecology and Evolution*, San Diego State University, March 29, 2021. Virtual.
- *School of Aquatic and Fisheries Sciences*, University of Washington, December 3, 2020. Virtual.

- *Department of Biological Sciences Seminar Series*, Moravian College, September 22, 2020. Virtual.

"Dealing with data: Enabling ocean sciences." *Scripps Faculty Retreat*, Scripps Institution of Oceanography, September 15, 2020. Virtual.

"Technological challenges and potential solutions for exploring the ocean's midwaters."

- *Aeronautics and Astronautics Chair's Distinguished Seminar Series,* University of Washington, February 10, 2020. Seattle, WA.
- *Frontiers of Ocean Sciences*, Division of Ocean Sciences, National Science Foundation. June 13, 2019. Alexandria, VA.

"Searching for inspiration in the deep sea." *Lunch and Learn Seminar Series*, Moore Foundation, July 8, 2020. Virtual.

"New laser-imaging technology (DeepPIV) informs ecomechanics of deep sea, giant larvaceans."

- *Summer Seminar Series, Friday Harbor Laboratories,* June 30, 2020. Virtual.
- *Biology Department Seminar Series, Western Washington University, February 7, 2020. Bellingham, WA.*
- *Moss Landing Marine Laboratories, April 9, 2019. Moss Landing, CA.*
- *Biomechanics seminar in Ecology and Evolutionary Biology, University of California, Irvine*, April 5, 2019. Irvine, CA.
- *Biomechanics seminar in Ecology and Evolutionary Biology, University of California, Los Angeles*, April 3, 2019. Los Angeles, CA.
- *Ecology seminar in Biological Oceanography, Scripps Institution of Oceanography, University of California, San Diego*, April 25, 2018. La Jolla, CA.
- *Ocean, Earth, and Atmospheric Sciences Seminar, Old Dominion University*, April 12th, 2018. Norfolk, VA.
- *Fluid Dynamics Seminar, Brown University*, April 10th, 2018. Providence, RI.
- *Programs in Atmospheres, Oceans, and Climate Colloquium, Massachusetts Institute of Technology*, April 9th, 2018. Cambridge, MA.
- *Ocean Sciences Seminar Series, University of California, Santa Cruz,* October 13th, 2017. Santa Cruz, CA.
- *Joint Biology and Physics Seminar Series, Bates College,* September 26th, 2017. Lewiston, ME.
- *Bodega Marine Laboratory Seminar Series, University of California, Davis,* September 6th, 2017. Bodega Bay, CA.

"Machine learning in oceanography: How algorithms and recent developments in underwater imaging will change the way we explore the ocean." *Computer Science Departmental Seminar, University of California, Santa Cruz*, May 3rd, 2018. Santa Cruz, CA.

"From outer to inner space: How exploration leads to inspiration." *Stanford Women's Perspectives Seminar, Stanford University*, January 25th, 2018. Palo Alto, CA.

"DeepPIV: Measuring small-scale fluid motion in the deep sea."

- *Stanford Fluid Mechanics Seminar Series, Stanford University,* November 28th, 2017. Palo Alto, CA.
- *Inspire ME Seminar, Department of Mechanical and Biomedical Engineering, Boise State University,* November 17th, 2016. Boise, ID.

"Animal-fluid interactions in the ocean: How small-scale fluid motions have big implications."

- *Mechanical Engineering Departmental Seminar, University of Colorado, Boulder,* February 23rd, 2017. Boulder, CO.
- *Institutional Seminar, Monterey Bay Aquarium Research Institute,* January 18th, 2017. Moss Landing, CA.
- *Departmental Seminar, Department of Ocean Resources Engineering, University of Hawaii,* December 7th, 2016. Manoa, HI.
- *Biology Seminar Series, Occidental College,* November 15th, 2016. Los Angeles, CA.
- *Zoology Department Seminar Series, University of British Columbia,* November 9th, 2016. Vancouver, Canada.

"Larvaceans in the deep sea: How small-scale fluid motion defines a hidden world."

- *Biomechanics Seminar Series, Department of Integrative Biology, University of California, Berkeley,* November 1st, 2016. Berkeley, CA.
- *Autumn Seminar Series, Hopkins Marine Station, Stanford University,* October 14th, 2016. Pacific Grove, CA.
- *Biology and Oceanography Seminar Series, Dalhousie University*, October 8th, 2015. Halifax, Nova Scotia, Canada.

"Jellyfish as models for propulsion and bio-inspired design."

- *California State University, Monterey Bay Environmental Science Seminar*, October 20th, 2014, Seaside, CA.
- *Stanford University Fluid Mechanics Series*, May 20th, 2014, Palo Alto, CA.
- *Stanford University Bioengineering Department Seminar*, January 29th, 2014, Palo Alto, CA.

"Elucidating in situ animal-fluid interactions in the ocean." *Moss Landing Marine Laboratory Seminar*, September 4th, 2014, Moss Landing, CA.

"Jet or die: Fluid mechanics of swimming by ambush-feeding medusae from viscous to inertial flow regimes."

- *UCLA Biology Seminar Series*, June 2nd, 2015, Los Angeles, CA.
- *University of California, Santa Barbara Mechanical Engineering Department Seminar,* November 12th, 2013, Santa Barbara, CA.
- *Whitney Marine Laboratory for Marine Bioscience*, September 20th, 2013, St. Augustine, FL.
- *Monterey Bay Aquarium Research Institute Seminar*, July 24th, 2013, Moss Landing, CA.
- *Woods Hole Oceanographic Institution Biology Seminar*, July 18th, 2013, Woods Hole, MA.

"Biogenic inputs to ocean mixing: Evidence from observations of swimming medusa, copepods, and euphausiids."

- *Hopkins Marine Station Seminar, Stanford Univ.,* January 10, 2013, Pacific Grove, CA.
- *University of Washington, Biology Integrative Biophysics Seminar*, November 26, 2012, Seattle, WA.

"Observations of swimming by medusae *Sarsia tubulosa*: from viscous vortex rings to trailing jets." *Woods Hole Oceanographic Institution Coastal and Ocean Fluid Dynamics Laboratory Seminar*, March 16, 2012, Woods Hole, MA.

"Experimental studies of jellyfish propulsion for bio-inspired design of underwater vehicles."

- *WHOI Ocean Science Journalism Fellowship Seminar*, September 14, 2011, Quissett, MA.
- *Woods Hole Oceanographic Institution Coastal and Ocean Fluid Dynamics Laboratory Seminar*, October 8, 2010, Woods Hole, MA.

"Biogenic inputs to ocean mixing."

- *Princeton University Fluid Mechanics Seminar*, April 29, 2011, Princeton, New Jersey.
- *University of Washington's Applied Physics Laboratory and Department of Oceanography Symposium*, April 4, 2011, Seattle, WA.

"Jellyfish as biogenic ocean mixers and models for propulsion."

- *Scripps Institution of Oceanography Seminar,* May 27th, 2013, La Jolla, CA.
- *Massachusetts Institute of Technology Ocean Engineering Seminar*, April 25, 2011, Boston, MA.
- *Oregon State University Physical Oceanography Seminar Series*, September, 28, 2010, Corvallis, OR.
- *University of Washington Fluid Mechanics Seminar Series*, September, 24, 2010, Seattle, WA.

"A Darwinian mechanism for biogenic ocean mixing."

- *Occidental College Biology Seminar Series*, January 29, 2010, Los Angeles, CA.
- *Naval Undersea Warfare Center Seminar Series*, November 9, 2009, Newport, RI.
- *Woods Hole Oceanographic Institution Applied Ocean Physics and Engineering Seminar*, October 21, 2009, Woods Hole, MA.

"Mixing efficiency of swimming animals in stratified flows." *Virginia Tech Engineering Science and Mechanics Seminar Series*, March 2, 2009, Blacksburg, VA.

INVITED PUBLIC TALKS

"Searching for life in the ocean using AI." *Explorers Festival, National Geographic Society*, June 17th, 2021. Virtual.

"National Geographic Explorer Series: Kakani Katija." *Northern Ireland Science Festival*, February 23, 2021. Virtual.

"Illuminating life in the deep sea." *Women Blaze Trails*, *Exploring by the Seat of Your Pants*, February 12, 2021. Virtual.

"World of Water and Ice." *National Geographic Live! Virtual Reality Exploration*, National Geographic Headquarters, March 25, 2020. Washington D.C. (canceled due to COVID-19)

"Designed by Nature." *National Geographic Live!* January-April, 2020.

- Newmark Theatre, May 5, 2020, Portland, OR. (canceled due to COVID-19)
- Irvine Barclay Theater, April 16, 2020, Irvine, CA. (canceled due to COVID-19)
- Holland Performing Arts Center, April 14, 2020, Omaha, NE. (canceled due to COVID-19)
- Roy Thomson Hall, March 29-31, 2020, Toronto, Canada. (canceled due to COVID-19)
- Mesa Arts Center, February 19-20, 2020, Mesa, AZ.
- Hammer Theatre Center, February 12-13, 2020, San Jose, CA.
- Benaroya Hall, February 9-11, 2020, Seattle, WA.
- Overture Center for the Arts, January 14, 2020, Madison, WI.

"Bioinspiration Lab: Developing solutions to access the ocean's midwaters." *Virtual Workshop: Emerging Technologies for the Blue Economy*, Inter-American Development Bank. December 4, 2019.

"Exploring Earth's final frontier, the Ocean Twilight Zone." *Friends of Hopkins Seminar Series*, November 12, 2019. Pacific Grove, CA.

"Finding inspiration in the Ocean Twilight Zone." *Festival of Curiosity*, July 20, 2019. Dublin, Ireland.

"Plastics in the Ocean Twilight Zone." *National Geographic GeoChallenge, National Geographic Society,* May 21, 2019. Washington D.C.

"New laser-imaging technology (DeepPIV) informs ecomechanics of deep sea, giant larvaceans." *Sons in Retirement - Carmel Chapter, Carmel Foundation*, May 6, 2019. Carmel, CA.

"Finding inspiration in a deep, dark world." *TEDx, Catalina High School,* April 30th, 2019. Monterey, CA.

"From outer to inner space: Life as a Bioengineer." *Expanding Your Horizons, Lyceum, Hartnell College*, November 17th, 2018. Salinas, CA.

"From outer to inner space: How exploration leads to inspiration." *Explorers Festival, National Geographic Society*, June 14th, 2018. Washington, DC.

"New technology reveals mysterious inhabitants of the deep sea." *Ocean Luminaries: Making Waves, American Museum of Natural History*, March 2nd, 2018. New York, NY.

"New laser technology illuminates deep sea animals in novel ways." *Here Be Dragons, MIT Media Lab*, February 26th, 2018. Cambridge, MA.

"Revealing the unseen ocean world." *MBARI Open House*, July 18th, 2015, Monterey, CA.

"Revealing the footprints of marine organisms."

- *TEDWomen*, May 27th-29th, 2015, Monterey, CA.
- *TEDYouth*, November 2014, Brooklyn, NY.

"The search for elusive jellyfish: Exploration challenges, accidental encounters, and (painful) lessons learned."

- *Whitney Laboratory for Marine Bioscience's Evenings at Whitney*, September 19th, 2013, St. Augustine, FL.
- *New England Aquarium Lecture Series*, September 12th, 2013, Boston, MA.

"Alien Deep: How do we make viewers care?" *Blue Ocean Film Festival Panel*, September 28, 2012, Monterey, CA.

"Through the lens of SCUVA."

- *Rhode Island Energy and Environmental Leaders Day, Ocean Explorers turned Ocean Interpreters*, May 1, 2012, Kingston, RI.
- *National Geographic Society Explorer's Symposium, Frontiers of Science panel*, June 23, 2011, Washington D.C.

INVITED PANELS and WORKSHOPS

"The Seas – One of mankind's most precious assets is being destroyed" with Peter Heffernan (Marine Institute) and Easkey Britton. MacGill Summer School, October 27-29, 2021. Virtual

"Multidisciplinary Research: Leveraging emerging technology to study the natural world" with Cheryl Horton, Julia Ersan, and Laney White. SACNAS National Diversity in STEM Conference, October 25-29, 2021. Virtual.

"Sci Foo 2021." Hosted by O'Reilly, Google, Digital Science, and Nature. October 21-23, 2021. Virtual.

"Agenda Item 5: Infrastructure needs for imagery, data archiving, and exchanging: FathomNet." *Workshop on Enhancing Image-based Biodiversity Assessments to Advance Deep-Sea Taxonomy. Secretariat of the International Seabed Authority*, October 12-14. Virtual.

"Ocean Technology Panel: Imaging and behavioral technology advancements in understanding marine biodiversity" with Katy Croff Bell, Robert Wood, and Yannis Papastamatiou; hosted by Denley Delaney. National Geographic Society's Explorers Festival, June 18, 2021. Virtual.

"FathomNet." UK BIG PICTURE II Workshop, March 3, 2021. Virtual

"Technology at Sea Panel" with Allison Miller, Chris Zappa, Ivona Cetinic, and Blair Thornton. SOI Virtual Symposium, February 18, 2021. Virtual.

"New laser-imaging technology (DeepPIV) informs ecomechanics of deep sea animals." Advances in Oceanographic Research and Technology Development at Sea Panel with Allison Miller, Chris Zappa, Blair Thornton, and Mandy Joye. IEEE Oceans, October 7, 2020. Virtual.

"Technologies for studying biological phenomena in the deep sea." Exploring and Mapping Unseen Worlds Panel with Jules Jaffe, Thomas Peacock, Amanda Netburn, and Andrew Branch. Smart Oceans, October 5, 2020. Virtual.

"Developing technologies to discover life in the ocean's midwaters." United States Frontiers of Engineering Symposium. National Academy of Engineering, September 15, 2020. Virtual.

"Searching for life in the deep sea." Joy Panel with Carly Ciarrocchi, Sameh Wadi, Kathlene Campbell, and Sara Hendren. PlayFest, August 14, 2020, Virtual.

"Searching for inspiration in the deep sea." Eyes in the Sky, Eyes in the Seas Panel with Alina Szmant, Rachel Butler Scott, and Tierney Thys. Tektite 2020: Women of Sea and Space, July 17, 2020. Virtual.

"Searching for bioinspiration (with a LOT of friends) in the ocean's midwaters." Exploration Technology Panel with Natasha Benjamin and Emily Darling. Ocean's Week: California Academy's Breakfast Club, July 1, 2020. Virtual.

"National Science Foundation's Frontiers of Ocean Sciences Symposium." With Phil Bresnahan (UCSD), Randall Hughes (Northeastern), Nikki Lovenduski (CU Boulder), Hilary Palevsky (Boston Coll.), Erik van Sebille (Utrecht Univ.), Jessica Tierney (Univ. Arizona). National Science Foundation Directorate of Geosciences Division of Ocean Sciences. June 18, 2020. Online.

"Stability vs. Change: Identifying the key questions in animal physiology." With Manu Prakash, Mark Denny (Stanford), Mike Kearney (Univ Melbourne), Alejandro Rico-Guevara (UW), Stacey Combes (UC Davis). Hopkins Marine Station, Stanford University, March 15-19, 2020. Pacific Grove, CA (canceled due to COVID-19).

"Quantifying the Unknown." MIT Media Lab, January 29-30, 2020. Cambridge, MA.

"Deep Sea Research Project." National Geographic Society, December 12-13, 2019. Washington, DC.

"Symbiosis." Moore Foundation and Chan Zuckerberg Initiative, November 7, 2019. San Francisco, CA.

"Moonshots of the 21st Century." With Tierney Thys (NGS), Jack Horner (Univ. Montana), Cady Coleman (NASA), Niamh Shaw. *Festival of Curiosity*, July 19, 2019. Dublin, Ireland.

"Innovation Ignites Change." With Jonathan Baillie (NGS), Corey Jaskolski (VRtual Wonders), Steven Brumby (NGS), Kavita Gupta, and Bob Ballard (OET). *2018 Explorers Festival,* National Geographic Society, June 14, 2018. Washington, DC.

"Ocean Technology." With Andrew Kornblatt, Natasha Benjamin (MARE), and David Lang (OpenROV). *International Ocean Film Festival*, March 11, 2018. San Francisco, CA.

"At the Edge of the Map." With Peter Girguis (Harvard), Kenny Broad (RSMAS), Beverly Goodman (Univ. Haifa), Adam Soule (WHOI). *Here Be Dragons,* MIT Media Lab, February 26, 2018. Cambridge, MA.

"Ocean Explorers Turned Ocean Interpreters." With Carl Safina (Blue Ocean Institute) and Katy Croff Bell (OET). *3rd Rhode Island Energy and Environmental Leaders Day with Senator Sheldon Whitehouse*, May 1, 2012. Kingston, RI.

"Alien Deep: How Do We Make Viewers Care." With Bob Ballard (OET), Kirk Wolfinger, and Lisa Quijano Wolfinger. *Blue Ocean Film Festival*, September 28, 2012. Monterey, CA.

TEACHING EXPERIENCE

Workshop Convener (2018-present)

Big Ocean, Big Data (FathomNet), MBARI 2018

Visiting Scientist/Lecturer (2013, 2015, 2018)

Stanford@SEA; BA Block, Stanford University

Visiting Lecturer/Adjunct Professor (2012-2013)

Physics I for non-majors, Bridgewater State University

Guest Lecturer (2009-present)

- Biologging, J Goldbogen, Hopkins Marine Station, Stanford University 2018
- TED Talks for Marine Conservation, KJ Nickols, Calif. State Univ. Monterey Bay 2017
- Biol. and Phys. Oceanography, KJ Nickols, Calif. State Univ. Monterey Bay 2015
- Biophysical Interactions, JK Llopiz, Woods Hole Oceanographic Institution 2013
- Biomechanics, SE Fraser, California Institute of Technology 2010
- Biology, RS Houston, Loyola Marymount University 2010
- Bio-inspired Design, JO Dabiri, California Institute of Technology 2009
- Marine Biology, JH Costello, Providence College 2009

Post-Graduate Research Mentor (2021-present)

- Eric Orenstein, PhD @ Scripps Institution of Oceanography 2021-present
- Ivan Masmitja, PhD @ Universitat Politecnica de Catalunya 2021-present

Graduate Research Mentor (2015-present)

- Clara Fannjiang, Computer Science, UC Berkeley 2018-2019
- Genevieve Flaspohler, Applied Ocean Physics and Engineering, WHOI/MIT 2016-2019
- Diana Li, Biology, Stanford University 2015-2019

Research Assistant Mentor (2018-present)

- Giovanna Sainz, University of California, Santa Cruz 2020-present
- Kevin Barnard, Computer Science, Colorado School of Mines 2018-present
- Clara Fannjiang, Computer Science, MBARI 2018-2019

Undergraduate Research Mentor (2011-present)

- Krish Mehta, Computer Science, Caltech 2021
- Giovanna Sainz, Biology, University of California, Santa Cruz 2021
- Yohan Seguira, Mechanical Engineering, Cornell University 2021
- Jill Alexander, Mechanical Engineering, Boise State University 2020
- Brooke Pauken, Mechanical Engineering, Univ. of Calif., San Diego 2020
- Aaron Ray, Computer Engineering, Brown University 2019
- Richard Rodriguez, Electrical Engineering, Univ. of Calif., Santa Barbara 2018
- Kevin Barnard, Computer Science, Colorado School of Mines 2018
- Karla Haiat Sasson, Mechanical Engineering, University of Rhode Island 2018
- Ariel Harned, Mechanical Engineering, George Washington University 2017
- Nadege Aoki, Biology, Cornell University 2016-2018
- Natalia Mushegian, Molecular and Envir. Biology, Univ. of Calif., Berkeley 2016
- Genevieve Flaspohler, Computer Engineering, University of Michigan 2015-2016
- Alexa Baumer, Mechanical Engineering, George Washington University 2015
- Sarah Black, Ocean Engineering, Florida Atlantic University 2015
- Amanda Fay, Marine Science, California State University, Monterey Bay 2015
- Mary Colleen Hannon, Marine Biology and Zoology, Humboldt State University 2014
- Thomas Sayre-McCord, Physics, University of North Carolina, Chapel Hill 2011
- Miles Borgen, Environmental Science, Western Washington University 2011

Teaching Assistant, California Institute of Technology (2004-2005)

- Fluid Mechanics (Ae, ME, CE, APhys 101), M Gharib
- Experimental Methods (Ae, ME, CE 104), JO Dabiri

INDUSTRY EXPERIENCE

Consultant, Nerd Alert Ventures LLC **2018-present**

- ***ONR-STTR***
  Biological systems consultant to develop jellyfish-inspired profiling floats; J Jaffe, M Tolley (UCSD), J Wilbur (CREARE)
- ***National Geographic Society GeoChallenge***
  Explorer that guides the NGS GeoChallenge: *Tackling Plastics!*
  Initiative with 5^{th}-8^{th} graders across the United States; K Kelly (NGS)
- ***National Geographic Live!***

Speaker for series of live talks about ocean exploration and bioinspired design in performing arts venues within the United States and Canada; NGS and IMG Artists

Systems Engineer, Woods Hole Oceanographic Institution **2012-2013**
Alvin Upgrade D Peters
Updated weights database, wrote stability analysis code, and computed weekly and mission-specific stability calculations

Systems Engineer, NASA Ames Research Center **2004**
Advanced Animal Habitat on International Space Station P Espinosa
Wrote requirements and documentation on potable water system; attended meetings with NASA and Lockheed Martin senior engineers

Systems Engineer, University of Washington **2002-2004**
University of Washington's AeroSpace Plane C Vaughan
Oversaw 60 students in Senior Design project to develop Space Shuttle replacement vehicle, culminating in design of reusable launch vehicle

SELECTED OUTREACH ACTIVITIES

Media Coverage of Research:

- SciShow: *This beautiful house is made of snot* (02/16/2021)
- Smithsonian Magazine: Rachael Lallensack, *Ten scientific discoveries in 2020 that may lead to new inventions* (12/28/2020)
- CBS This Morning News, Eye on Innovation: Jonathan Vigliotti, *Sea creature aids climate change fight* (09/10/2020)
- Oceanographic Magazine: Oceanographic Staff, *New laser system provides 3D reconstructions of live deep-sea creatures* (2020)
- Dive Magazine: Scarlet Hathaway, *Breakthrough in studying mysterious carbon capturers* (2020)
- Science Focus: Helen Scales, *The technology solving the ocean's greatest mysteries* (08/20/2020)
- Associated Press: Seth Borenstein, *Scientists learn how tiny critters make ocean 'snot palaces'* (06/03/2020)
- New York Times: William Broad, *The sea's weirdest creatures, now in 'staggering' detail* (06/04/2020)
- Popular Science: Hannah Seo, *These animals build palaces out of their own snot* (06/06/2020)
- Los Angeles Times: Rosanna Xia, *This fantastical sea creature helps remove planet-warming gases from the atmosphere* (06/07/2020)
- Voice of America: Mario Ritter Jr, *Scientists study sea creature which makes a home of body fluid* (06/07/2020)
- Gizmodo: Dharna Noor, *These weird-ass sea creatures live in 'snot palaces' that capture carbon* (06/08/2020)

- Daily Mail: Jonathan Chadwick, *Strange sea creature that lives up to 1,000ft below the surface encased in a giant bubble of mucus may play a key role in removing carbon dioxide from the atmosphere* (06/09/2020)
- Smithsonian Online: *Scientists tour elaborate, deep-sea 'snot palaces' for the first time* (06/09/2020)
- Scientific American (60-second science): Christopher Intagliata, *Snot palaces' reveal undersea creature secrets* (06/11/2020)
- Science News: Susan Milius, *Larvaceans' underwater 'snot palaces' boast elaborate plumbing* (06/15/2020)
- IFL Science: *Laser scanning reveals the oceans' secret carbon disposal mechanism* (06/15/2020)
- BBC News World Service: *Snot palaces built by sea creatures could help scientists and maybe even Nasa* (06/15/2020)
- New York Times: Tatiana Schlossberg, *A.I. is helping scientists understand an ocean's worth of data* (04/09/2020)
- Popular Mechanics: Jennifer Leman, *Cool new robot can grab squishy fish without hurting them* (08/28/2019)
- Monterey Bay Aquarium Research Institute: Kim Fulton-Bennett, *First sea trials of a revolutionary new undersea robot* (08/5/2019)
- Hot Press: Selina Juengling, *Playful days and curious nights at this week's* Festival of Curiosity (07/17/2019)
- San Luis Obispo Tribune: Carrie Schuman, *Tiny pieces of plastic pollute Monterey Bay – and they're likely in SLO County waters, too* (07/05/2019)
- Monterey Bay Aquarium | Research Institute: *Microplastics in the ocean: A deep dive on plastic pollution in Monterey Bay* (06/06/2019)
- Monterey Bay Aquarium Newsroom: *New study finds microplastic throughout Monterey Bay* (06/06/2019)
- MENAFN – Daily News Egypt: *Lack of proper waste management in Egypt causes accumulation of marine plastic litter* (03/19/2019)
- Web Wire: *National Geographic Kids best-selling almanac celebrates 10th anniversary in 2019* (03/19/2019)
- Mongabay: Marianne Messina, *A 'FitBit for squid' could help track the ocean's squishier species* (01/21/2019)
- The Atlantic: Ed Yong, *Why your vacuum clogs but a Manta Ray doesn't* (09/26/2018)
- The Economist: Catherine Brahic, *Giant larvaceans make their houses from mucus* (09/20/2018)
- Atlas Obscura: *DIY tech is helping scientists keep up with marine life* (03/23/2018)
- Los Angeles Times: *It looks like a fish, but it's not. Meet the robot built to spy on ocean life* (03/21/2018)
- American Museum of Natural History: *Unseen Oceans, ITAG* (03/02/2018)
- American Museum of Natural History: *Unseen Oceans, Ocean Luminaries* (03/02/2018)
- Monterey Bay Aquarium Research Institute: *Ocean Stories, Kakani Katija* (02/28/2018)
- The Verge Science: *This creature has been pooping microplastics all over the seafloor* (09/10/2017)
- News Deeply: *Executive Summary: Meet the plankton that eats microplastic* (08/18/2017)

- The Verge Science: Jacqueline Ronson, *These sea critters trap and remove microplastics from oceans* (08/18/2017)
- PBS News Hour: Roni Dengler, *Giant plankton eat and transport plastic through the ocean* (08/17/2017)
- Daily Mail: Cecile Borkhataria, *How pollution makes its way to the ocean floor: Deep-sea footage reveals plastic eaten by tiny plankton sinks to the bottom in fecal pellets* (08/16/2017)
- National Geographic: Laura Parker, *Ocean life eats tons of plastic – Here's why that matters* (08/16/2017)
- New Scientist: Michael Le Page, *Weird creatures are spreading polluting plastic through the sea* (08/16/2017)
- Science News: Helen Thompson, *Giant larvaceans could be ferrying ocean plastics to the seafloor* (08/16/2017)
- The Scientist: Bob Grant, *Giant plankton may help move plastic pollution to sea floor* (08/16/2017)
- Seeker: Matt Smith, *Giant larvaceans sweep up and poop out plastic waste in the oceans* (08/16/2017)
- The Verge: Alessandra Potenza, *Tiny bits of plastic get to the seafloor by hitching rides on snot palaces* (08/16/2017)
- Wired: Eric Niiler, *Plankton "mucus houses" could pull microplastics from the sea* (08/16/2017)
- The Verge: Rachel Becker, *How do you make a jellyfish wear an activity tracker?* (08/02/2017)
- Science Friday: *The cephalo-inspired technology of the future* (06/23/2017)
- Quartz: Michael Tabb, *This gorgeous deep-sea creature can filter atmospheric carbon and bury it in the ocean*
- Cosmos Magazine: Amy Middleton, *Larvacean life: the surprise ocean giants of global carbon capture* (05/10/2017)
- KPCC Take 2: Julia Paskin, *Giant zooplankton: Nature's water filtering, carbon storing enigma* (05/10/12017)
- Optics and Photonics: Sarah Michaud, *Lasers capture sea creatures in action* (05/10/17)
- BBC World Service, News Day: *How giant larvaceans contribute to transfer of atmospheric carbon to the deep ocean* in *France elects centrist Macron as its new leader* (05/07/2017)
- Science Friday: *The house that snot built* (05/05/2017)
- Science News: Susan Milius, *Sea creatures' sticky "mucus houses" catch ocean carbon really fast* (05/04/2017)
- Newsy: Evan Thomas, *Filter-feeding plankton clean carbon out of the oceans* (05/03/2017)
- Scientific American: Lydia Chain, *Slime houses of pinky-size plankton cycle carbon* (05/03/2017)
- Seeker: Jen Viegas, *Pinky-sized marine animal breaks record for ocean filtration* (05/03/2017)
- The Verge: Rachel Becker, *Meet the snot-dwelling sea creatures who help move food through the ocean* (05/03/2017)
- New York Times: Steph Yin, *In disposable mucus houses, these zooplankton filter the oceans* (05/03/2017)
- TEDWomen 2015: *Momentum* (05/28/2015)
- TEDYouth 2014: *A recap of Session 3 from TEDYouth 2014* (11/15/2014)

- Journal of Visualized Experiments: *Featured Scientist: Kakani Katija talks jellyfish and ocean mixing* (11/1/2011)
- National Geographic Magazine (and online): Susan Daugherty, *2011 Emerging Explorer* (05/17/2011)
- Time Magazine: Adi Narayan, *Churning ocean waters, one jellyfish at a time* (08/05/2009)
- New York Times: Henry Fountain, *Microscopic creatures stir the oceans* (07/31/2009)
- British Broadcasting Corporation: Victoria Gill, *Jellyfish help to stir the ocean* (07/30/2009)
- National Public Radio: Geoff Brumfiel, *Jellyfish may help keep planet cool* (07/30/2009)
- National Geographic: Brian Handwerk, *Sea animals change climate via flutters and flaps* (07/30/2009)
- Discovery Channel: Michael Reilly, *Jellyfish may affect climate by stirring oceans*
- Nature News: Roberta Kwok, *Jellyfish help mix the world's oceans* (07/29/2009)

STEM Outreach Activities:

- National Geographic Live! *Designed By Nature* and *Into Water* (2020) (partially canceled due to COVID-19)
- National Geographic/Sherpa Studios/Google VR, *Into Water: Deep Sea Exploration* (2019)
- National Geographic Society, *Explorers Classroom with Kakani Katija* (03/20/2019)
- Oceanus, Undercurrent Productions, *To Tag a Squid* (01/03/2019)
- National Geographic Society, Geochallenge, *Tackling Plastics* (09/15/2018)
- TED-Ed: *The surprising (and invisible) signatures of sea creatures* (2014)
- National Geographic Society/Lockheed Martin Corporation, *Engineers in the Classroom* (2011)

STEM Mentorship Activities:

- Mentor, York School Robotics Team, Monterey, CA (2016-present)
- Mentor, MBARI's Summer Undergraduate Research Internship, Moss Landing, CA (2015-present)
- Mentor, CSUMB's Research Experience for Undergraduate Students, Marina, CA (2014-present)
- Mentor, WHOI/MIT Graduate and Summer Research Program, Woods Hole, MA (2011-2014)
- Guest Judge, King/Drew Magnet High School Fair, Los Angeles, CA (2010)
- Mentor, Boys and Girls Club, Pasadena, CA (2010)
- Divemaster, Sharky's Eco-Dive Center, Sierra Madre, CA (2009-2010)
- Host, Caltech Classroom Connection, Pasadena, CA (2009)
- Mentor, Zen Divers with Los Angeles County Lifeguards, Los Angeles, CA (2006-2008)

REFERENCES

Dr. Barbara Block
Charles and Elizabeth Prothro Professor in Marine Sciences
Hopkins Marine Station, Stanford University
120 Ocean View Blvd,
Pacific Grove, CA 93950
Tel (831) 655-6236
bblock@stanford.edu

Dr. John H. Costello
Professor of Biology
Providence College
Providence, RI 02918
Tel (401) 865-2474
costello@providence.edu

Dr. Sean P. Colin
Associate Professor of Environmental Science
Roger Williams University
One Old Ferry Road, MNS-241
Bristol, RI 02809
Tel: (401) 254-3142
scolin@rwu.edu

Dr. John O. Dabiri
Professor of Civil & Environmental Engineering and Mechanical Engineering
Stanford University
473 Via Ortega, M/C 4020
Stanford, CA 94305
Tel (650) 721-5311
jodabiri@stanford.edu

Dr. Mark Denny
John B. and Jean DeNault Professor in Marine Sciences
Hopkins Marine Station, Stanford University
120 Ocean View Blvd,
Pacific Grove, CA 93950
Tel (831) 655-6207
mwdenny@stanford.edu

Dr. Michael Dickinson
Esther M. and Abe M. Zerem Professor of Bioengineering
California Institute of Technology
1200 E California Blvd, M/C 216-76
Pasadena, CA 91125
Tel (626) 395-5775
flyman@caltech.edu

Dr. T. Aran Mooney
Associate Scientist, Biology Department
Woods Hole Oceanographic Institute
Marine Research Facility, MS #50
Woods Hole, MA 02543
Tel (508) 289-3714
amooney@whoi.edu

Dr. Bruce H. Robison
Senior Scientist, Midwater Ecologist
Monterey Bay Aquarium Research Institute
7700 Sandholdt Rd,
Moss Landing, CA 95039
Tel (831) 775-1701
robr@mbari.org

Dr. Alana Sherman
Electrical Engineering Group Lead
Monterey Bay Aquarium Research Institute
7700 Sandholdt Rd,
Moss Landing, CA 95039
Tel (831) 775-1780
alana@mbari.org