New Faculty

To learn more about our new faculty's research and accomplishments, visit eas.caltech.edu/people.

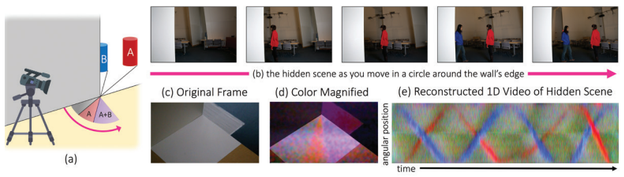
"I'm excited to start connecting with people across campus and help them use imaging to push the boundaries of their disciplines. I've already had the opportunity to speak with Zach Ross [Assistant Professor of Geophysics] about how new techniques could help in more precisely localizing the origin of collections of earthquakes. This work, perhaps surprisingly, contains many similarities to the work I've done in black hole imaging.

Katherine L. Bouman

Assistant Professor of Computing and Mathematical Sciences; Rosenberg Scholar

Katherine (Katie) L. Bouman's research focuses on computational imaging. She designs systems that tightly integrate novel sensor and algorithm design with the goal of developing a new generation of computational cameras that will allow us to observe phenomena that are difficult or impossible to measure with traditional approaches. This work led her to be a key member of the international Event Horizon Telescope team, which in April 2019 imaged the first-ever picture of the Messier 87 (M87) black hole 55 million light-years away. Bouman's new group at Caltech combines expertise from signal processing, computer vision, machine learning, and physics to find and exploit hidden signals for both scientific discovery and technological innovation.

Bouman received her undergraduate degree from the University of Michigan and completed her master's and PhD at the Massachusetts Institute of Technology (MIT). She was formerly a Postdoctoral Fellow at the Harvard-Smithsonian Center for Astrophysics. Recently, she was a recipient of the Breakthrough Prize in fundamental physics as part of the Event Horizon Telescope team.



Seeing around corners: (a) Diagram shows two subjects (red and blue) hidden from a consumer camera's view by a wall. Only the yellow-shaded region is visible to the camera. (b) The hidden scene becomes visible as an observer walks around the occluding edge (magenta arrow). (c,d) Hidden scene information can be extracted and interpreted from the intensity and color of light reflected off the patch of ground near the corner. (e) Temporal frames of radiance variations on the ground are used to construct a one-dimensional video of motion evolution in the hidden scene.

John O. Dabiri

Centennial Professor of Aeronautics and Mechanical Engineering

John O. Dabiri's research focuses on unsteady fluid mechanics and flow physics, with particular emphasis on topics relevant to biology, energy, and the environment. His current interests include biological fluid dynamics in the ocean, next-generation wind energy, and development of new experimental methods. Dabiri is a MacArthur Fellow and Fellow of the American Physical Society. His other honors include the Presidential Early Career Award for Scientists and Engineers (PECASE), the Office of Naval Research Young Investigator Program award, and being named one of *MIT Technology Review*'s "35 Innovators Under 35" as well as one of *Popular Science*'s "Brilliant 10."

Dabiri received his BSE summa cum laude in Mechanical and Aerospace Engineering from Princeton University (2001); his MS in Aeronautics from Caltech (2003); and his PhD in Bioengineering with a minor in Aeronautics from Caltech (2005). He was a Professor of Aeronautics and Bioengineering at Caltech from 2005 to 2015. From 2015 to 2019 he served as Professor of Civil and Environmental Engineering and of Mechanical Engineering at Stanford University.

"Jellyfish seem simple at first glance, but having studied them for many years now (starting with a SURF project in my first summer at Caltech), I've come to appreciate how much they can teach us about everything from propulsion to evolution to climate change. I'm looking forward to developing some new ways to use robotics to learn even more from them in the lab and the ocean.

Long-exposure image of artificial snow released upwind of a vertical-axis wind turbine at the Caltech Field Laboratory for Optimized Wind Energy near Lancaster, California. Constructive aerodynamic interference between adjacent wind turbines significantly improves their performance.