

News

John Dabiri receives 2010 MacArthur Foundation Fellowship

When John Dabiri received an email asking him to call the Director of the MacArthur Foundation ‘immediately’ he had no idea that his life was about to change. ‘Once I was on the phone, the Director asked me if I knew any MacArthur fellows, and so I started listing a few. Once I couldn’t think of any more he asked if I knew of any others. I said “no”, and then he said, “You are”. I was just speechless.’ Dabiri had just received one of the most prestigious awards in US society, a grant of \$500,000 to individuals who show exceptional creativity in their work in order to enable them to pursue their creativity further.

At 30, Dabiri is the youngest of this year’s fellows. Drawn from the sciences, humanities, social sciences, arts and the field of public issues, the grant comes with no strings attached and gives the recipients the freedom to pursue their interests freely. The Foundation says, ‘We believe that highly motivated, self-directed and talented people are in the best position to decide how to allocate their time and resources. We provide the maximum freedom for the recipients to follow their creative vision, whether it is moving forward with their current activities, expanding the scope of their work or embarking in entirely new directions.’

With a background in engineering, Dabiri describes how he became hooked on biology during the summer before his senior year at Princeton. ‘I worked in Mory Gharib’s lab at Caltech on some measurements of fish at the Aquarium of the Pacific in Long Beach. It was my first introduction to biological fluid dynamics and I’ve been working on related problems ever since.’ Returning to Caltech to join the bioengineering program and continue his work with Gharib, Dabiri published his PhD thesis entitled ‘Unsteady fluid mechanics of starting-flow vortex generators with time-dependent

boundary conditions’ in 2005. Accepting a position as Assistant, and then Associate, Professor at Caltech, Dabiri has since pursued his interests in biology with the aim of improving engineering design. Intrigued by how animals work, Dabiri has studied jellyfish because he says, ‘They are an interesting challenge. On the surface they seem very simple but when you start diving

deeper you find there is a lot of interesting complexity in these animals.’ Developing technology that allows SCUBA divers to measure the flow currents of jellyfish in their environment, Dabiri has discovered that jellyfish ‘rowing’ becomes more efficient as they grow larger and they can draw prey into their bells using a hybrid jet-paddling motion.

‘I feel a personal imperative to do research that has an impact on society so it has been exciting to study these animals and figure out how to apply what we learn,’ says Dabiri. One of his other interests, understanding how schooling may help fish swim more efficiently, has helped Dabiri design wind turbine arrangements that are more efficient than isolated wind turbines to improve the efficiency of renewable energy production.

Thinking of the future as a MacArthur Fellow, Dabiri says, ‘The fellowship gives me the opportunity to take the next risk ...

it gives me a bigger appetite for failure.’ Referring to some of his work as unorthodox, Dabiri hopes to use the grant to fund work that would not be supported by conventional funding bodies, such as understanding the role of aquatic fauna – ranging from plankton to schooling fish – in ocean mixing.



John Dabiri, winner of a 2010 MacArthur Fellowship. Courtesy of the John D. and Catherine T. MacArthur Foundation.

Kathryn Knight
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