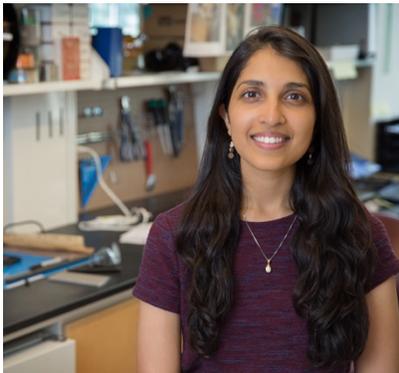


Biohybrid Design: How I Learned to Build with Biology

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Growing up in ten schools with instruction in five languages across three continents taught Dr. Ritu Raman that adapting to your surroundings is the key to surviving and thriving in diverse dynamic environments. Continual adaptation is something Ritu learned from observing our natural biological world. She is fascinated by how biological materials adapt their form and function in response to their environment, and this inspires her research in "biohybrid design", using biological materials to build responsive machines. Ritu's PhD focused on using living skeletal muscle to power robots that moved and walked around. These biohybrid robots can do things that synthetic robots cannot, like get stronger when exercised, or heal when damaged. Her current and future work is focused on building biohybrid implantable devices that sense and respond to individualized patient needs, and her goal is to teach the next generation of scientists and engineers how to build with biology.



Bio: Ritu Raman, Ph.D. is an engineer, writer, and educator with a passion for introducing biohybrid materials into the toolbox of every inventor. Her research focuses on using biohybrid design to build implantable devices that sense and adapt to the body. She grew up in India, Kenya, and the United States where she learned to appreciate and thrive in diverse and dynamic environments. Her life experiences have forged the belief that technical innovation can drive positive social change, and this inspires her work to democratize and diversify STEM education around the world. Ritu is currently a postdoctoral fellow in the

renowned Langer Lab at MIT, funded by a Ford Foundation Fellowship by The National Academies of Sciences, Engineering, and Medicine and a L'Oreal USA For Women in Science Fellowship. She holds many awards and honors, including being named to the Forbes 30 Under 30 Science list and the MIT Technology Review 35 Innovators Under 35 list, as well as being named an Innovation and Technology Delegate to the International Achievement Summit. She has championed many initiatives to empower women in STEM, including most recently founding the Women in STEM Database at MIT (WiSDM). Ritu received her B.S. magna cum laude from Cornell University in 2012, and her M.S. (2013) and Ph.D. (2016) as an NSF Fellow at the University of Illinois at Urbana-Champaign.