

Haptics: Science and Engineering for Touch at Multiple Scales



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I will describe recent research in my lab on haptics and robotics. It has been a longstanding challenge to realize engineering systems that can match the extraordinary perceptual and motor capabilities of biological systems for touch, including the human hand. Some of the difficulties of meeting this objective can be traced to our limited understanding of the mechanics, and to the high dimensionality of the signals, and to the multiple length and time scales - physical regimes - involved. An additional source of richness and complication arises from the sensitive dependence of what we feel on what we do, i.e. on the tight coupling between touch-elicited mechanical signals, object contacts, and actions. I will describe research in my lab that has aimed at addressing these challenges. I will explain how the results are guiding the development of new technologies for haptics and wearable computing, and how we are drawing inspiration from biology for to guide the engineering of new robotic and electronic systems.

Biography: Yon Visell is Assistant Professor at the University of California, Santa Barbara, in the Media Arts & Technology Program, Department of Electrical and Computer Engineering, and Department of Mechanical Engineering. He received the Ph.D. in Electrical and Computer Engineering at McGill University, and was a postdoctoral scholar at Sorbonne University, Paris. Before arriving at UC Santa Barbara, he served on the faculty at Drexel University. He received MA and BA degrees in physics from The University of Texas, Austin and Wesleyan University. Respectively. Prior to his PhD studies, Visell developed DSP algorithms at Ableton, enabling music production by vast numbers of bedroom producers, musicians, and Grammy-winning artists. Dr. Visell has published more than 70 scientific works, including two edited volumes on haptics and VR. He has twice received and six times been nominated for technical best paper awards at leading haptics conferences. Visell received a Google Faculty Research Award in 2016, a Hellman Family Foundation Faculty Fellowship in 2017, and a US National Science Foundation CAREER award in 2018. Dr. Visell is serving as the general Co-Chair of the 2020 IEEE Haptics Symposium, the longest running conference in the field, which will be held in Washington DC in April 2020.

Wednesday, May 1st @ 1:00 p.m.
Peterson Family Health Sciences Hall, Room 2000