



VILLANOVA UNIVERSITY

MECHANICAL ENGINEERING DEPARTMENT

Spring 2020 SEMINAR SERIES

Seminar Date: January 24th, 2020

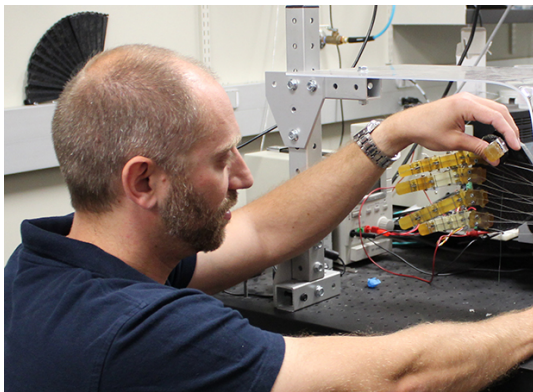
Lecture: Looking, Grasping, Walking: How rediscovering the anatomy of humans and animals is revealing the way forward in robots

Speaker: Joshua Schultz, Ph.D.,
Department of Mechanical Engineering, University of Tulsa

Abstract:

Although robots have been advancing manufacturing output for decades, most individuals have never seen nor interacted with a robot in person. Society is on the cusp of a major change; robotics technologies promise to soon be integrated into aspects of everyday life across the industrialized world. With this change comes the need for robots to be able to move and interact with the environment in ways that are much more challenging than those seen in carefully structured manufacturing environments. In this talk, Joshua Schultz will discuss how thinking about how motion is generated in humans and other mammals with an engineering interpretation leads us to elegant new ways for robots to surmount these challenges. Examples will be drawn from his group's work in robotic hands, bipedal walking, rehabilitation robots, artificial muscles, and soft robotics.

Biography:



Joshua Schultz directs the Biological Robotics at Tulsa Research group, where we investigate the generation and control of robot motion guided by principles of anatomy and physiology. He has been at the University of Tulsa Mechanical Engineering Department since 2013. Prior to joining The University of Tulsa, he was a postdoctoral fellow at Istituto Italiano di Tecnologia in Genova, Italy, working on muscle-like actuation strategies intended for use in soft robot hands. He received his Ph.D. from Georgia Institute of Technology in 2012, studying with Jun Ueda. His dissertation generated new design and control methods for strain-amplified piezoelectric actuators inspired by human muscle. In addition to scholarly publications, this work received press in popular media outlets, including Wired and Engadget. He holds an MS degree from Vanderbilt University and a BS degree from Tufts University. Prior to beginning his doctoral work at Georgia Tech, he was a hardware engineer supporting motion systems paper path for laser printers at Lexmark International.

Host: Prof. Hashem Ashrafioun