



Mechanical Engineering Webinar

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Date and time: October 12th @ 12 PM

<https://virginiatech.zoom.us/my/dlosey>

Designing Soft Robots with Geometric Modeling

Compliant and soft robotic systems demonstrate the potential to perform complex movements and adapt to their surroundings with limited actuation. Designing and controlling soft robots is often highly reliant on creating accurate and usable models. However, the wide variety of tools that have been developed, and the uniqueness of the problems within soft robot modeling, make it difficult to build models that are appropriate and sufficient for a given application. In this presentation, I will be discussing one approach we have applied in our work, empirical modeling through designed geometric constraints, and how this can be used to create robots that tie themselves in knots or innately navigate complex environments with no actuation. I will highlight three examples from recent projects where we use these geometric empirical models and demonstrate how simplified models can act as powerful design tools.

Speaker Biography



Prof. Laura Blumenschein is an Assistant Professor of Mechanical Engineering at Purdue University. She received her MS in Mechanical Engineering from Rice University in 2016 under the supervision of Professor Marcia O'Malley and her PhD in Mechanical Engineering from Stanford in 2019 under the supervision of Professor Allison Okamura. Her research focuses on creating more robust and adaptable soft robots. This includes studying soft robots inspired by plants, which grow to explore their environments and build structures, and designing flexible soft haptic displays to improve human-robot communication. Laura is an NSF graduate research fellow and her work on plant-inspired growing robots has been featured in The Wall Street Journal, Popular Science, Wired, and on CBS's Innovation Nation.

Host: Dylan Losey (losey@vt.edu)