

ROBOTICS FACULTY CANDIDATE



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Challenges and opportunities
in designing tunable, soft
mechanical sensors

Monday, January 25th
12:30 PM – 1:30 PM

Zoom Link:
<https://northeastern.zoom.us/j/96009000123>

Abstract: Physically-soft mechanical sensors are poised to unlock exciting new applications in wearable devices, robotics, and human-machine interfaces. Typically with these sensors, tuning their properties through the device geometry is a challenge. A promising development in soft mechanical sensors is hierarchically-patterned structures within the sensor, which enables both deformation selectivity and the ability to tune, and potentially reconfigure, sensing properties.

I will discuss challenges and recent work related to designing and fabricating hierarchically-patterned sensors, including origami-patterned sensors. I will also present work in enhancing the stability and mechanical selectivity of stretchable sensors, and discuss applications for such sensors in wearable healthcare applications and soft robotics.

Speaker bio: Kris Dorsey is an assistant professor of engineering in the Picker Engineering Program at Smith College. She was a President's Postdoctoral Fellow at the University of California, Berkeley and University of California, San Diego. Dr. Dorsey graduated from Carnegie Mellon University with a Ph.D. in Electrical and Computer Engineering and earned her Bachelors of Science in Electrical and Computer Engineering from Olin College.

She founded The MicroSMITHie Lab at Smith College to investigate micro- and miniature-scale sensor design and to prepare undergraduates for graduate study in engineering. Her current research interests include novel morphology soft sensors, stability concerns for soft-material sensors, and sensors for soft robots and wearable medical devices.

Dr. Dorsey has co-authored several publications on hyper-elastic strain sensors, novel soft lithography processes, and the stability of gas chemical sensors. In 2019, she received the NSF CAREER award.