



Wednesday, February 24th
4:30 PM Bowen Hall Rm 222

Dr. Elliot Hawkes
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Mechanics, Design Thinking, and Non-traditional Materials for Soft Robotics

Robotics has created machines that can perform high-precision, high-speed tasks in well-controlled environments. However, in order to move robots into the uncertain real world, the goals of precision and repeatability are no longer suitable. Accordingly, the paradigm of soft robotics trades rigidity and high-gain control for compliance that can enable robustness, adaptability, and human-safety.

I bring together experience in mechanics, design thinking, and non-traditional materials to advance the vision of robust, adaptable, human-safe robots that can thrive in the uncertain, unstructured world.

I will present three examples of my work: 1) A soft robotic gripper exploiting gecko-inspired adhesives to grasp without squeezing, 2) Compliant, robust load-sharing among gecko-inspired adhesive subunits that allowed me to be the first human to climb a glass wall with a hand-sized area of adhesive, and 3) A soft, human-compatible high-strain actuator. I will conclude with my vision of the future, including a growing robot.

Dr. Elliot W. Hawkes is a postdoctoral fellow with Prof. Allison Okamura at Stanford University and received his PhD with Prof. Mark Cutkosky at Stanford in 2015. Previously, he worked at the Harvard Micro-robotics Lab under Prof. Robert Wood and at the ETH Multi-scale Robotics Lab under Prof. Bradley Nelson. He has received the *ASME* 2015 Best Journal Paper Award in Bioinspired Systems and Materials, *IEEE ICRA* 2015 Best Student Paper Award, 6 pending or awarded patents, an invitation to exhibit at *TED2015*, *NSF* and *NDSEG* Graduate Fellowships, is a member of *Phi Beta Kappa*, and his work has received international press from outlets such as the *NY Times*, *BBC*, *Cell*, *Science*, and most recently, the *Late Show with Stephen Colbert*

For inquiries, please contact the Dept. of Mechanical & Aerospace Engineering at 609-258-0315

ALL VISITORS ARE WELCOME!