

Material Development for Soft Prosthetic Hands

Compliant grippers allow for dexterous manipulation without difficult sensory feedback and hardware control. These machines, and all of soft robotics, has been enabled by materials chemistry and not computer or electrical engineering. Recently, the Shepherd lab has developed a manufacturing method for soft actuators: rotational casting. This manufacturing method creates monolithic and seamless pneumatic actuators that apply large forces, we have applied this technique to force amplifying gloves. In order to create full prosthetic hands (and even arms), even higher force soft actuators must be developed. In this project, the student will survey mechanical designs and control methods to produce high force prosthetic hands and gloves. The student will be teamed with a material scientist and electrical engineer to realize these systems.

