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ECE 496

Soft robots are robots built with compliant materials. In practice, this has several advantages over traditional robotics, namely in terms of adaptability, safety, and cost. Professor Yang Zhang, who was at UIUC but recently moved to the University of Michigan, research group has developed an open-source finite element platform for the modeling of soft robots. This platform, Kraken, is being used to model the contact mechanics, statics, and dynamics of soft robots. Recording high-quality experimental results with more complex soft robots are required to further assess and improve the performance of Kraken.

Currently, the soft robots available to Professor Zhang's group are limited to planar motion or operate only in highly controlled environments, with one end of the robot being fixed. My role in this project will be to help design and fabricate novel soft robot designs that can operate in 3 dimensions and are capable of large-scale locomotion. I will spend the first semester designing the soft actuators and control circuitry and the second semester assembling various configurations of the system and developing feedback controllers.