

Master of Engineering Multidisciplinary Project Listing

Deadline: Nov. 30, 2020

Industry Advisor: Advanced Research Lab for Multifunctional Lightweight Structures (ARL-MLS)

Project ID: ARL-MLS1

Supervisor: Professor Kamran Behdinan

Disciplines Required: MSE (1), ME (1)

Disciplines still needed:

Start Date: Jan. 11, 2021

End Date: Aug. 31, 2021

NDA: no

Project Title: 3D Printed Soft Materials for Robotics Applications

Project Description:

The development of robots composed of soft materials is gaining increasing attention due to their advantages of superior flexibility and human operator safety. This increased interest in soft robots has been driven by new developments in 3D printing technology which allow for complex geometries and combinations of functionally graded materials to be used. The application of soft robots is especially promising in the areas of biomedical devices which integrate with the human body and for use in confined spaces where their compliance and flexibility allow access to locations not previously tenable.

Project Deliverables: The goal of this project is to perform an in-depth study through literature review into the recent advancements of 3D printed soft materials for robots. Based on this study, simulation and modeling of proposed soft robot designs will be performed and proposed designs will be presented through case studies.