Mechanical & Industrial Engineering
UNIVERSITY OF TORONTO

MIE498H1: Research Thesis 2023-2024

Supervisor	Kevin Golovin
Supervisor email	Kevin.golovin@utoronto.ca
Number of Positions	3
Open to	Mechanical Engineering Students
Term Offered	Full-Year (Y)
Research Area	Materials – Thermofluids
Research Topic	Fibre fragmentation and release: mechanics, imaging, and analysis

Project Description

One third of all plastics in the ocean comes from textiles. When fabrics are washed or abraded, small microfibres are released and eventually end up in water. This project will investigate how this process mechanically occurs, using (1) high-speed imaging of fibre fragmentation in situ, (2) photoelasticity to study fibre degradation, and (3) tribological analysis to understand how fibre surface properties affect the fibre release. The students will get hands-on experience running experiments, collecting and analyzing their data, and presenting their findings to the DREAM Lab.

Additional Information	The Durable Repellent Advanced Engineering Materials (DREAM) Lab at the University of Toronto investigates advanced coatings and surfaces for the betterment of humanity. As part of a larger project understanding how to eliminate fibre fragmentation, this sub-project with uncover key concepts about fibre fragmentation and fracture. Students will become members of the vibrant, diverse, and dynamic DREAM Lab and will also get a chance to explore other topics being investigated by the group, should they so choose.
Application Instructions	Please submit CV, unofficial transcript, and one paragraph describing your interest in the project to Prof. Kevin Golovin (kevin.golovin@utoronto.ca)