Mechanical & Industrial Engineering
UNIVERSITY OF TORONTO

MIE498H1: Research Thesis 2024-2025

Supervisor	Kevin Golovin
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Number of Positions	1
Open to	Undergraduate Mechanical Engineering Students
Term Offered	Full-Year (Y)
Research Area	Thermofluids
Research Topic	Effect of slipperiness of droplet triboelectrification

Project Description

A triboelectric nanogenerator (TENGs) combines contact electrification with electrostatic induction to scavenge small amounts of current during the contact of two dissimilar materials. One exciting application of TENGs is electricity harvesting from the rain. When droplets slide off the surface of a TENG, the electricity generated can be significant. However, little is known about the relationship between how easily droplets can slide and the electricity generated, particularly for different materials and surfaces. This project will explore that relationship.

Additional Information	The project is 100% experimental and will require the student to fabricate various TENGs (which could require a bit of chemistry), evaluate their interaction with liquid droplets, and then measure their electrical properties.
Application Instructions	Email Prof. Golovin (kevin.golovin@utoronto.ca) with a CV and your motivation to join the project.