Mechanical & Industrial Engineering
UNIVERSITY OF TORONTO

MIE498H1: Research Thesis 2023-2024

Supervisor	Andreas Mandelis
Supervisor email	mandelis@mie.utoronto.ca
Number of Positions	1
Open to	Undergraduate Mechanical and Industrial Engineering Students
Term Offered	Full-Year (Y)
Research Area	Materials, Clean Energy
Research Topic	Dynamic Imaging of Solar Cell Optoelectronic Quality using a Near-Infrared Camera

Project Description

We have developed a non-destructive imaging technique (solar cell lock-in carrierography) which monitors the optoelectronic quality of industrial silicon-based photovoltaic solar cells and aims to correlate the images with the electrical output and overall performance efficiency of the solar cell. A 4th year thesis student will be required to work with the research team in generating and analyzing carrierographic images in order to build the statistics of these optical-electrical correlations and relate images to quantitative measurements of the parameters responsible for the solar cell efficiency.

Additional Information	For more information, consult https://cadipt.mie.utoronto.ca, Prof Mandelis (mandelis@mie.utoronto.ca), Dr Melnikov (melnikov@mie.utoronto.ca)
Application Instructions	Submit agreement to undertake the project to Prof Mandelis (mandelis@mie.utoronto.ca), Dr Melnikov (melnikov@mie.utoronto.ca) and provide a copy of unofficial transcript