



Mechanical & Industrial Engineering  
UNIVERSITY OF TORONTO

## Thesis Projects (MIE498 H/Y) 2018–2019

**Title:** Dynamic Imaging of Solar Cell Optoelectronic Quality using a Near-Infrared Camera

**Number of Students:** 1 or 2

**Nature of Work Proposed:** Experimental

**Project is appropriate for:** Mechanical

**Description:**

We have developed an optoelectronic non-destructive semiconductor device imaging technique (lock-in carrierography, LIC) which monitors the optical-to-electrical energy conversion 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. One or two 4<sup>th</sup> year student(s) 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.

**Notes:** For 2-term theses.

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