



MIE498H1: Research Thesis 2025-2026

Supervisor	Andreas Mandelis
Supervisor email	mandelis@mie.utoronto.ca
Number of Positions	1
Open to	Mechanical and Industrial Engineering Students
Term Offered	Full-year
Research Area	Mechanics & Design Biomedical instrumentation for cardiology
Research Topic	Photothermal-based Cardiology Catheter Imaging Project-2

Project Description

This project will focus on investigating and optimizing signals for cardiology catheter imaging using laser photothermal techniques. The CADIPT lab is at the forefront of this research, aiming to enhance the accuracy and reliability of imaging methods used in cardiology for quasi-invasive inspection of vulnerable plaques that may cause stroke and heart attack. By leveraging photothermal effects, students can explore innovative ways to improve the detection and diagnosis of cardiovascular disease. This project offers a unique opportunity to gain experience with advanced imaging technologies and contribute to the development of more effective medical tools.

Additional Information

Application: In-vitro Quantitative Dental Imaging
Analysis: The CADIPT lab's investigation into in-vitro quantitative dental imaging analysis provides a rich area for research. This project focuses on optimizing various signal processing methods developed at CADIPT lab to enhance the quality and accuracy of dental imaging. Students will explore different imaging techniques and processing algorithms to improve the detection and analysis of dental conditions. This project not only contributes to the field of dental imaging but also offers valuable insights into image processing and analysis, making it a great choice for those interested in medical imaging and computational methods.

Application Instructions

Submit unofficial transcript to Professor Andreas Mandelis (mandelis@mie.utoronto.ca)