



TEAM Hub
Tissue Engineering & Applied Materials

Tissue Engineering &
BioImaging
Lab

MASc in Biomedical Engineering - Image Processing (Microscopy)

Domestic students only

Description: We are looking for a highly motivated undergraduate student with interests in imaging, microscopy, and feature detection. The ideal candidate will be enrolled in engineering, computer science, or physics. The student will be supervised by Dr. Leila Mostaçõ-Guidolin and will join the Tissue Engineering and BioImaging Lab, which is associated with the newly established Tissue Engineering and Materials Characterization (TEAM) Hub, based at Carleton University.

Topic and qualifications: The envisaged research will focus on the development of methods to capture metrics associated with fiber-like structures of the extracellular matrix (ECM) in tissue and 3D bioprinted samples (including the 3D reconstruction of such networks based on optical imaging). Collagen, for example, is one of the main components of the ECM. The evaluation of collagen-based hydrogels to be used as a basis for the development of bio-inks suitable to model the ECM of different tissues has the unique potential to initiate cellular processes - including for example the differentiation of stem cells. In this project, the student will work with high-resolution optical microscopy images obtained with a state-of-the-art confocal microscope. The project will involve developing and integrating software aimed at characterizing ECM structures.

The ideal candidate will have an undergraduate degree in engineering, computer science, or physics. Previous research experience in image processing is an asset. We require an excellent academic track record that demonstrates potential for successfully carrying on the project independently.

The envisaged starting date is Winter 2023 or Fall 2023 (negotiable). Applications will be reviewed as received and the position will remain open until filled. Applications should include a curriculum vitae and supporting documents. These should be sent electronically as a single PDF file to leila.guidolin@carleton.ca. Submitted documents should include:

- A curriculum vitae;
- An academic transcript (electronic, unofficial);
- Names and contact information of 3 references;
- A brief summary of past research activities, and a brief statement of interest detailing the reasons you are interested in working on this project. Please keep it to a maximum of 2 pages.
- What extracurricular activities you are involved with and why?

We welcome applications from suitably qualified candidates regardless of age, gender, race, religion, or ethnic background. The position is subject to budgetary approval and only selected applicants will be contacted.