Tissue Engineering & BioImaging Lab

Master's Student
[Image Processing / Software Development]

POSITION OVERVIEW

Faculty Supervisor: Dr. Leila Mostaço-Guidolin
Faculty / Department: Faculty of Engineering and Design/Systems and Computer Engineering
Appointment Term: 2 years.
Appointment Start Date: September 2025 (flexible)

We are looking for someone…

…enthusiastic to join our innovative research team, seeking to pursue a Master's degree. This project involves developing advanced frameworks and plugins for ImageJ to quantitatively analyze extracellular matrix (ECM) structures—specifically focusing on fibrous architectures. Your contributions will support cutting-edge research in tissue engineering and biomaterials.

The Project

ECM fibers play a vital role in tissue mechanics and cellular behavior. Through the creation of custom ImageJ plugins, you will develop tools to assess ECM fiber properties such as orientation, density, and organization. This project bridges computational image analysis with experimental biology, offering an interdisciplinary experience that will sharpen both your technical and research skills.

Your Role

Working under the guidance of Dr. Mostaço-Guidolin and alongside a collaborative team, you will:

- Design and implement ImageJ frameworks and plugins to analyze ECM structures.
- Collaborate with microscopy experts to integrate high-resolution imaging data with computational strategies.
- Develop clear documentation and user guides for your code, ensuring reproducibility and ease-of-use.
- Present findings in group meetings and contribute to drafting research reports and potential publications.

Qualifications Required

We are looking for candidates who are:

- Current undergraduate students in Biomedical Engineering, Computer Science, or a related field, with plans to pursue a Master's degree.
- Proficient in programming languages such as Java (preferred for ImageJ development), Python, or MATLAB.
- Familiar with basic image processing concepts; experience with ImageJ is a plus.
- Analytical, creative, and capable of working both independently and as part of a multidisciplinary team.
- Eager to develop a strong foundation in research methodologies and computational biology.

Why join us?

This is an outstanding opportunity to gain hands-on research experience in biomedical image analysis and ECM characterization. You will work in a supportive, innovative environment, gain exposure to state-of-the-art imaging technologies, and build a strong foundation for your future career goals.

How to Apply

Please submit a single PDF package to Dr. Mostaço-Guidolin (**leila at sce.carleton.ca**), including:
- A cover letter (up to 2 pages) detailing your interest in the project and your academic and extracurricular experiences.
- A current CV outlining your academic achievements and relevant skills.
- A brief statement (optional) explaining your long-term academic and career aspirations.

Please reference the opportunity code **MS-IMG_ECM** in your application. Applications will be reviewed on a rolling basis, so early submission is encouraged.
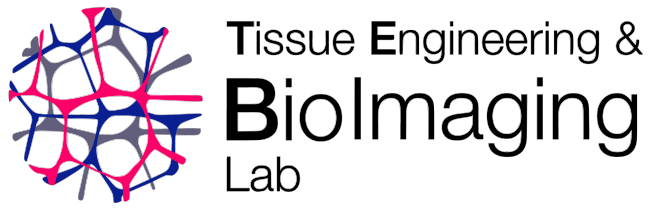
Equal Opportunities

The TEB Lab, in partnership with Carleton University, is dedicated to building a diverse and inclusive community where individuals from all backgrounds feel welcome and have equal career opportunities. We strongly encourage applications from underrepresented groups, including women, visible minorities, First Nations, Inuit and Métis peoples, persons with disabilities, and individuals of any sexual orientation or gender identity. Our commitment to diversity, cultural enrichment, and social strength is reflected in our efforts to accommodate varied career paths and provide necessary accessibility arrangements. For more details, please visit Carleton's Equity, Diversity and Inclusion Action Plan page.