



MECH 493 project: Data analysis for cell-scale and micron-scale imaging of biomaterials

Background and research goal

This project is related to computational technique to infer on important physical data from imaging. It uses basic algorithms for data analysis (Bayesian statistics, the foundation of “machine learning”) to evaluate physical determinants of cell motility on one end and for materials deformations during micro-scale testing on the other hand. It is part of a bigger project in collaboration with BC Cancer (at the Vancouver General Hospital) that proposes to unravel the fundamentals of cell mechanics.

Tasks to be performed by the student

The student is expected to adapt open-source algorithm for digital image correlation (DIC) for extracting coarse-grained parameters such as “average strain” and to adapt image recognition tools (from data analysis) in it for best interpolation of the data. The student is expected to code in Matlab and help with the construction of an imaging apparatus at UBC.

Facilities and team:

The work will be carried in ICICS X051 (computational lab) and CEME 1052 (experimental lab). The student will cooperate with 1-2 graduate students on the project.