

## **Project Proposal**

### **EECS 475: Machine Learning**

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For the final project I plan to use machine learning techniques to draw a region of interest (ROI) around a cell nucleus given a bright field microscope image. In the Backman lab, we hand draw ROIs to delineate hundreds of nuclei every day, costing thousands of grad student man hours every year. Some images contain multiple cells, and thus multiple nuclei. The idea kernel will be able to distinguish the ROIs of each of them. This project will seek to (1) collect and prepare the thousands of samples from manually drawn ROIs, (2) determine a robust pipeline for ROI nuclei detection, including establishing the types of image based features used and the type of model deployed and finally to (3) train, evaluate and optimize the established kernel.