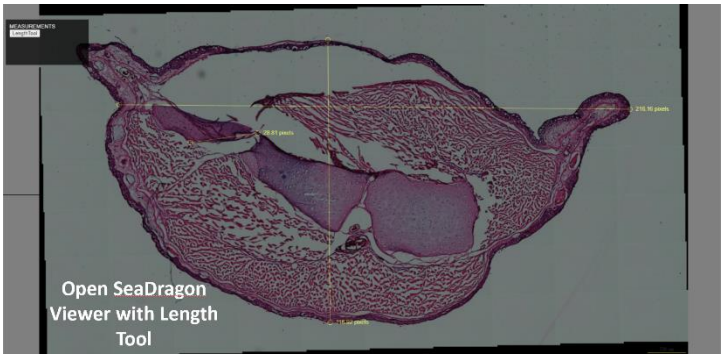
Axolotl Project

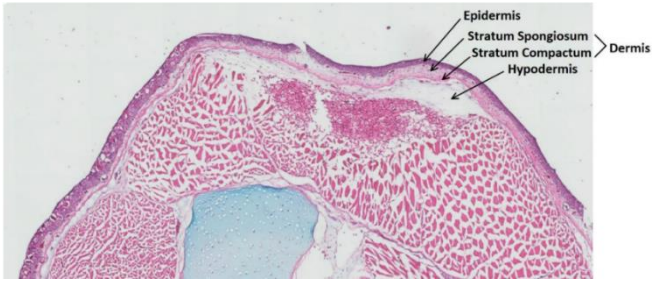
The McCusker Lab at UMass Boston:

The McCusker lab focuses on trying to understand the amazing regenerative capabilities of the species *Ambystoma mexicanum*, or the Mexican axolotl, which can regenerate its limbs and parts of the eye, lungs, brain, heart, and spinal cord among other things. The overarching goal of this research is to eventually someday reach therapeutic techniques that could unlock this ability in humans, helping the millions of amputees all around the world.



Project Description:

The goal of this project is to develop an annotation and measurement software for use in OpenSeadragon, a web-viewer tool that can be used for viewing large images in high resolution. The development of these tools would ideally make possible the ability to measure the depths of different layers of the skin tissue. Some helpful features would include the addition of the Cornerstone tools library to the OpenSeadragon viewer, having colored dots to show where the measurements were taken, an option to display the coordinates, and a local storage system of taken measurements with a reset button.



Project Significance:

It is important to question and understand how both intrinsic and environmental factors may have an effect on regeneration, including the aging process. With the development of these measurement tools, we can measure the varying thicknesses of different skin tissue layers in cross sections of healed wound sites between young and aged subsets of axolotls. Obtaining the results for this study through these measurements will allow us to begin to answer some of these questions and understand the effects of age on regeneration, specifically how skin regeneration during wound healing may be affected by aging.

Link to Student Report Covering Previous Work Done So Far:

https://github.com/allendai1/cs460student/blob/main/axo/CS460_Final_Project_Report.pdf