

U-net

Cell Segmentation

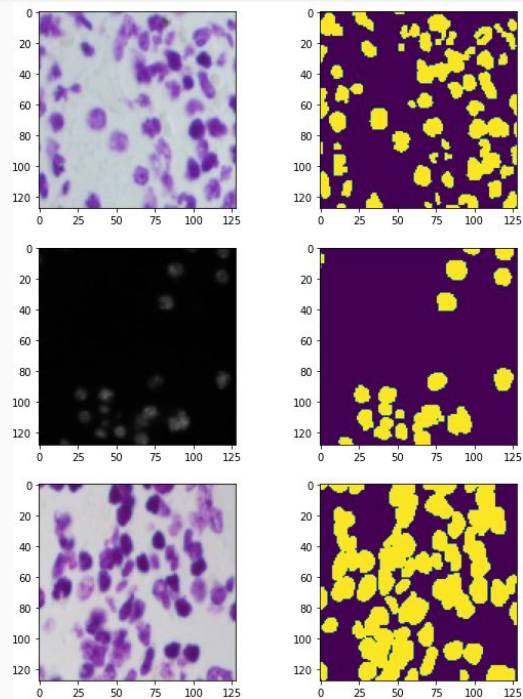
Adam Lashley



Motivation

Automated cell segmentation allows:

- Improved research throughput
- Reduced time-to-market for drugs
- Reduced Biologist stress

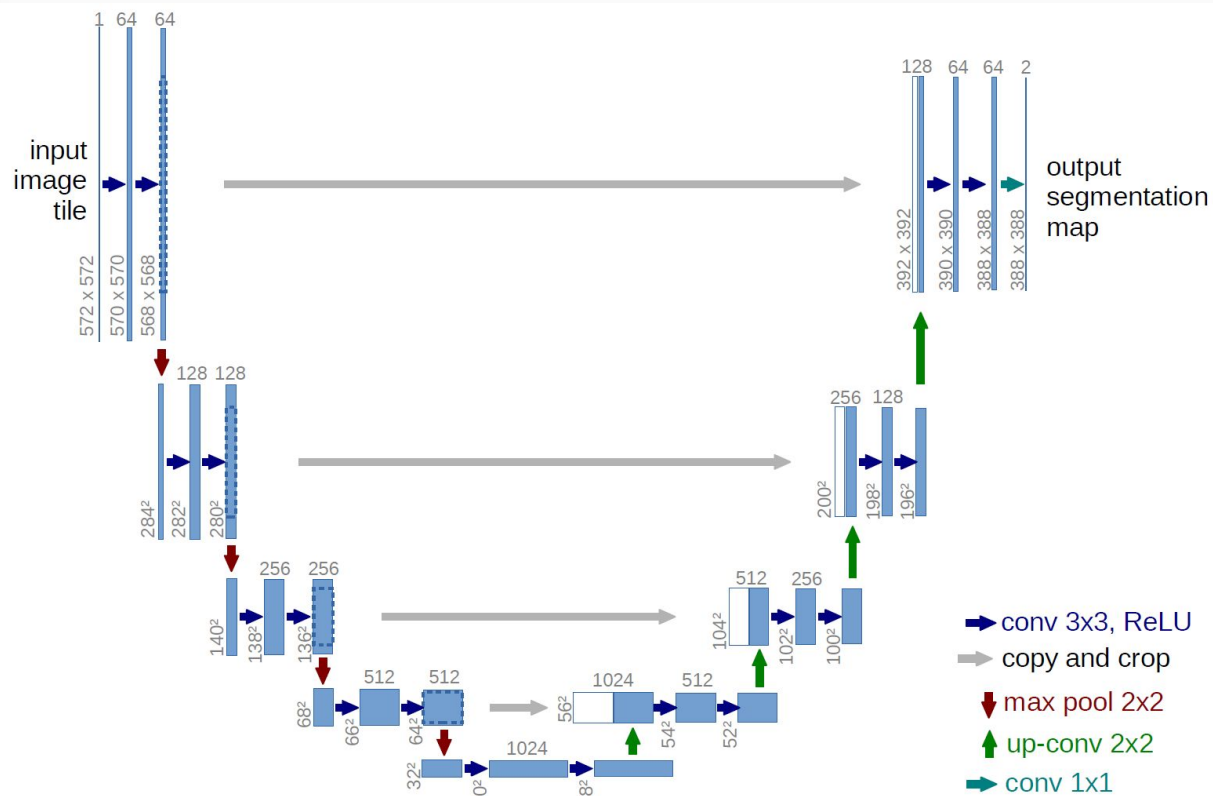


Dataset

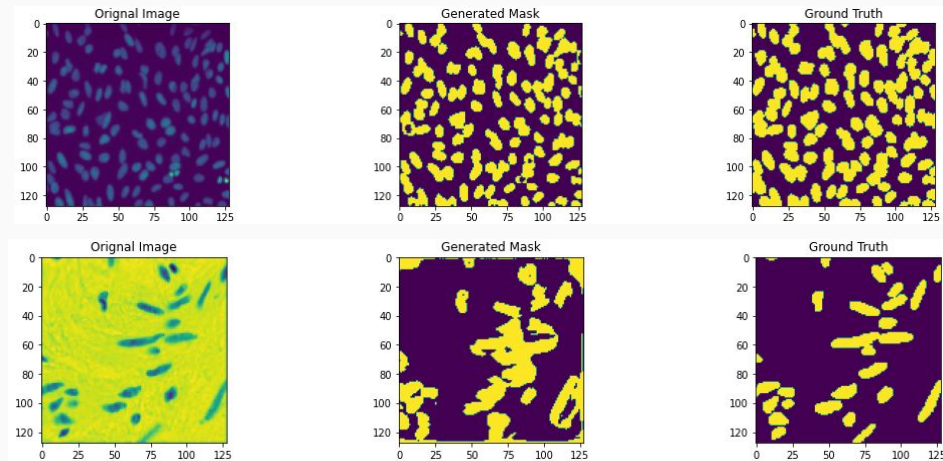
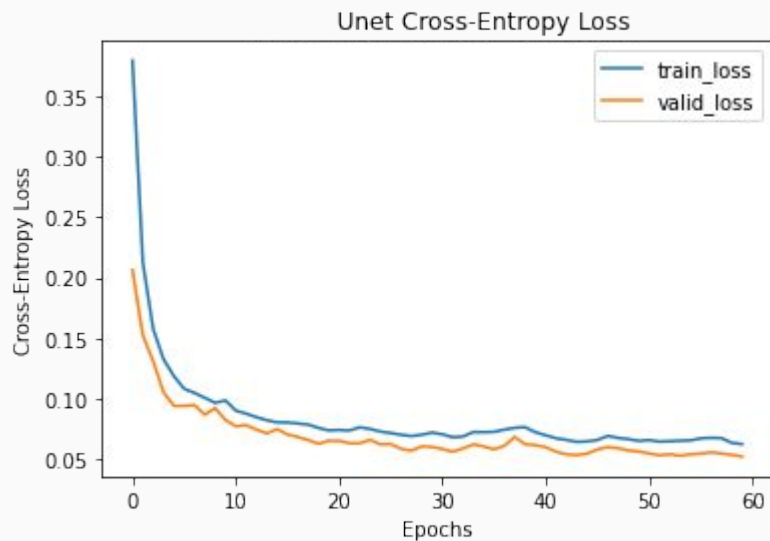
- 670 segmented nuclei images.
- Various conditions (cell type, magnification, and imaging modality)
- Designed to challenge an algorithm's ability to generalize across these variations.

Implement an Algorithm to Automate Cell Detection

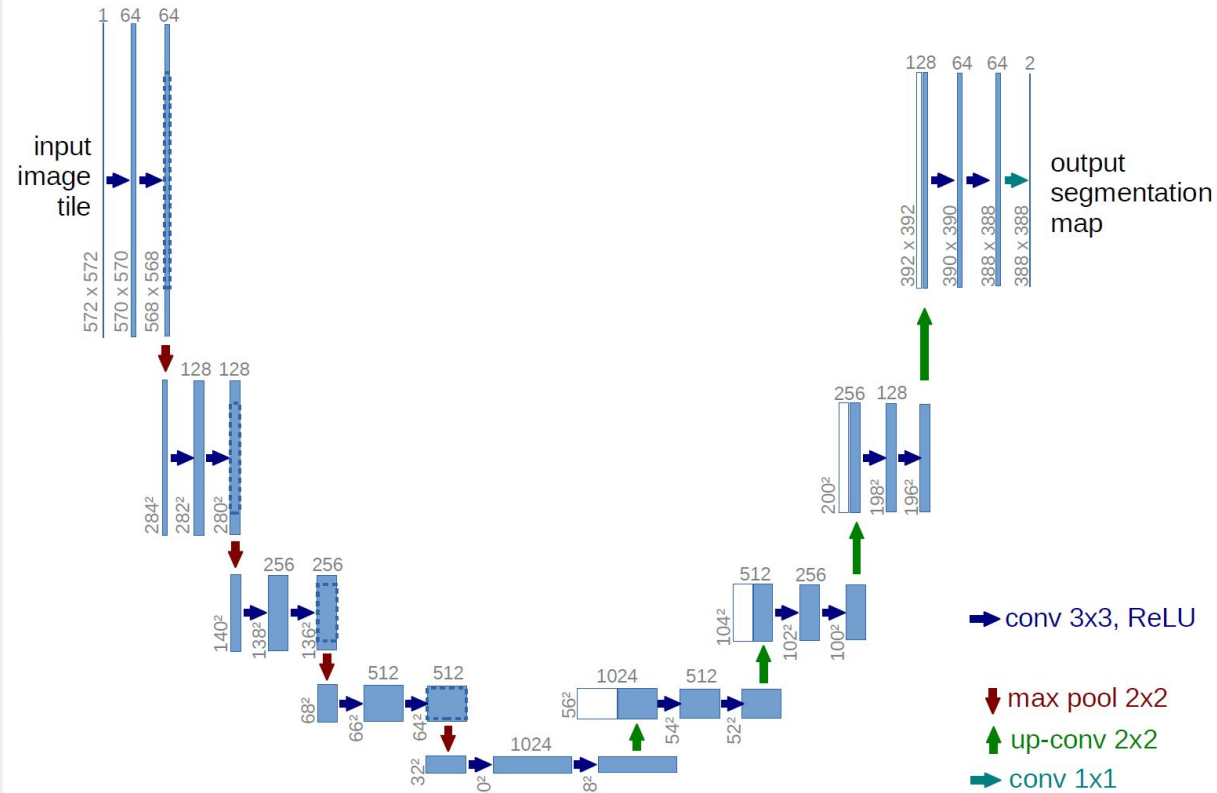
U-net Architecture



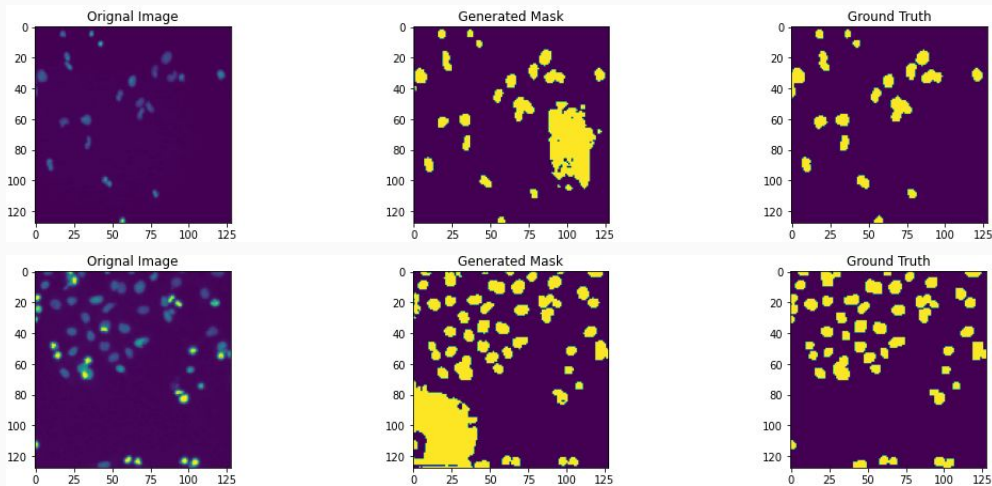
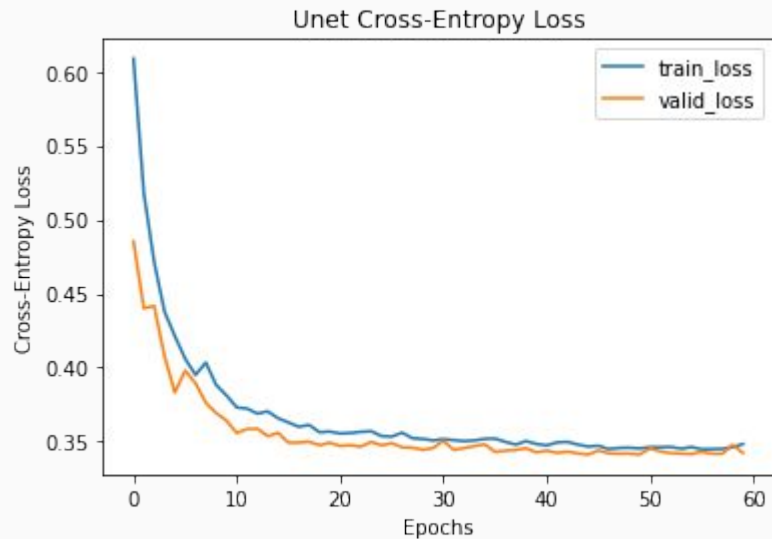
U-net Results



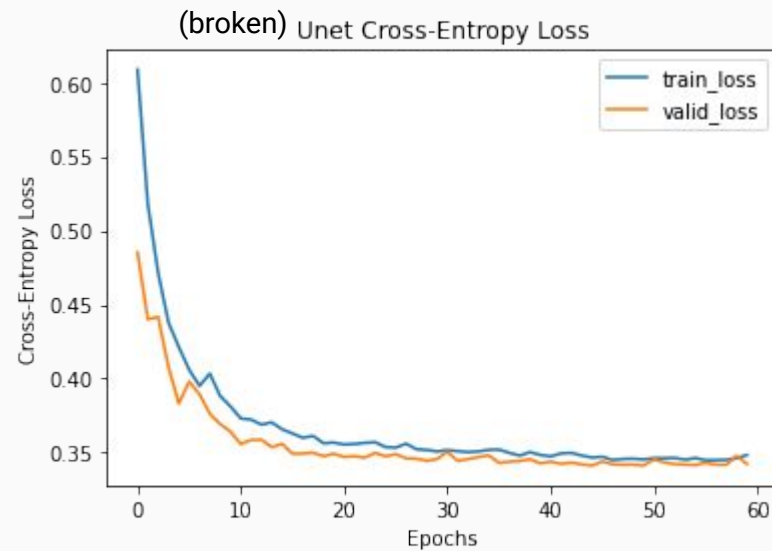
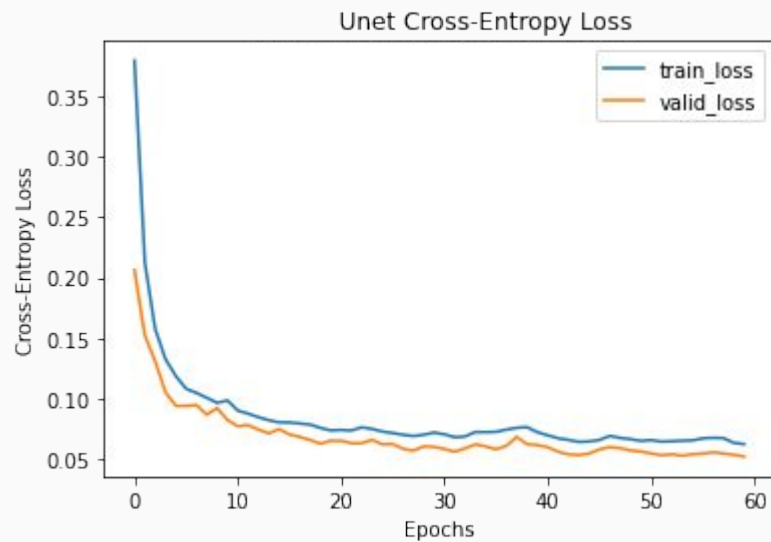
Modified U-net Architecture



Modified U-net Results

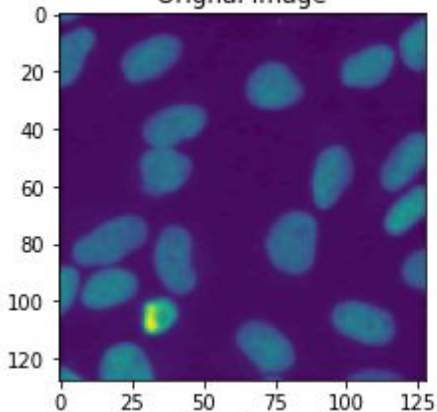


Comparison

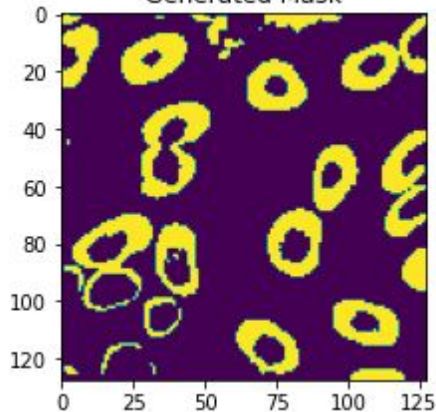


Limitations

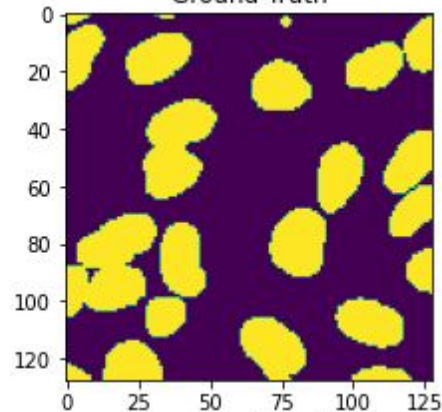
Original Image



Generated Mask



Ground Truth



Any Questions? :)

