



# Histopathologic Cancer Detection





# Introduction

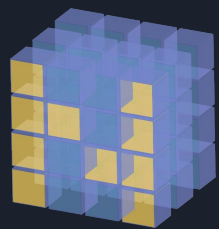
- ❖ Cancer is a group of diseases involving abnormal cell growth with the potential to invade or spread to other parts of the body.
- ❖ Symptoms:- Lump, abnormal bleeding, prolonged cough, unexplained weight loss.
- ❖ Histopathology refers to the examination of a biopsy or surgical specimen by a pathologist, after the specimen has been processed and histological sections have been placed onto glass slides.

# Machine Learning



pandas

$$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$$



NumPy



NVIDIA DGX

# Front-end

**HTML**



**JS**



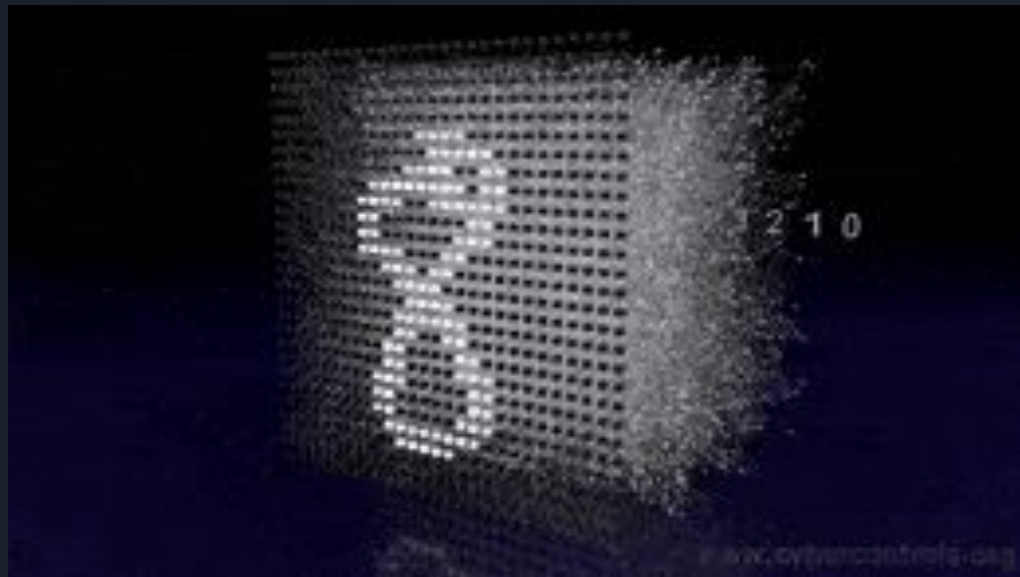
**CSS**



# Back-end



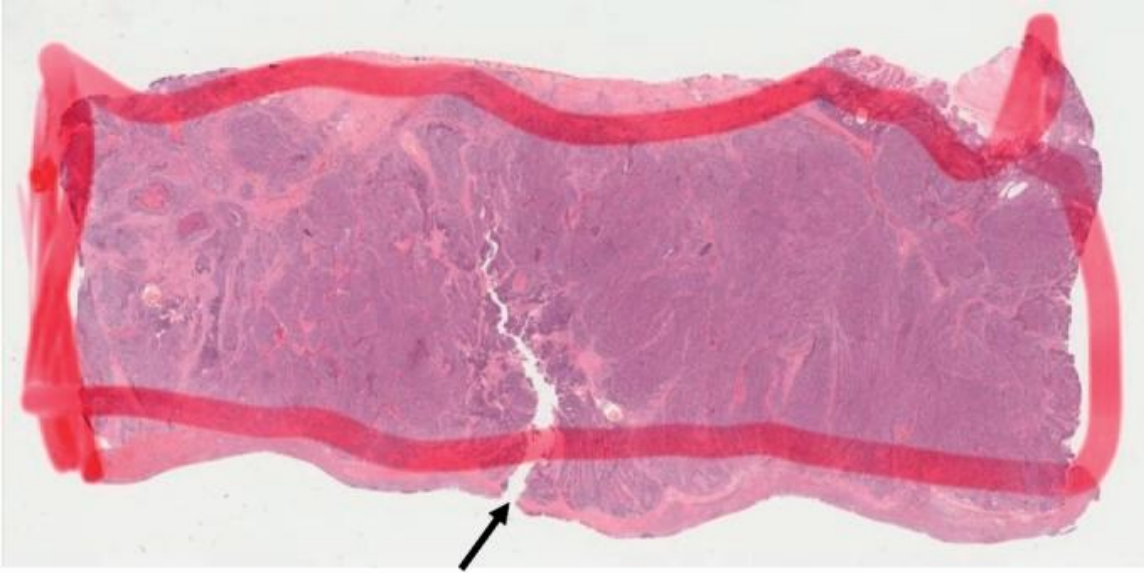
# Convolutional Neural Network



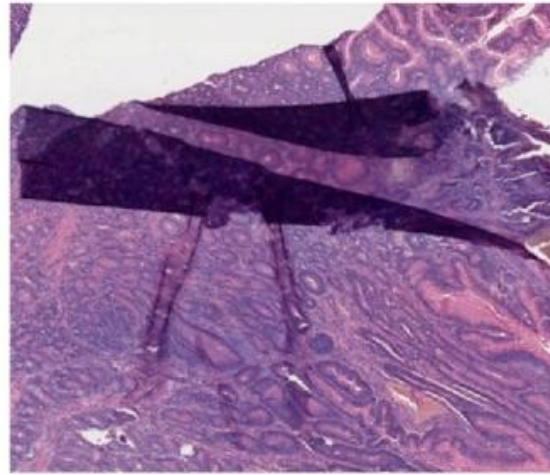
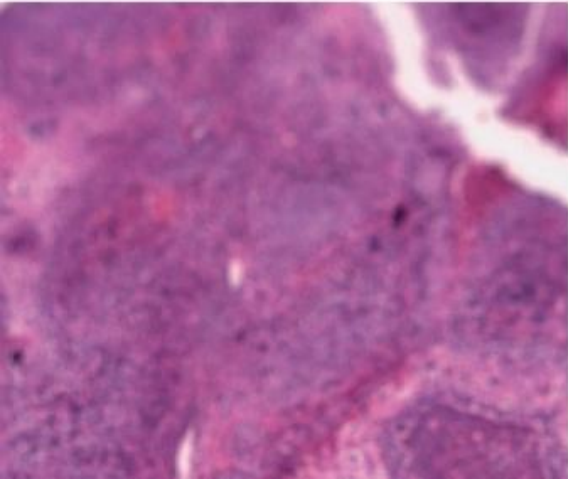


# Dataset

- ❖ Small pathology images with labels
- ❖ 96x96 pixels
- ❖ Images 220,025
- ❖ Positive label indicates center 32x32px region has some cancer tissues



Tear formation and overlapping in tissue due to human error.





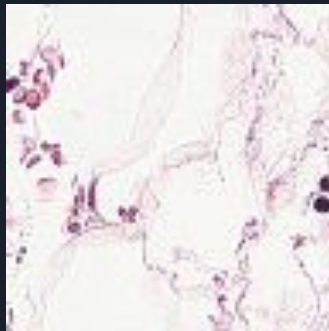


# Preprocessing

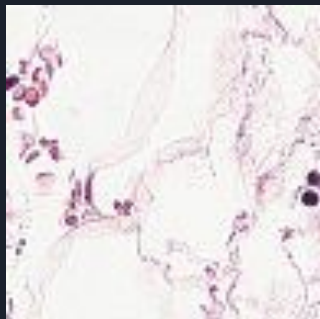
- ❖ Rescale
- ❖ Scale-up
- ❖ Rotation
- ❖ Color change
- ❖ Horizontal & Vertical flip

# Preprocessing images

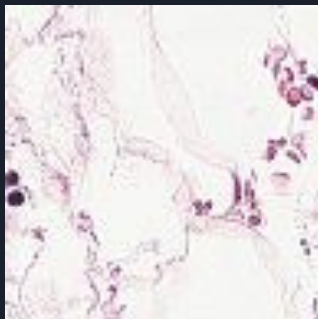
Original



Brightness



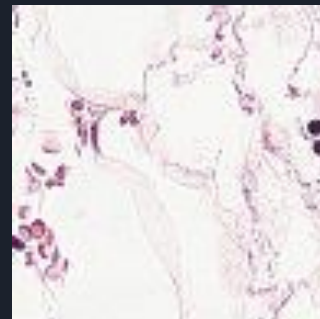
Horizontal Flip



Rotation

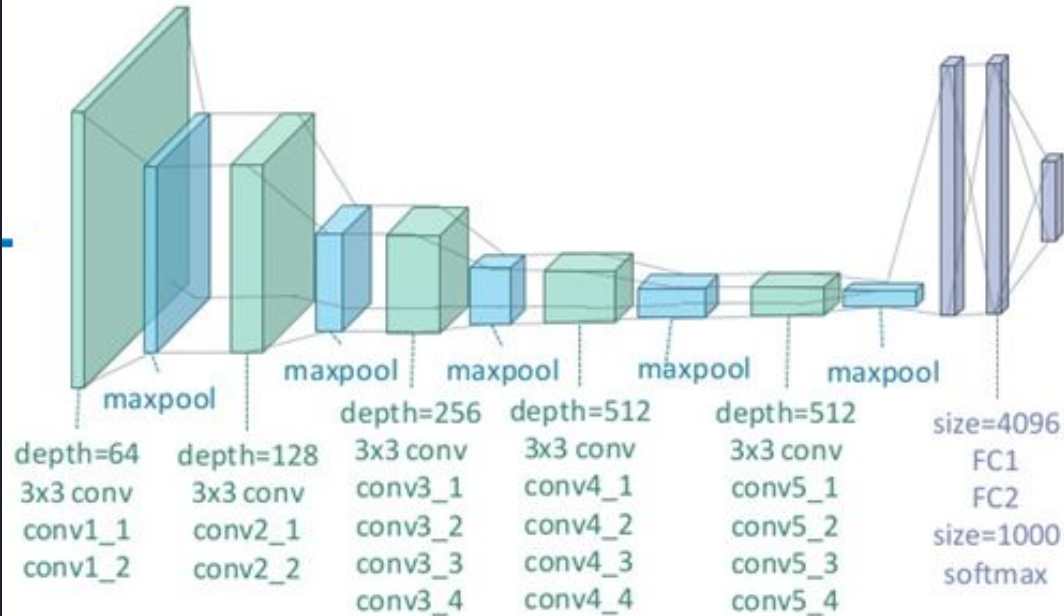


Vertical Flip



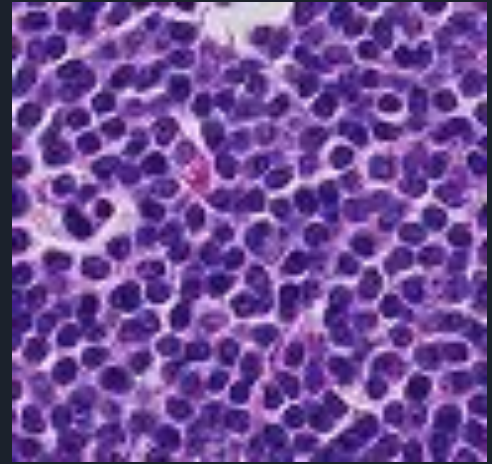
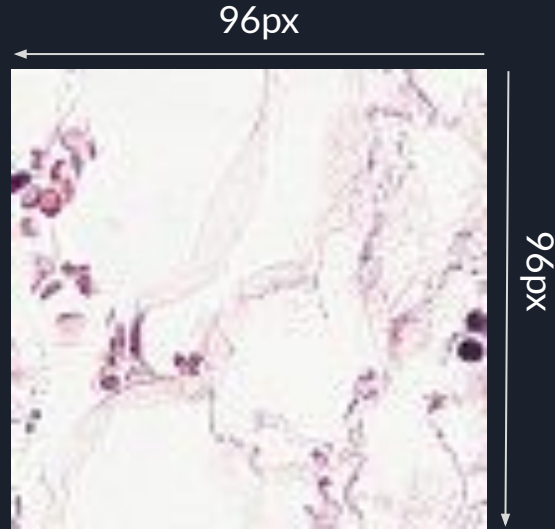
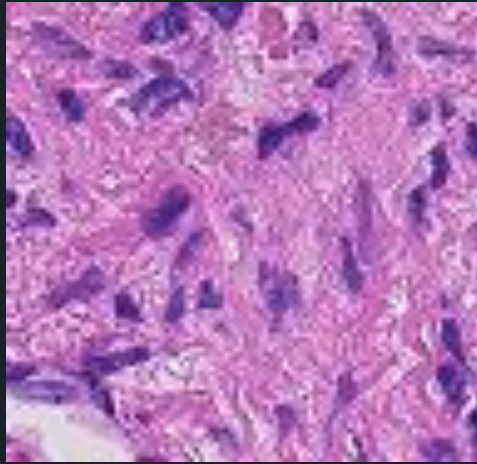
# Pretrained Model

VGG 19

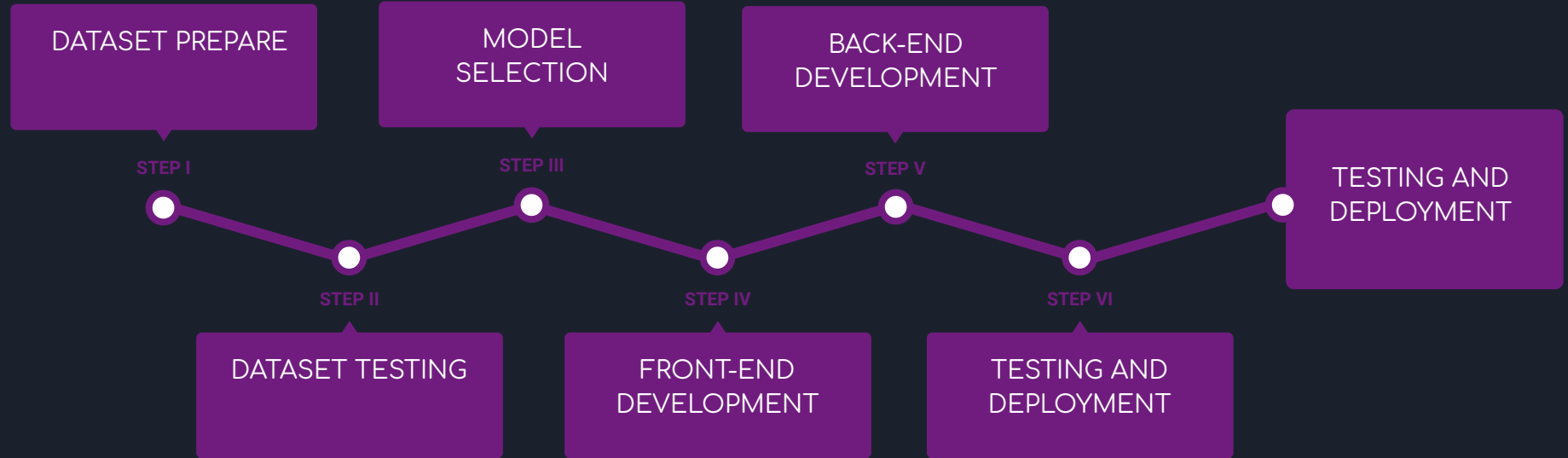


# Sample Images

Given below are some examples taken from our dataset



# Timeline of the Project





# Scope for this Semester

- ❖ Preprocessing Dataset with various techniques
- ❖ Preparing a dataset for best performance on any given deep learning model
- ❖ Testing the dataset on pretrained models to cross-check the acceptability

Thank You!

