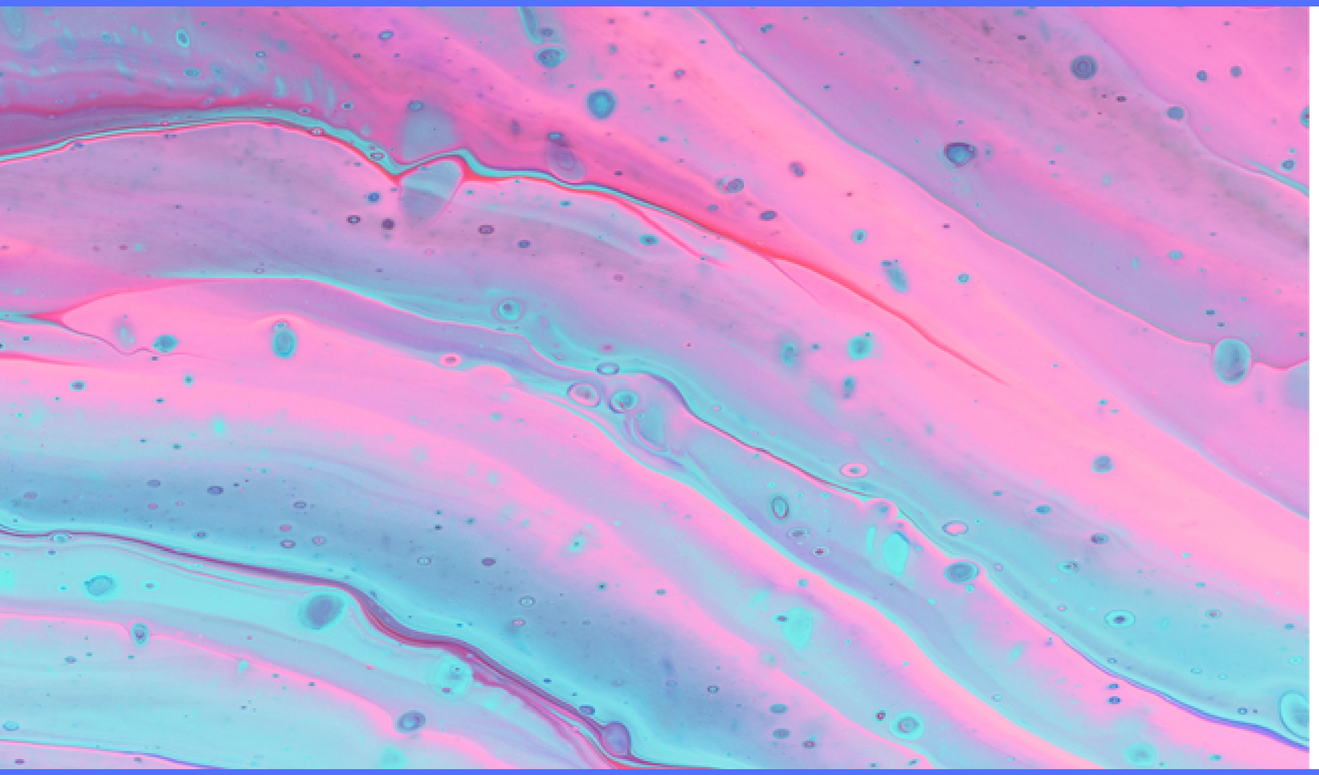
MAYO CLINIC

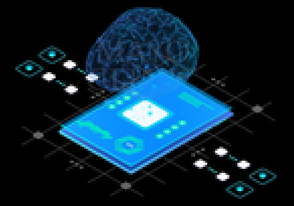
PREDICTING STROKE ETIOLOGY FROM IMAGING OF BLOOD CLOTS

SAM OLIVER - FREELANCE DATA SCIENTIST



STRIP AI

STROKE THROMBOEMBOLISM REGISTRY OF IMAGING AND PATHOLOGY



MAYO CLINIC

- BACKGROUND
- DATA

- METHODS
- MODEL RESULTS
- THE DIAGNOSTIC TOOL

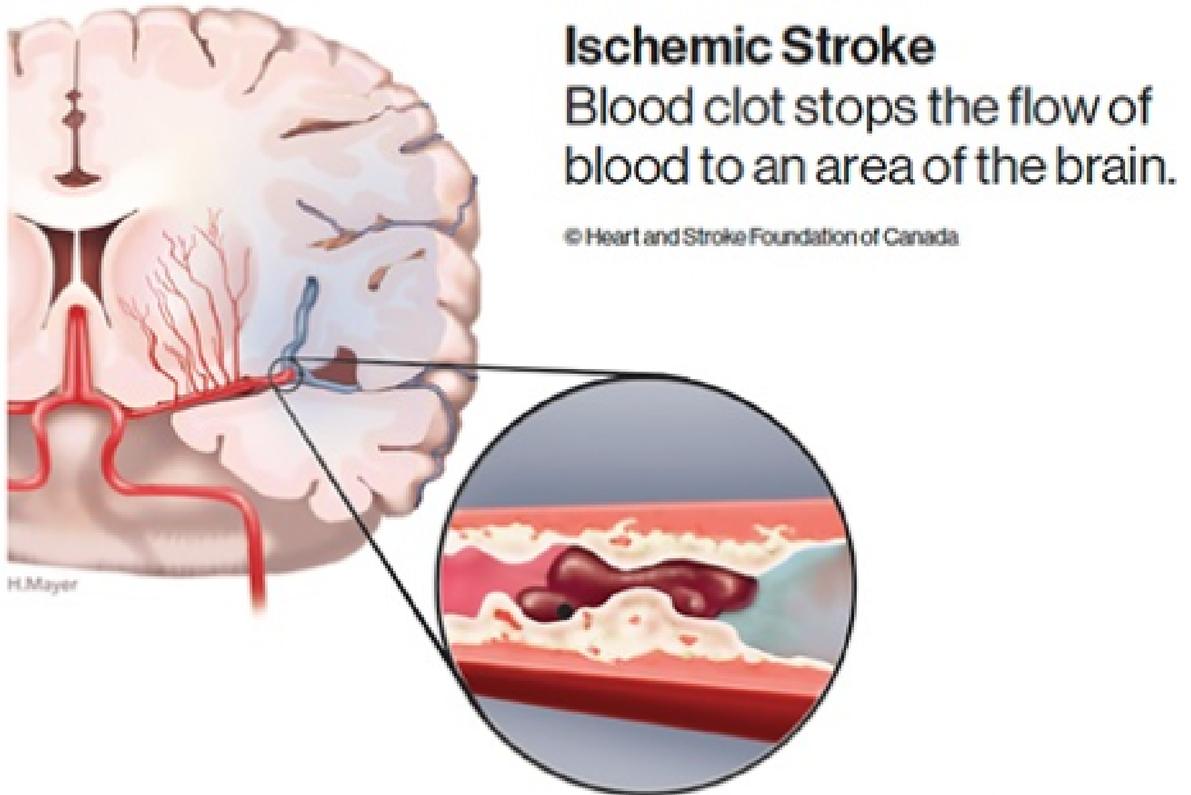
- FURTHER RECOMMENDATIONS
- CONTACT DETAILS

BACKGROUND

- 700K STROKES / YR IN US
- MAYO CLINIC + KAGGLE

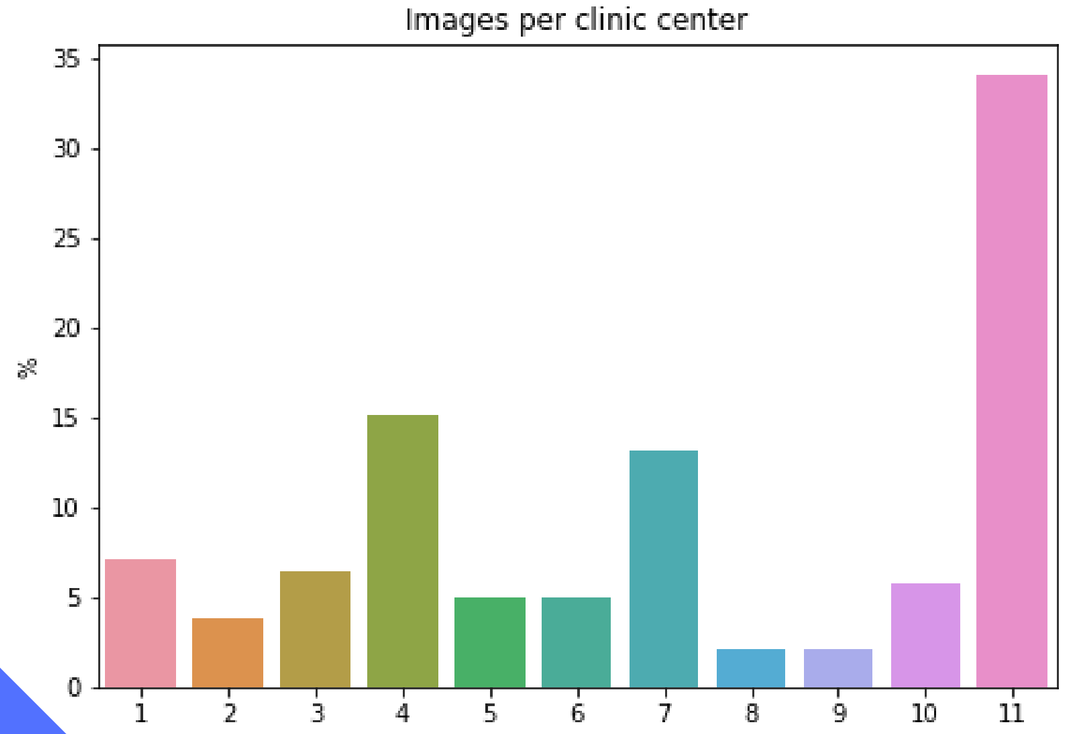
GOALS

- **PREDICT TYPE OF STROKE** FROM EXTRACTED CLOT IMAGE
- CREATE DIAGNOSTIC TOOL TO ASSIST THE MAYO CLINIC WITH DIAGNOSIS OF PATIENTS

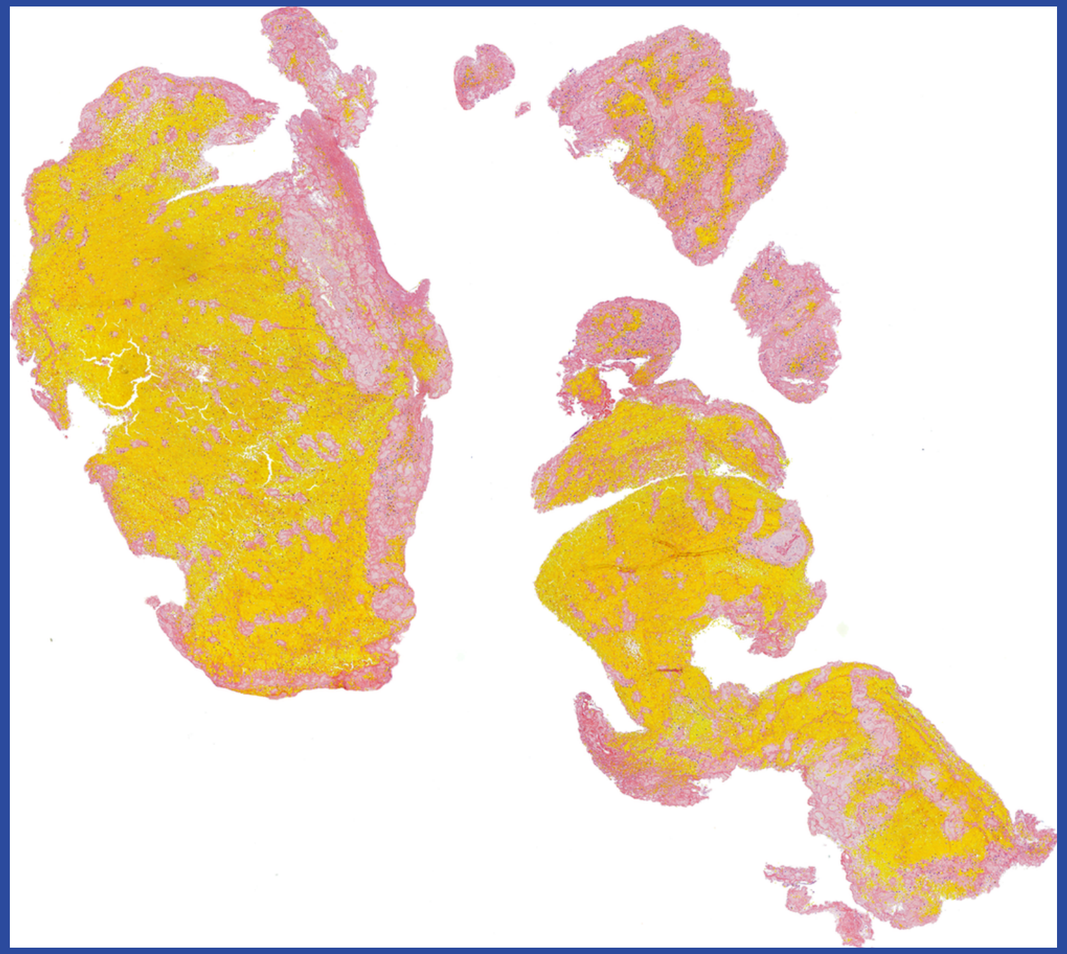


DATA

***1,000** WHOLE SLIDE IMAGES - 400 GB*



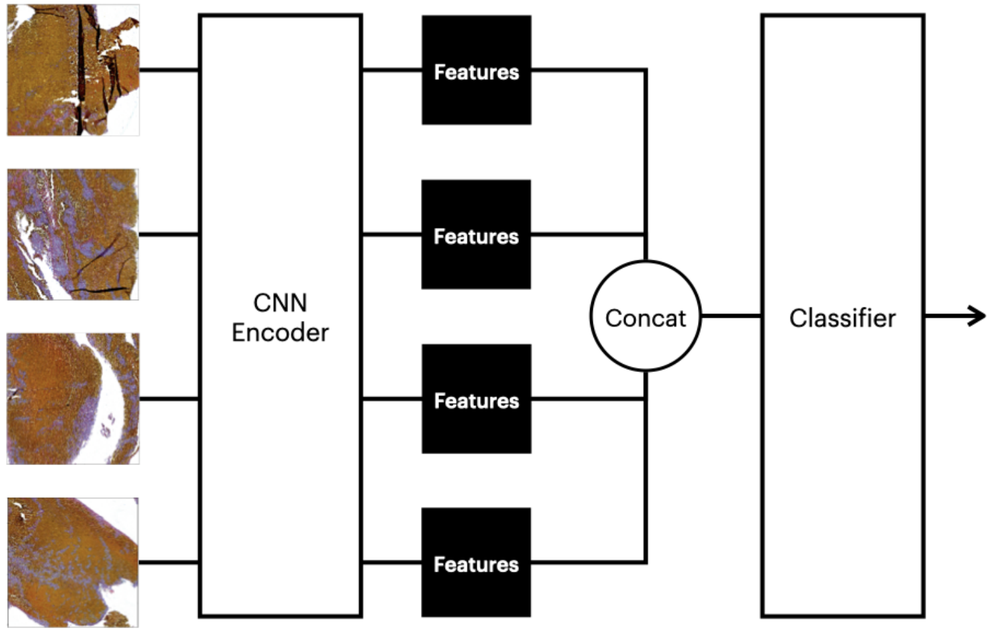
WHOLE SLIDE IMAGE OF CLOT



METHODS

- CLEAN DATASET
- HANDLE SIZE OF DATA
- MODEL THE DATA: NN & MIL
- EVALUATE & COMPARE

MIL MODELING



MODEL RESULTS

LOSS SCORES:

- **IMPROVEMENT** FROM BASELINE TO BEST

BASELINE	BEST
0.663	0.604

THE DIAGNOSTIC TOOL

1 **CREATES DIAGNOSTIC PREDICTION**

Automatic diagnosis given

2 **READS IN NEW WHOLE SLIDE IMAGES**

Processes data and refines algorithm

3 **OPTIMIZED FOR ADDITIONAL DATA**

Processes biomarkers and mass spectrometry readings

Further Recommendations

1. EXPAND COMPUTATIONAL RESOURCES

2. MORE DATA: BIOMARKERS + MASS SPECTROMETRY READINGS

3. EXPLORE OTHER SOLUTIONS:
   PREVENTATIVE HEALTHCARE
   PREDICT RISK + RECOMMEND SCREENING

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