Vitatech Biometrics

The goal of this project is to provide experience with training object detection models on large images. 2 weeks.

Project Tasks:

- 1gb minimum per image in dataset
- Present project plan after 1 week following start of project
    - Present a slide show presentation
    - Describe process
        - Exploratory analysis
        - Preprocessing steps - how you will break down image
        - Model you are going to use- Explain why the model and the steps you undertake are relevant to the project and how they will contribute to better result
        - Goal benchmarks for the metrics required in the final presentation
    - Explain dataset

- Required Metrics in final Presentation:
    - Precision
    - Recall
    - F1 Score
    - Cohen Kapa
    - IoU
    - mAP 50-95
    - Confusion Matrix

Dataset Links:

- TCIA Histopathology Custom Dataset Builder - detect cancer type, filter 'imaging modality' by 'whole slide images' only.

Helpful Links:

- Object detection in large panorama images - Spyrosoft
- Ultralytics Docs: Using YOLO11 with SAHI for Sliced Inference
- Efficient Object Detection in Large Images Using Deep Reinforcement Learning