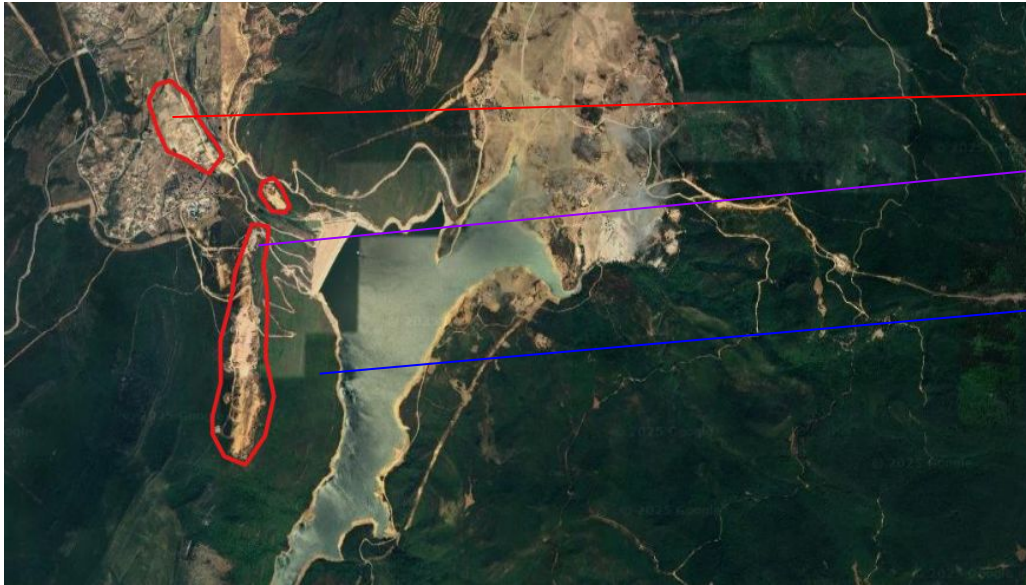# Week 2

Mining Asset Detection (MAD)

Improved the learning pipeline

- Applied gaussian blur to the mining mask
- Randomized the sampled pixels
- Visualized the results
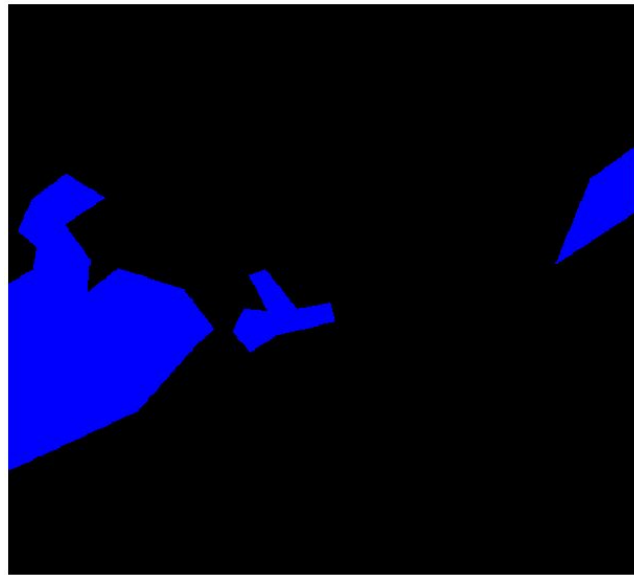- Evaluated on fresh data
- More output from more tests

Improved the learning pipeline - Data makeup

$$\begin{bmatrix} a_{11} & a_{12} & \cdots & a_{1n} \\ a_{21} & a_{22} & \cdots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m1} & a_{m2} & \cdots & a_{mn} \end{bmatrix}$$

Improved the learning pipeline - Evaluation

Findings from testing the Lassos

1. SGD not really necessary performance wise

2. Most likely most important features throughout multiple test runs

Band	Count	Amount (avg)
B3 (Green)	50	0.61
B8A (near Infrared)	44	-0.14
B9 (Water vapor)	26	-0.07
AOT (Dust)	16	-0.02
B4 (Red)	16	0.25

How to continue

- Think about how to utilize SIFT techniques
- Think about how to cluster images before applying lasso
  - Histograms vs. PCA vs. Metadata
- Gather a final verdict on the most important channels
  - How?

Demo