



Week 6

Mining Asset Detection (MAD)



Satellite imagery pipeline

- General idea:
 - For a baseline YOLO model we need normal image inputs (JPG)
 - After discussion with James, clear path for good data collection
 - Try not to use Google
 - Try to speed up the data fetching
 - Be content with minor projection issues

=> Consequently: Another look at Copernicus Data Space Ecosystem (CDSP)

Satellite imagery pipeline - CDSP

- Should provide easy access to open satellite imagery
- Instead:


CDSE CORE SERVICE



Copernicus Browser

Sinergise

CDSE CORE SERVICE



Data Download

CloudFerro


CDSE CORE SERVICE



JupyterLab

VITO Remote Sensing


CDSE CORE SERVICE



openEO

VITO Remote Sensing

CDSE CORE SERVICE



Sentinel Hub

Sinergise

CDSE CORE SERVICE



Traceability

CloudFerro

CDSE CORE SERVICE



CREODIAS

CloudFerro

CDSE CORE SERVICE



Open Telekom Cloud

T-Systems International GmbH

CDSE CORE SERVICE



Mundi

Mundi


CDSE CORE SERVICE



Dunia

GeoVille

CDSE CORE SERVICE



Terrascope

VITO Remote Sensing

CDSE CORE SERVICE



S5P-PAL

S[&]T

Satellite imagery pipeline - CDSP

- Commercialised and specialised solutions
- Instead:



Satellite imagery pipeline - CDSP

- Just a Interactive maps solution
- Instead:



Satellite imagery pipeline - CDSP

- Great idea, only works partially
- Instead:





Satellite imagery pipeline - [OpenEO](#)

- Probably a reaction to GEE
 - Offers a similar API
 - Can select bands
 - Apply filters
 - Well documented
- But sadly, abysmally slow (even slower than GEE)



Satellite imagery pipeline - Lesson learned

- At least for now, stick with the imagery we already have
- Minor change:
 - The downloaded images are still in EPSG:4236 => not square/equidistant
 - As a fix the images were reprojected to EPSG:3857 (square and equidistant)



YOLO test run

- Dataset:
 - Took all reprojected satellite images and converted them to .jpg
 - Shrinks down size of the dataset from 300G to 2G
 - Labelled all the occurring mines (Polygon => bounding box around the polygon)
- Training:
 - Using YOLO11 (just the newest)
 - Using their standard learning pipeline, only varied the batch size
- Results: ??



YOLO test run - Results

- Dataset:
 - Took all reprojected satellite images and converted them to .jpg
 - Shrinks down size of the dataset from 300G to 2G
 - Labelled all the occurring mines (Polygon => bounding box around the polygon)
- Training:
 - Using YOLO11 (just the newest)
 - Using their standard learning pipeline, only varied the batch size
- Results: Let's look into the folder