kadaster

# GeoAI Kadaster

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# Geo Expertise Center

- Team of 16 people
- ERM/ECRM
- Image recognition



# Image recognition

- **Aerial imagery**
  - 8 cm winter (Ortho and True Ortho)
  - 25 cm summer (Ortho)
- **Features**
  - Storage tanks (topographic map)
  - Greenhouses (topographic map)
  - Solar panels (energy regions)
  - Solar farms (energy regions)











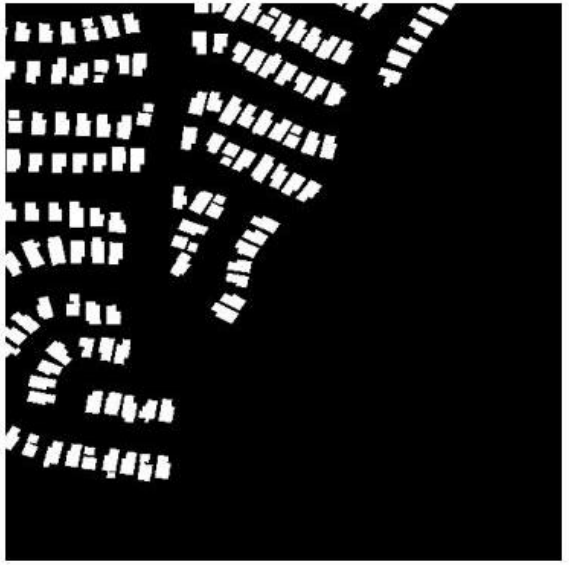

# Image recognition

- Object detection
  - Yolo
- Pixel-level classification
  - Ternausnet
  - U-net MIT-B2
- Finetuning
- Postprocessing





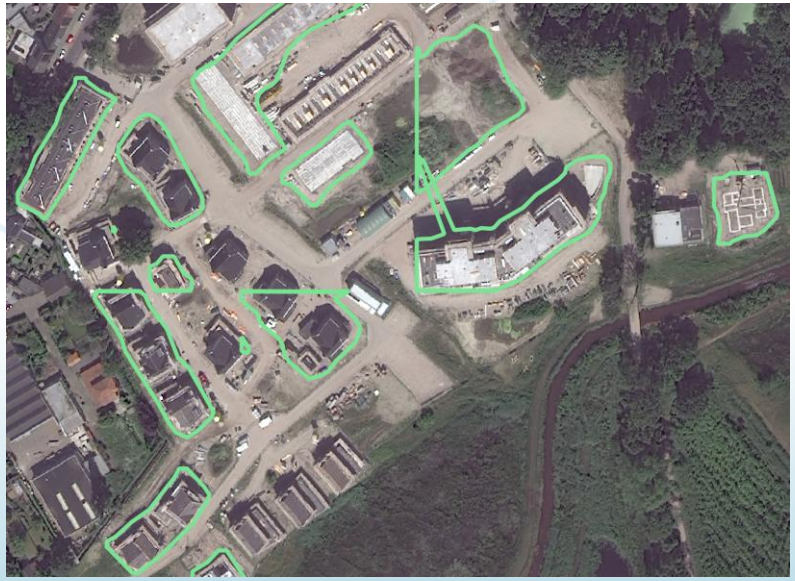


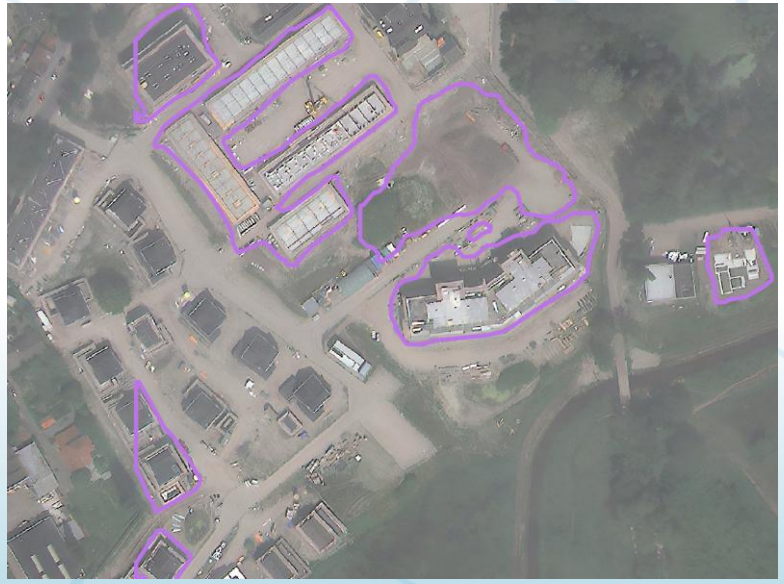
# Image recognition

- **Satellite imagery**
  - Buildings, road and water (MUVD)
  - Construction sites
- **Satellite dataportal**
  - Satellite data of the Netherlands
  - 6 times per year

**09-06-2024**



**29-06-2024**



**28-08-2024**



# Image recognition

- **Panorama images**
  - parking garage entrances (CBS)
  - town entry signs







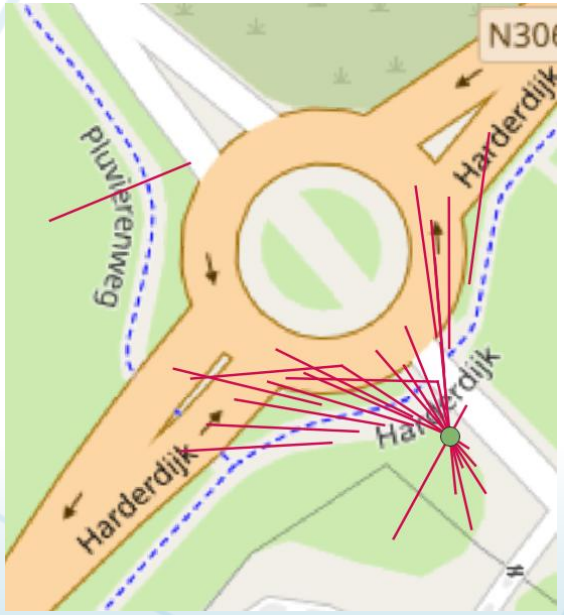




# Town entry signs

- Town entry signs are detected across multiple panorama images
- Determine the actual location of each sign
- Next steps
  - Determine the orientation of each sign,
  - Use OCR to extract the town name from each sign





# Image recognition

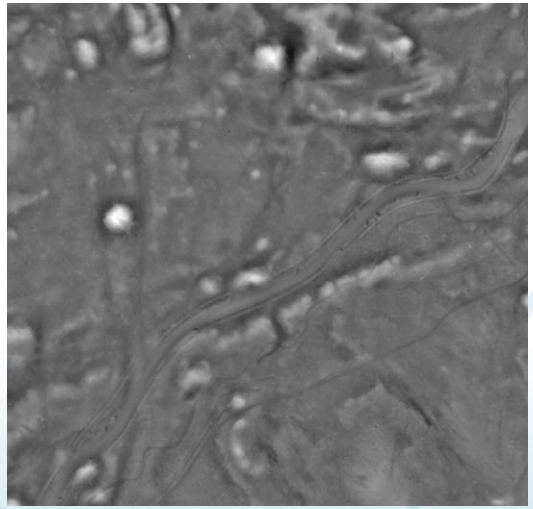
- **Elevation data/pointclouds (AHN)**
  - Forest trails
- **Visualisations**
  - Hillshade
  - Local relief model



**Hillshade (VE6)**



**Local Relief Model (LRM)**



# TITAAN

- Foundation model of Waterschapshuis (The Dutch Water Authorities)
  - 8 cm aerial imagery
  - AHN
  - Satellite data
- 1 model, multiple purposes



# Detect once, use across multiple registrations

- Current process is inefficient
- The goal is a scalable and reusable approach
- In collaboration with
  - BZK (Ministry of the Interior and Kingdom Relations)
  - Source holders (municipliaties, provinces)

# Detect once, use across multiple registrations

- Three approaches
  - Using our existing AI models
  - Using TITAAN (collaboration Waterschapshuis)
  - Generated map (collaboration University of Twente)

# Questions?