Picterra

GEO Open Data & Knowledge workshop

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Chief Technology Officer

www.picterra.ch

In the next decade, every company in the world will be a geospatial-driven business.

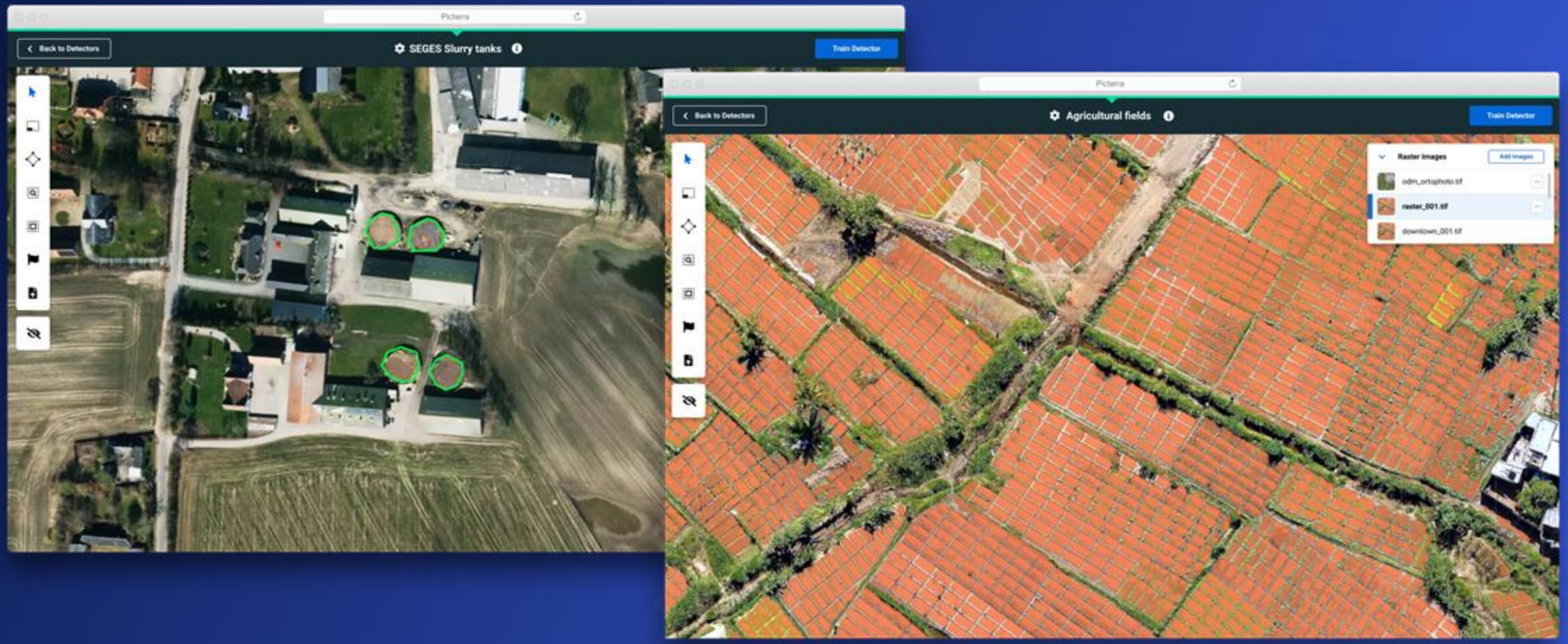
We're helping them get there.

Our journey

Picterra

Picterra:
What we do

A simple and easy-to-use platform
for geospatial machine learning



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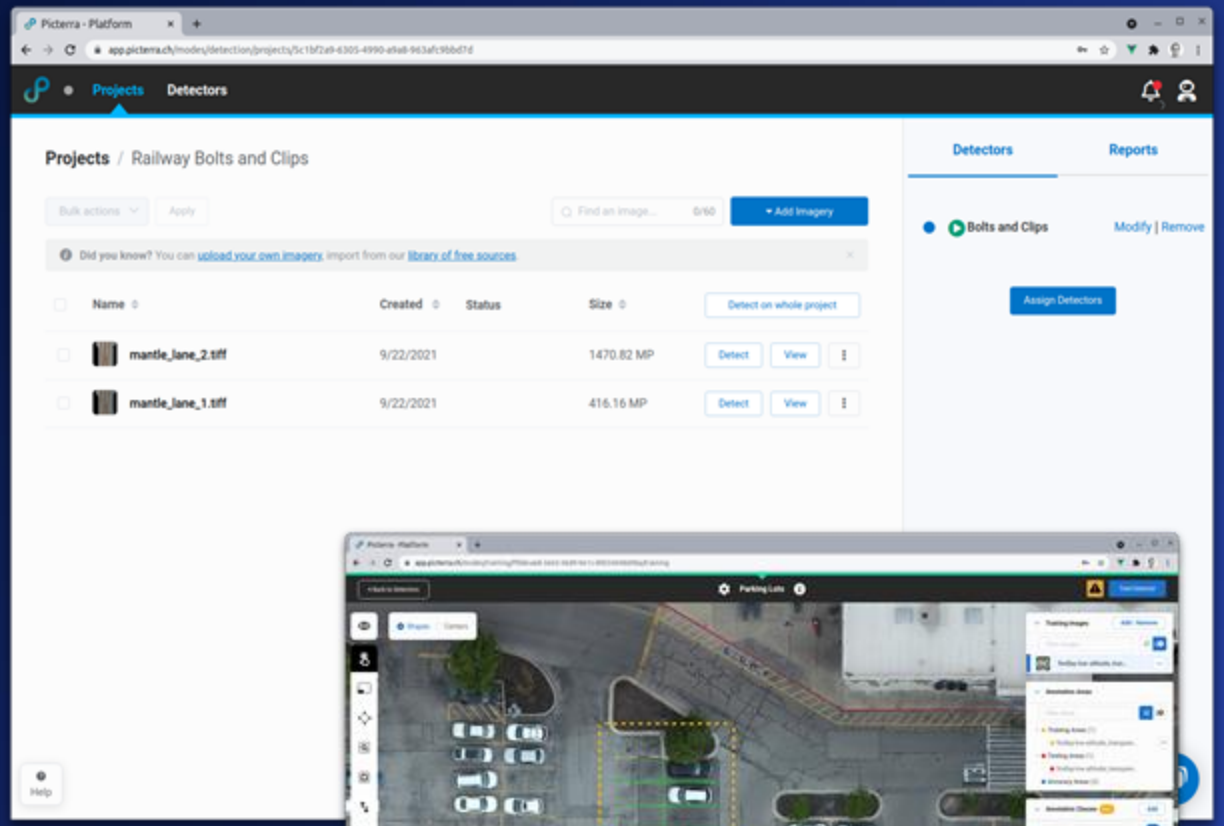
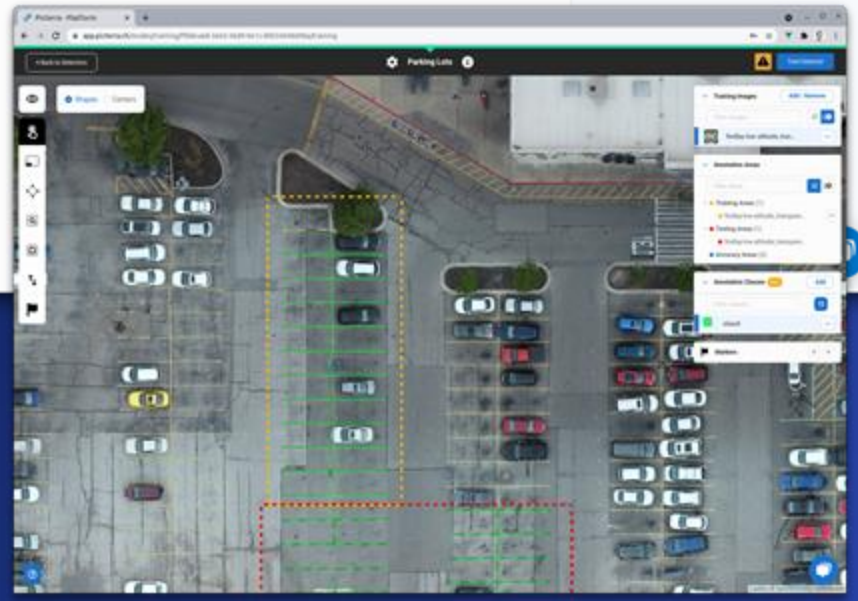
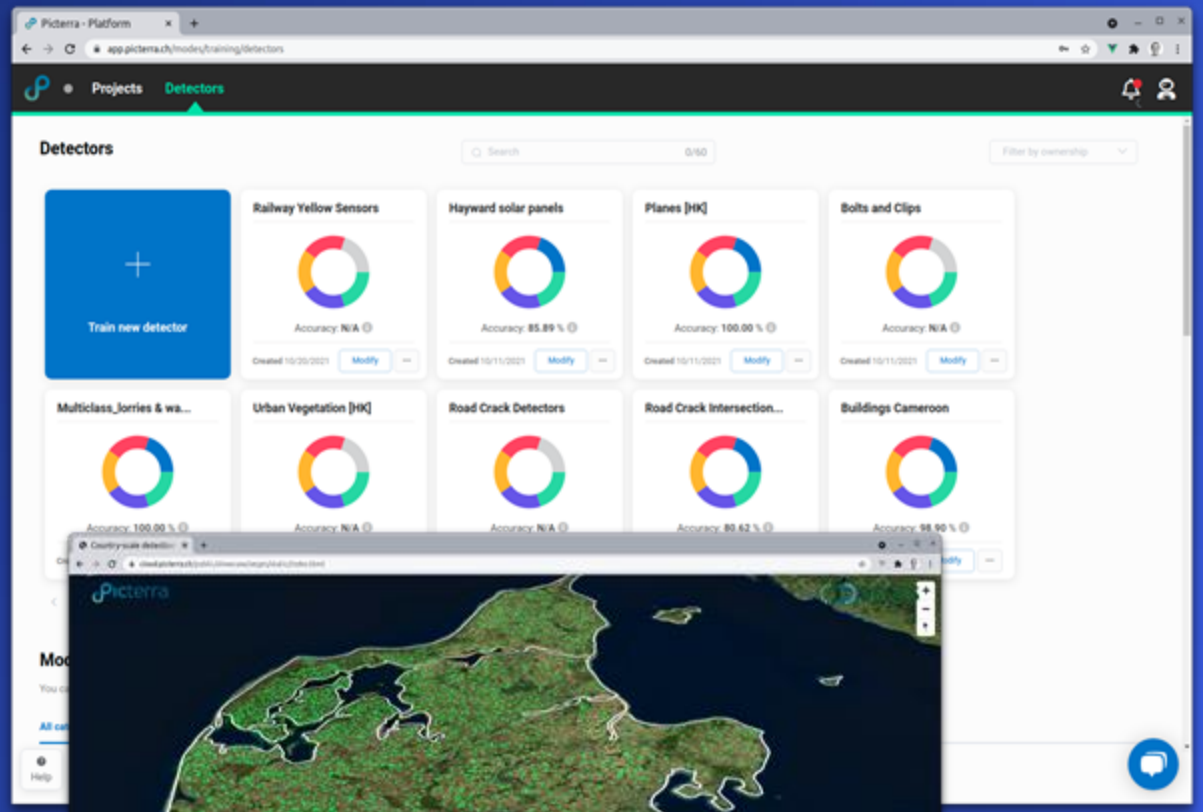
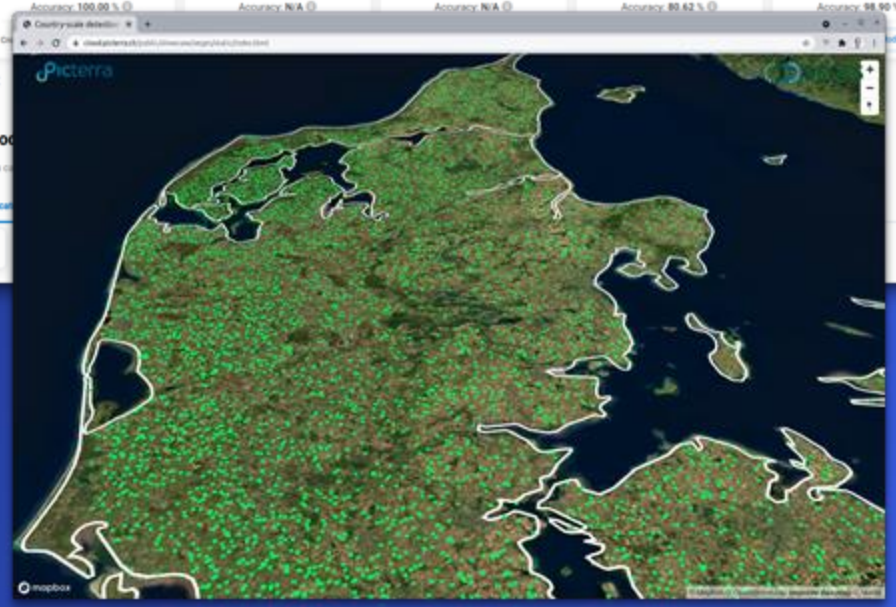

Picterra - Platform
Projects
Detectors
Projects / Railway Bolts and Clips
Bulk actions
Apply
Add Imagery
Did you know? You can upload your own imagery, import from our library of free sources
Name
Created
Status
Size
Detect on whole project
mantle_lane_2.tiff
9/22/2021
1470.82 MP
Detect
View
mantle_lane_1.tiff
9/22/2021
416.16 MP
Detect
View
Detectors
Reports
Bolts and Clips
Modify | Remove
Assign Detectors
Help




Picterra - Platform
Projects
Detectors
Detectors
Train new detector
Railway Yellow Sensors
Hayward solar panels
Planes [HK]
Bolts and Clips
Multiclass_lorries & wa...
Urban Vegetation [HK]
Road Crack Detectors
Road Crack Intersection...
Buildings Cameroon
Help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mapbox

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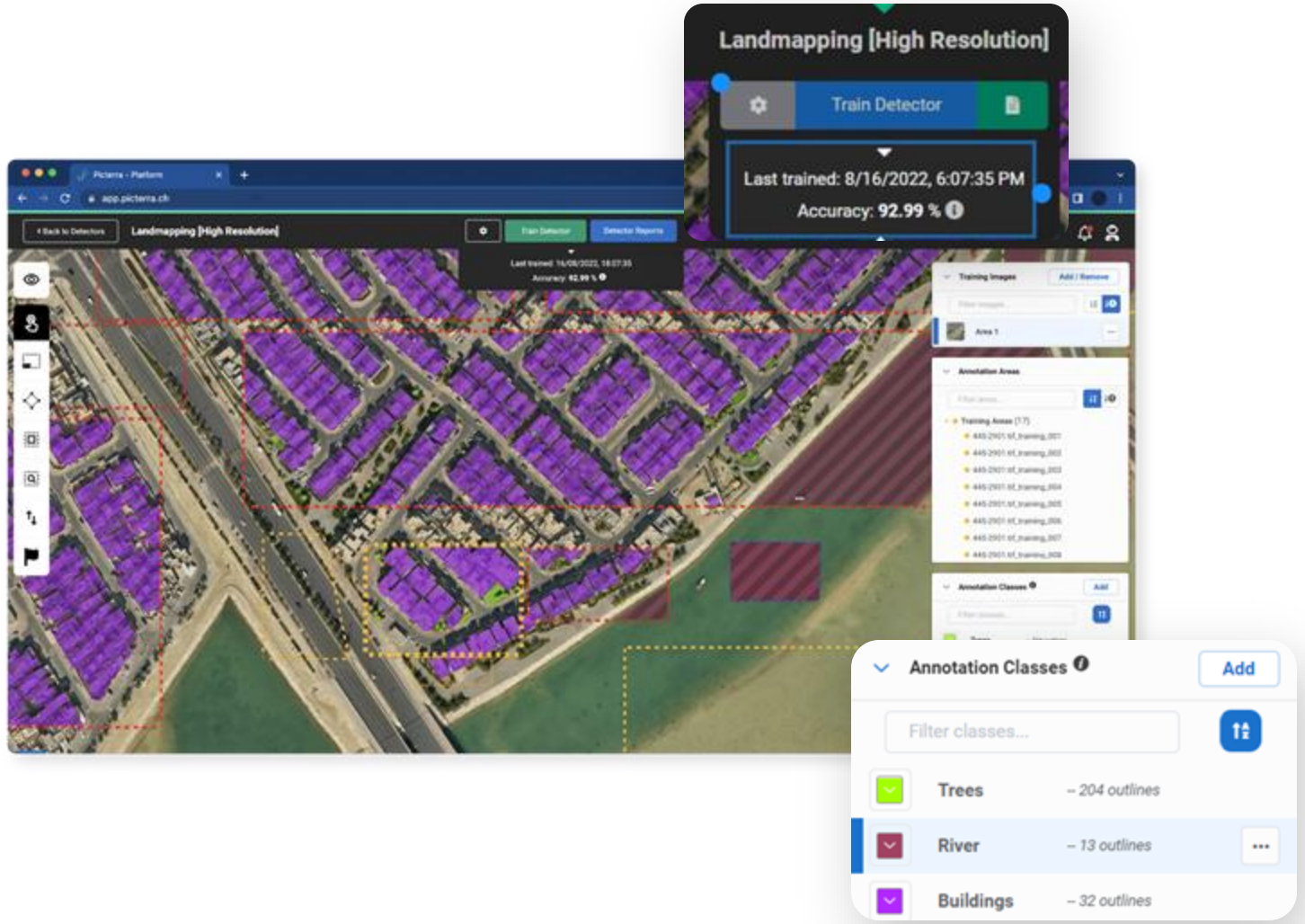
No - code model development & training UI with automated infrastructure scaling for **instant production**

- Easy to access web UI for no - code ML model training
- Import of existing data through the API & advanced detector settings
- Custom Deep Learning architecture optimized for geospatial imagery
- Up to 10 classes in a single detector (instance & semantic segmentation)
- Fully automated production deployment of models



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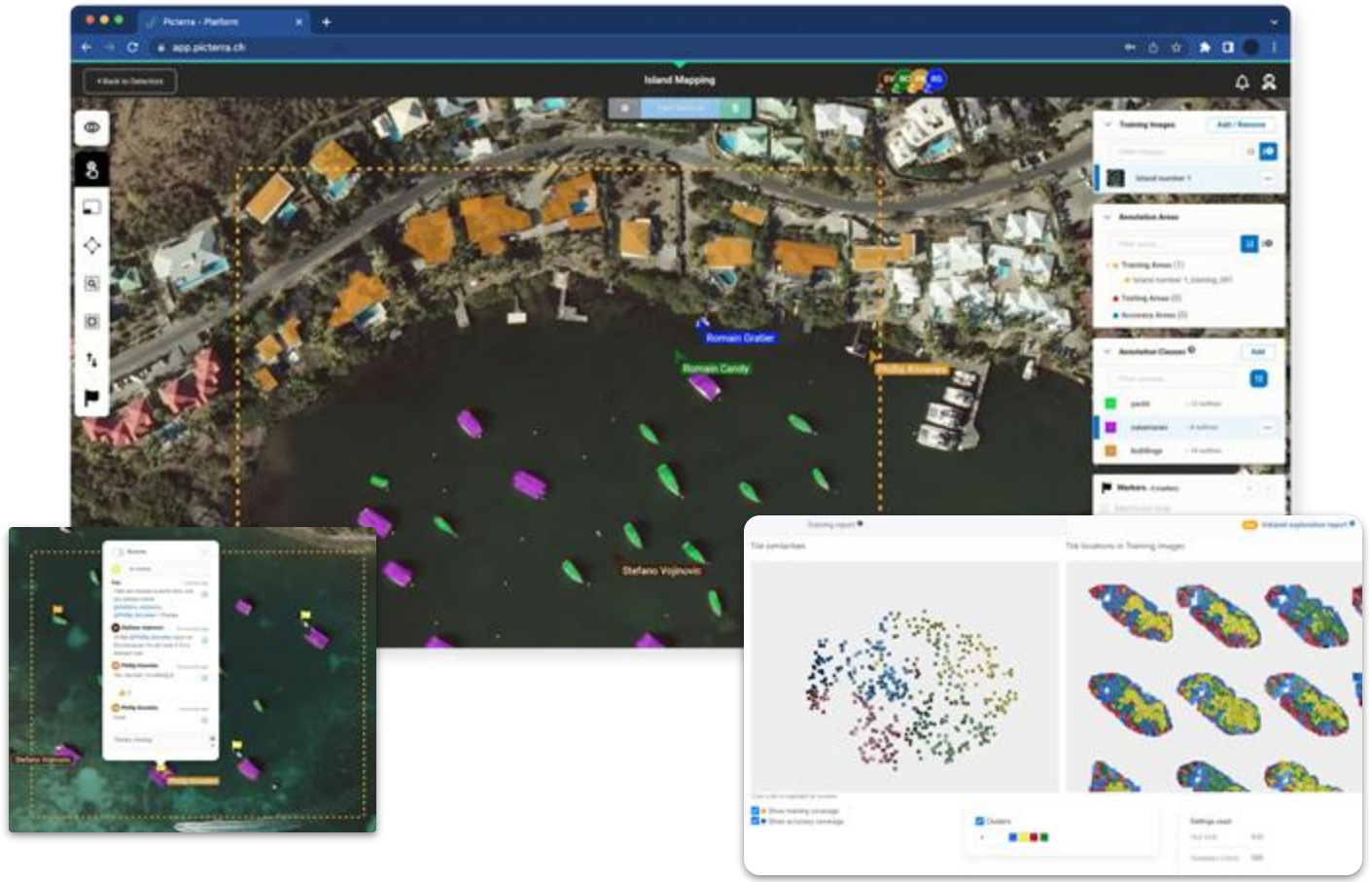
Combine deep learning expertise with operational know how thanks to real-time in-platform collaboration & model explainability

Manage users & access permissions

Enable multiple users to simultaneously access & edit detectors

Access live chat in comments threats directly in the project

Explainable & interpretable AI bringing robustness & efficiency in production



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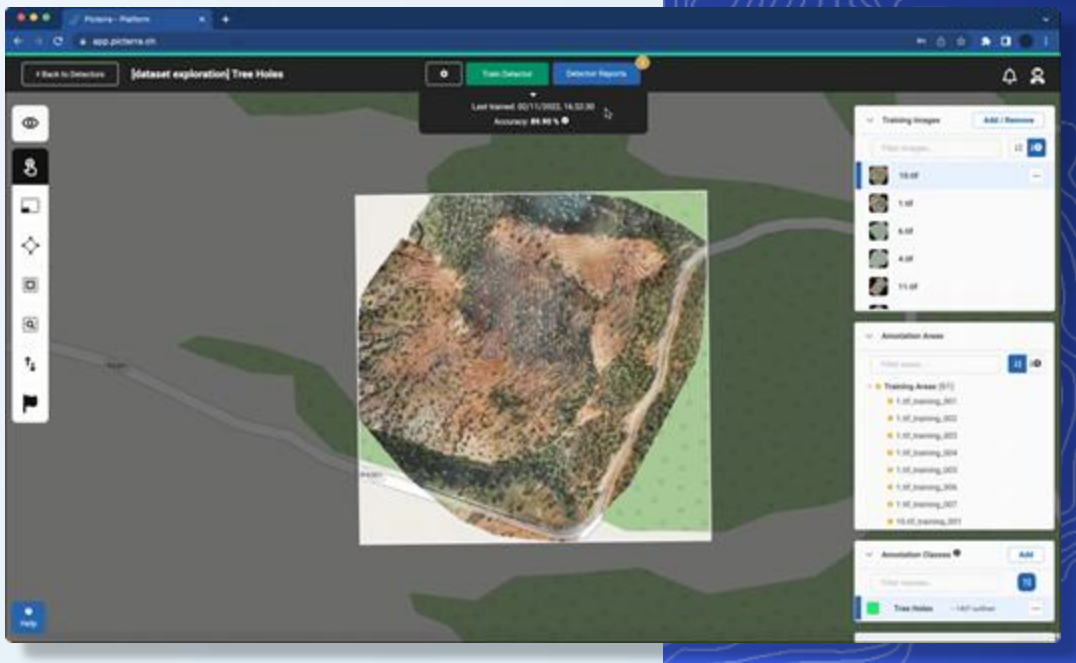
Boost models accuracy & quality with innovative data curation and model analysis tools

Reveal visual patterns in your data and benefit from a guidance on training improvements with **unique Dataset Recommendation** report to effectively improve the accuracy of models:

- Identify unrepresented parts of the dataset to re-train the model
- Remove redundant training areas
- Reduce chance of false positives by adding more training areas in representative parts of the dataset
- Explainable & interpretable AI bringing robustness & efficiency in production



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Picterra:
How we can support open knowledge

Scale your geospatial practice with a **cloud-based MLOps platform**

Optical & multispectral imagery

Formats:

- RGB
- IR
- SAR
- DSM

Uploading:

- Direct upload
- Cloud storage
- WMS / XYZ server
- Training data (GIS)

API

Web UI

ML models

- Automatic model architecture
- Model training
- Model deployment
- QA / QC

Data management

- Data preparation
- Data organisation & storage
- Collaborative data labelling & annotation

Result visualization

- Interactive web reports
- Change monitoring reports

Infrastructure

- Data encryption & confidentiality
- Cloud-based
- Automatic GPU scaling

- ✓ Custom dashboards
- ✓ ArcGIS, QGIS, Safe FME plug-ins
- ✓ Custom BI tools

API

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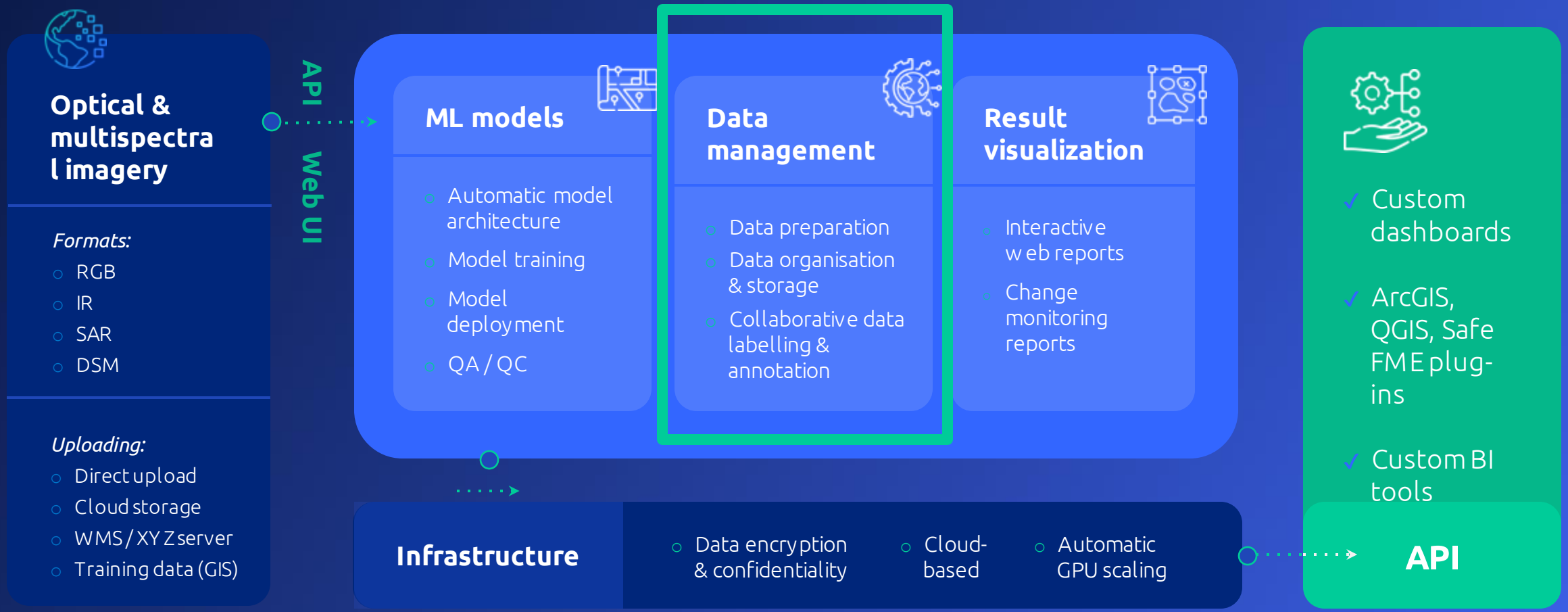
Scale your geospatial practice with a **cloud-based MLOps platform**



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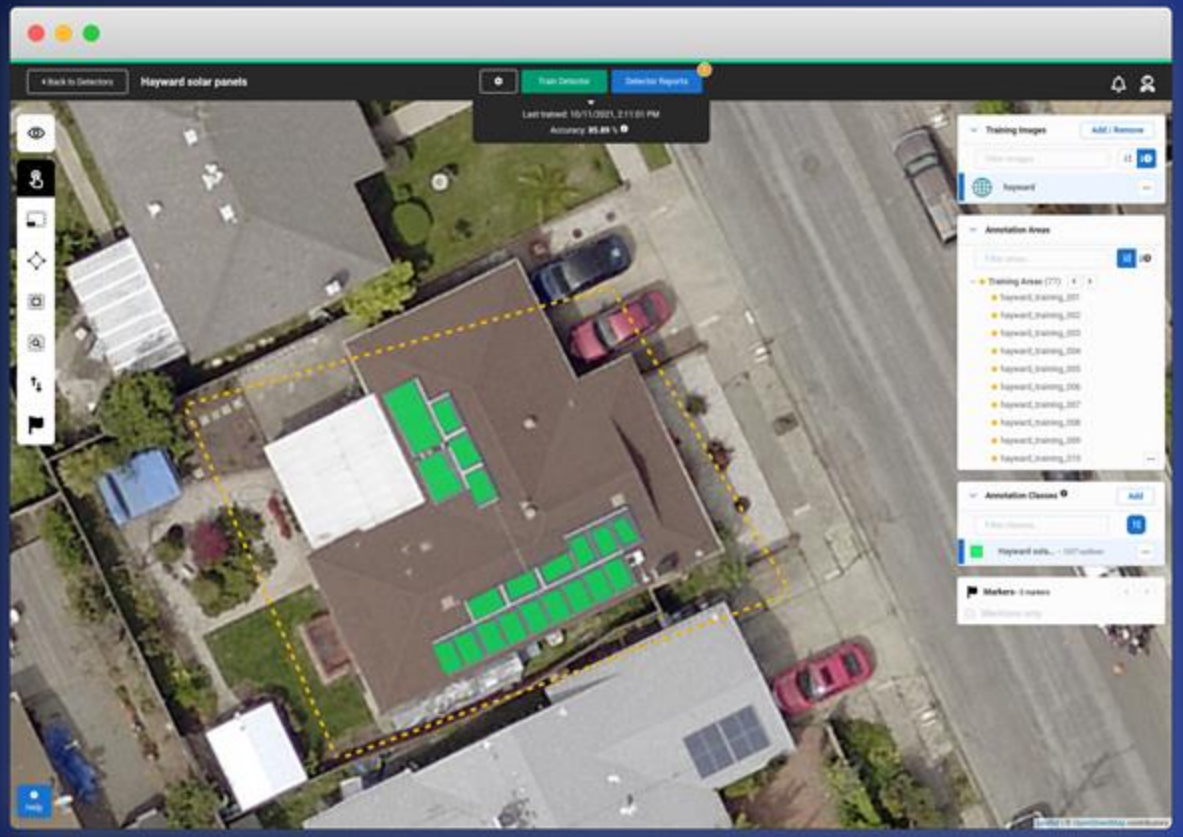
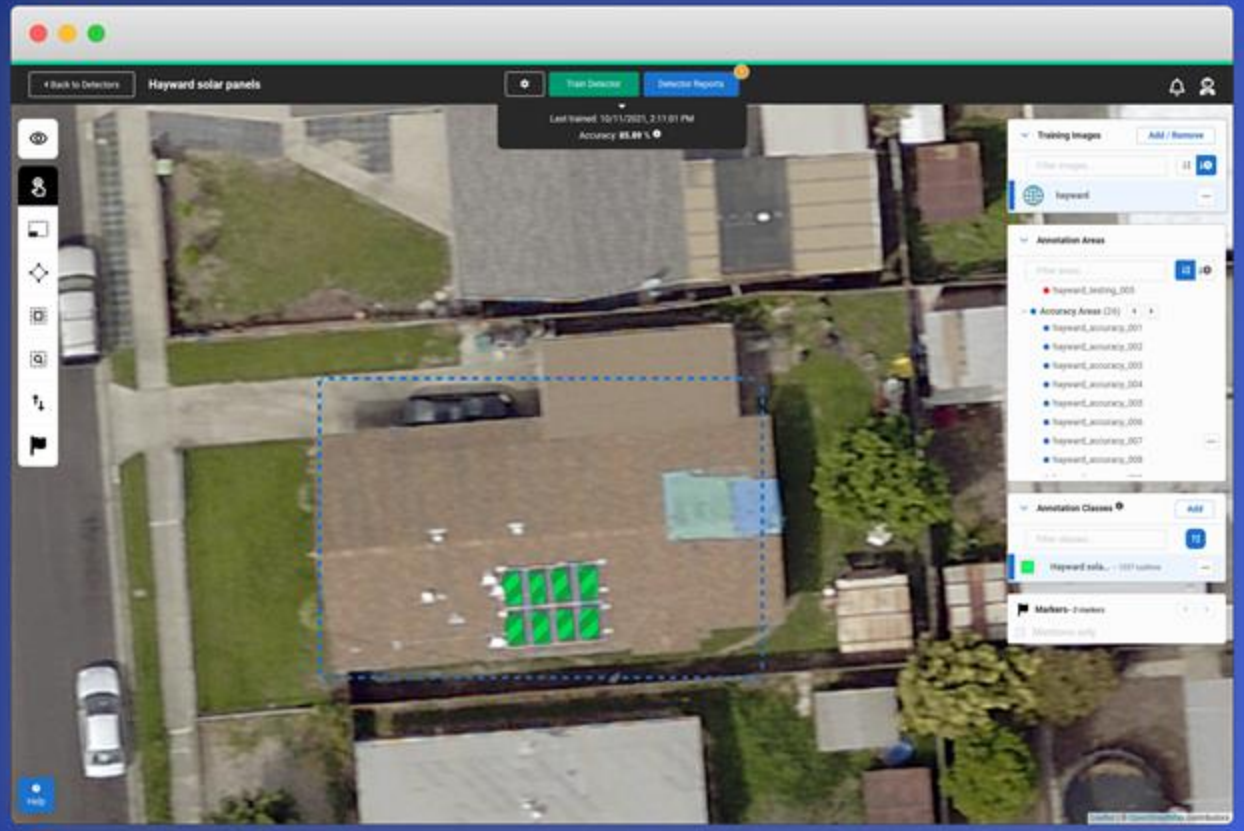
Picterra makes it easy to visualize & edit a dataset / detector





An easy to use platform to create open detectors / datasets

- Use our collaborative, easy to use user interface to create & maintain ML datasets (“detector” in Picterra term)
- A Picterra dataset can easily be exported for reuse elsewhere
  - In a zip containing a number of TIFF images and GeoJSON annotations
- => Create an “open detectors/dataset” community library

Thank you

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Find out more

- Picterra info
- @picterra
- Video content
- **picterra.ch**

Advanced tools to streamline GIS workflows

Streamline and simplify geospatial workflows with access to the most common GIS tools in just a few clicks directly in Picterra and build more accurate models by enriching them with diverse data.

NDVI
Creates a false color image representing the normalized difference vegetation index

DSM Height Extraction
Adds mean, minimum and maximum elevations to a vectorlayer based on DSM data

Image stacking
Combines two images into a single image, keeping the bands from both

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Picterra:
Use cases

Using Picterra to take **more trees under management in a cost-effective way**

NEW ZEALAND CARBON FARMING

Challenge

Manual, in-person tree counting was too expensive (and difficult for saplings) when expanding the business and adding forests to its portfolio. Needed to scale vegetation management operations without adding environmental or financial cost.

Solution

Running ML models across 10,000+ ha to

- Identify saplings that have regenerated
- Identify empty holes that are irrigated/ oxidized and ripe for re-growth

One detector identified 80K saplings and 115K empty holes

Impact

Easy to scale forest management practices when taking on new land to accelerate its contributions to decarbonization

Digitals record to report on regeneration to end clients (carbon credit purchasers)

Report on 5cm aerial imagery

Training the tree saplings detector

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Westwood is using Picterra **to report and track progress on solar farm construction**

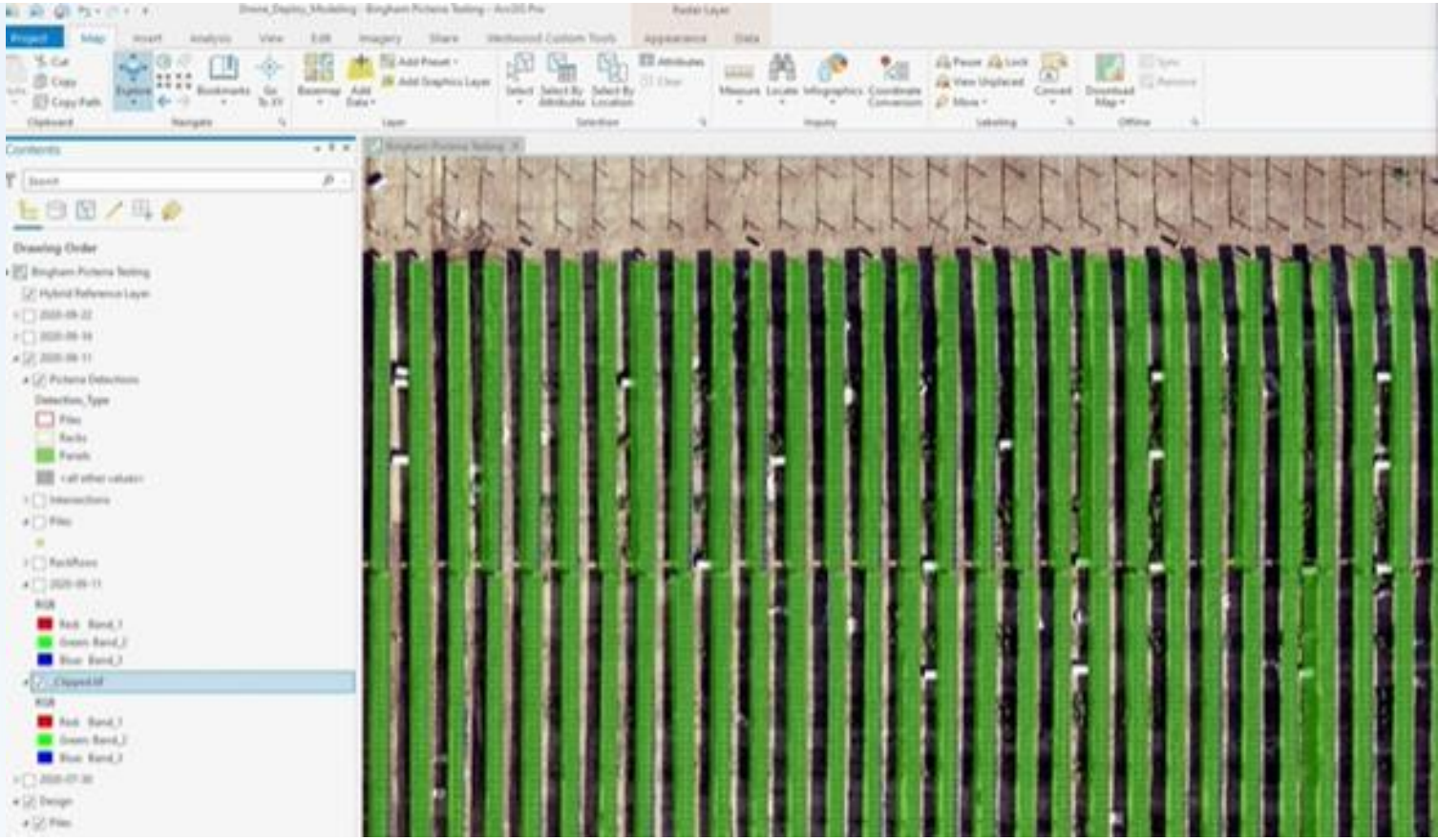
Westwood

Land surveying & engineering services using smart innovation to solve complex site challenges for clients.

Input data: Drone images captured weekly with DJI drones

Detections of three key stages of build imported into **ArcGIS Pro using API**

Measure progress against plans & **verify** completed stages of builds **using AI**



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Lowering ammonia emissions across Denmark

SEGES

Ministry of Environment of Denmark

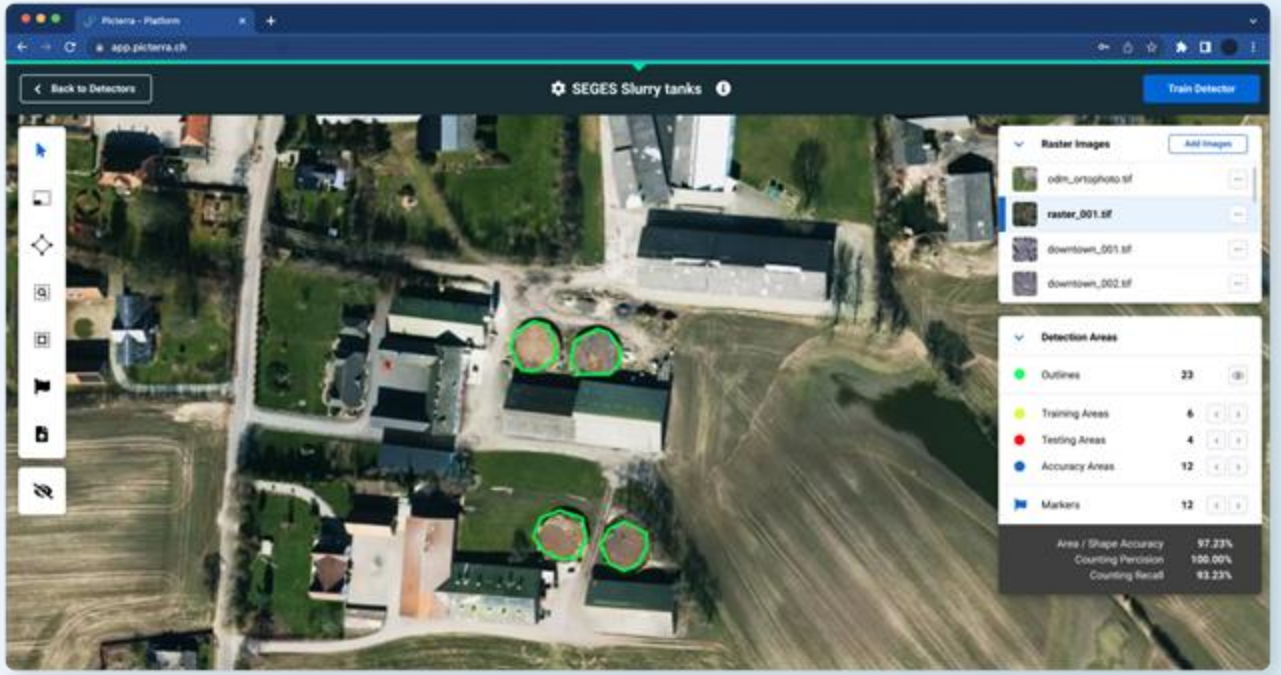
Danish expert in farm management, providing the industry with the right technology, the latest knowledge, and the very best advisory service to improve farming.

Goal: automate the identification of covered and uncovered **slurry tanks** across 34,000 farms country-wide.

Input data: A WMS imagery server covering Denmark at 25 cm resolution

26,000 slurry tanks detected in a few hours

Successful estimation of ammonia pollution



Read the case study

CLICK TO SEE THE LIVE REPORT

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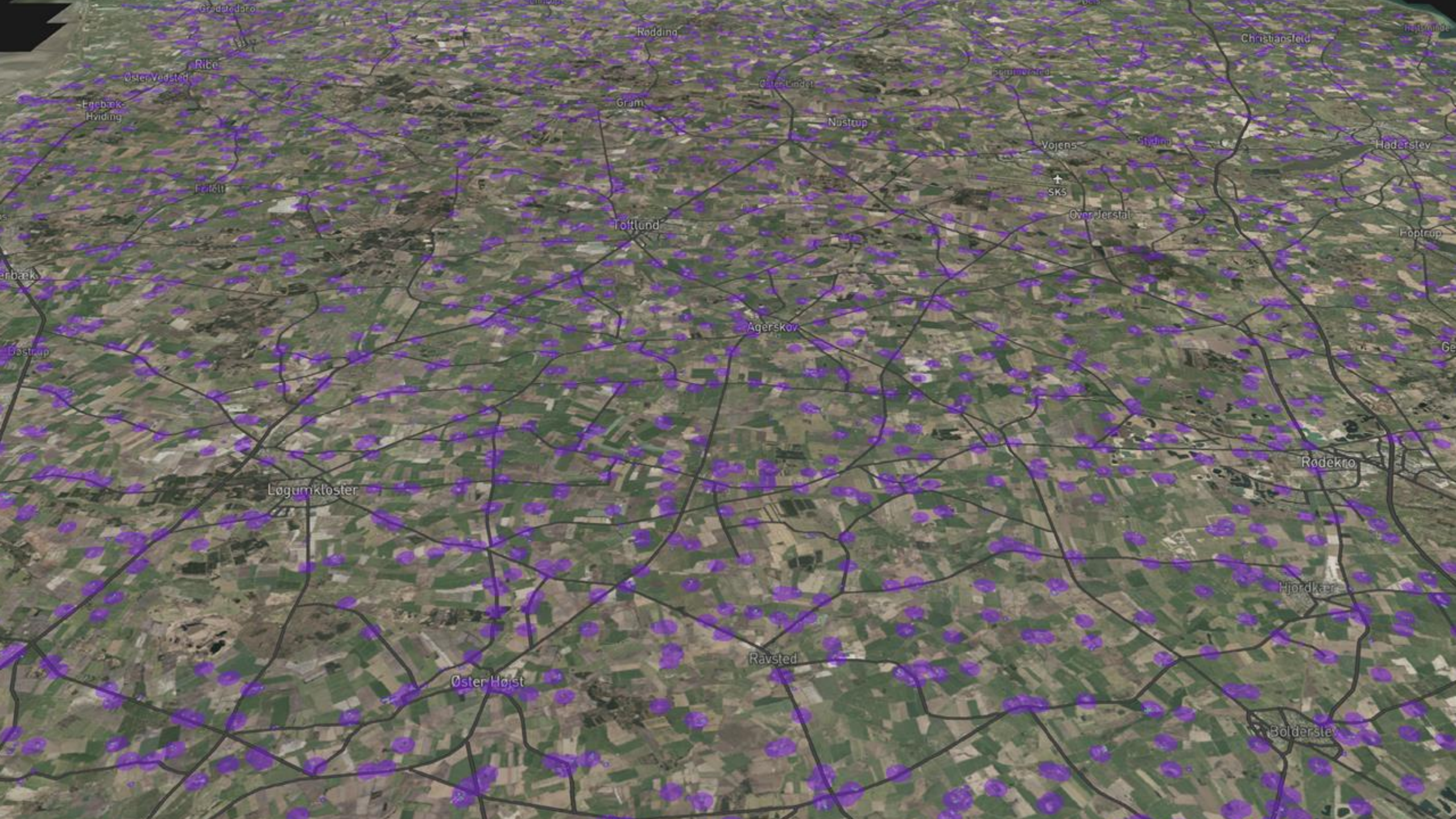
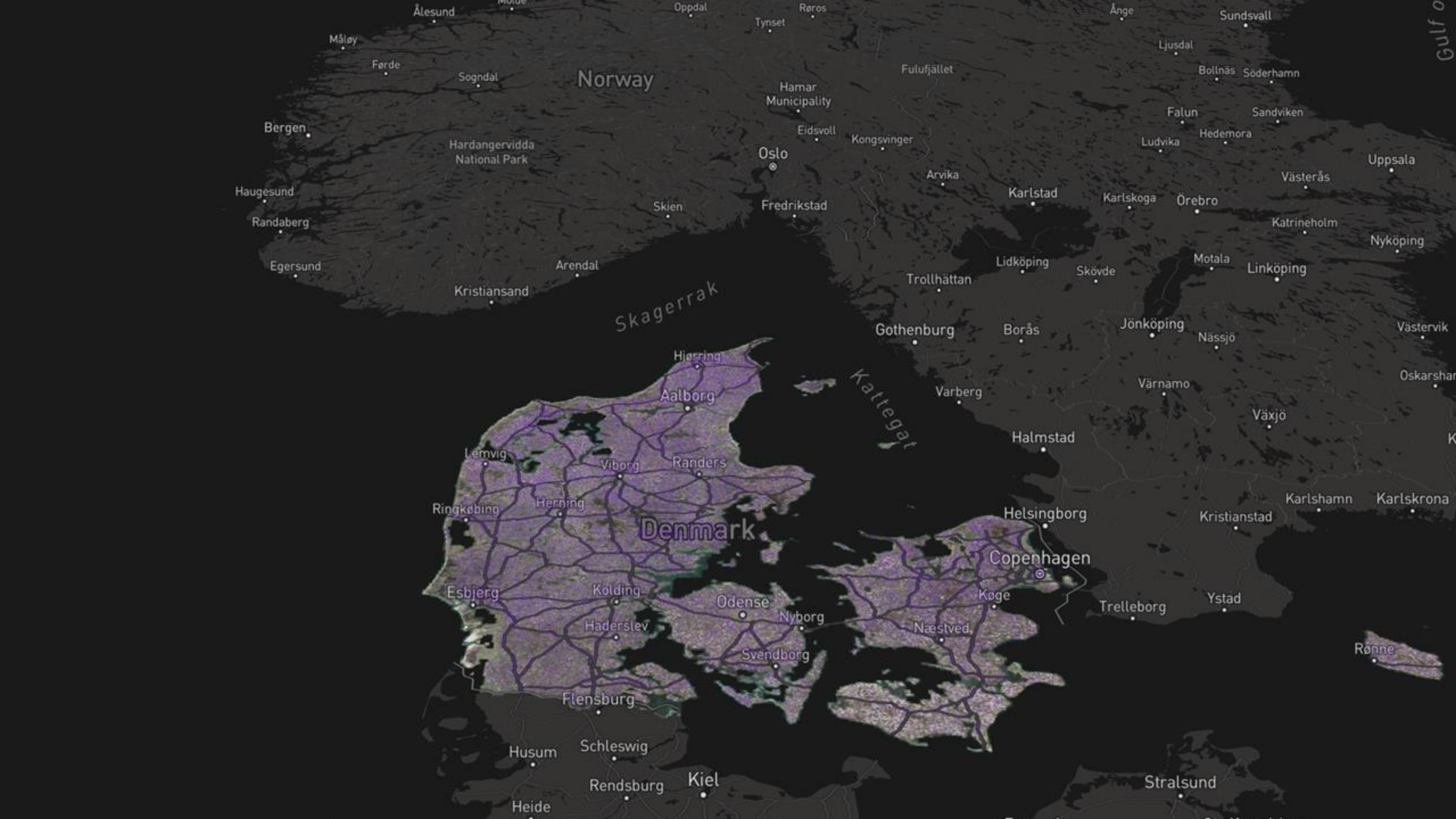
Bålstedvej
Hykjærvej
Bovlund
Bovlund Bjerg
Kvindlundvej
Bedstedvej
Kvindlundvej
Nederballevej
Stenagervej
Øster Terp
Visbjergvej


Rødding
Ribe
Egebæk-Hvidding
Gram
Nustrup
Vojens
Haderslev
SKS
Toftlund
Agerskov
Løgumkloster
Rødekro
Hjordkær
Ravsted
Øster Højst
Bolderslev


Ålesund
Måløy
Førde
Sogndal
Norway
Oppdal
Tynset
Røros
Hamar
Municipality
Fulufjället
Ånge
Sundsvall
Ljusdal
Bollnäs
Söderhamn
Falun
Sandviken
Hedemora
Ludvika
Bergen
Hardangervidda
National Park
Eidsvoll
Kongsvinger
Oslo
Arvika
Karlstad
Karlskoga
Örebro
Uppsala
Västerås
Katrineholm
Nyköping
Haugesund
Randaberg
Skien
Fredrikstad
Egersund
Arendal
Kristiansand
Skagerrak
Lidköping
Skövde
Motala
Linköping
Trollhättan
Gothenburg
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