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**Real Time Satellite Analytics using Micro  
Models**



# Encord – a data-centric computer vision platform with a focus on satellite & defence

## Team from leading companies



## Founded by Data Scientists; ML team from leading institutions



## Solutions across applications

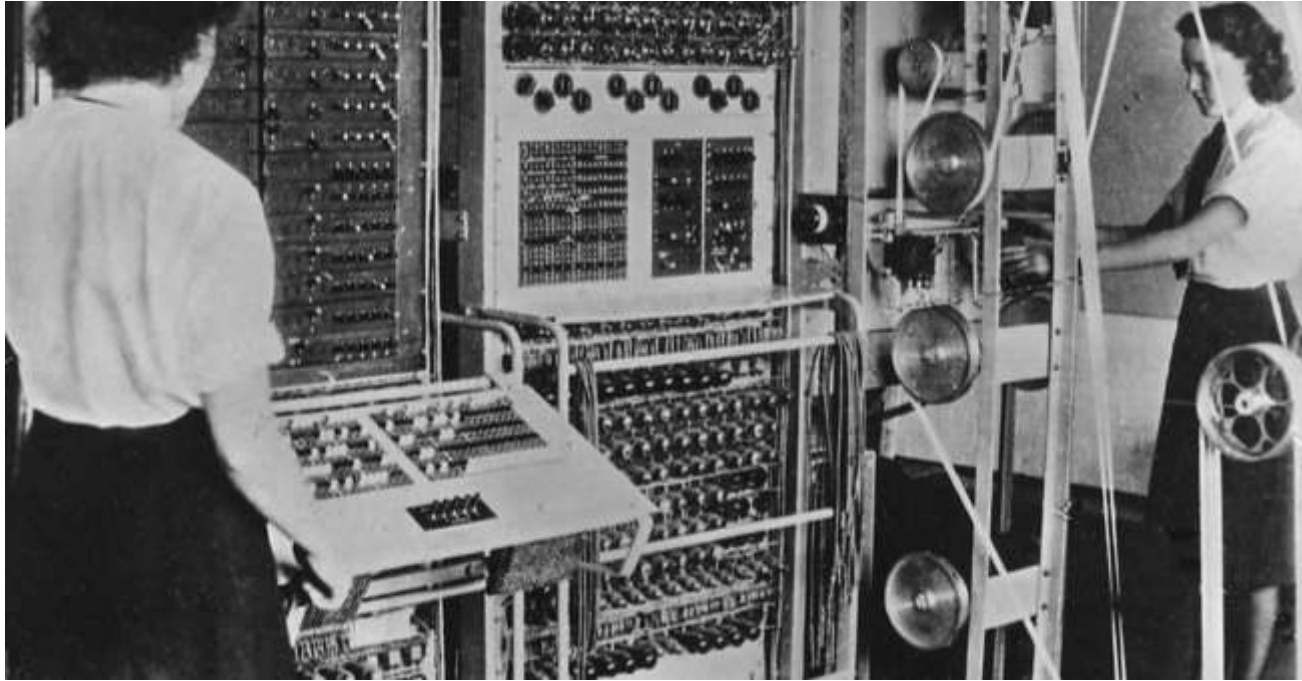


## Team of experienced investors and advisors





# Colossus - the beginning of the computer age





# Problems with early computing

## Monolithic

- Static
- Inflexible

## Manual

- 300 operators to run
- Error prone

We face the same problems with AI today!



# Manual

## ***Variety of Use Cases/ Analyses***



Low amount of data available  
Development of models resource intense & takes long



# Monolithic

## *Data Variability*



Different lighting + shadows  
Change in environment (eg, by season)  
Type of satellite, data modalities



# The Solution - Micro Models to enable real time analytics in satellite data

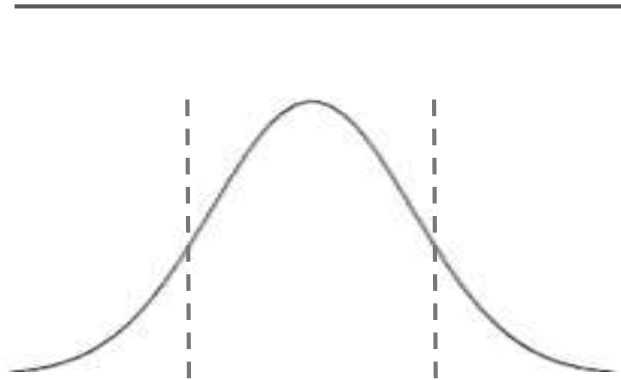
- Micro-models are annotation specific models targeted to solve a particular task
- Our platform works by ensembling micro-models together in an assembly line

	<b>Domain</b>	<b>Training data</b>	<b>Application</b>	<b>Training time</b>	<b>Development cycle</b>
<b>Traditional model</b>	General	Massive-scale	Production system	Hours/days	Weeks/months
<b>Micro-model</b>	Narrow	Limited	Annotation	Minutes	Minutes/hours



# Micro Models – How they work

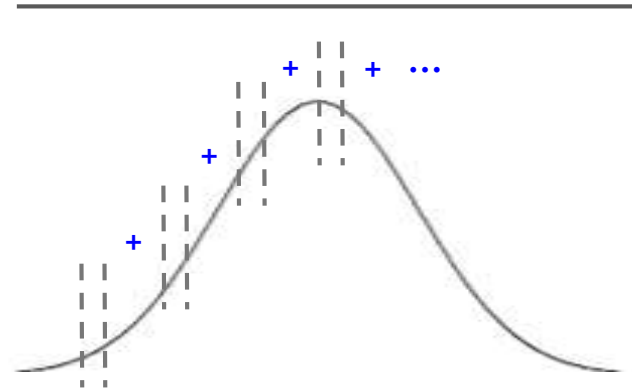
Traditional Models



Traditional Models

- Generalizable - accuracy across full data distribution a problem
- Heavy data & resource requirements
- Expensive and long time to build

Micro Models



Assembly line of Micro Models

- Narrow Use Cases – across entire data distribution
- Limited training data needed
- Specific to your use case

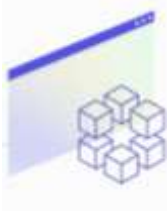
Data  
Distribution

Description



# Encord Product Offering – Training Data Platform and Advanced Analytics for Geospatial

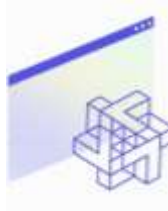
## Training Data Platform



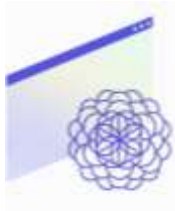
**Annotate**



**Evaluate**



**Automate**



**Manage**

## Advanced Analytics – augment analysts with AI



*Object identification & tracking, change detection*



*Actionable Insights via Dashboards/ outputs*



The screenshot displays the MAXAR software interface. On the left, a sidebar contains a 'Classes' list with the following items: 'Car' (1), 'Helicopter' (2), 'Vehicle' (3), and 'History' (4). Below this is a 'Current frame' toggle switch. Underneath is an 'Instances' section with a search icon and two expandable items: 'Helicopter (1)' and 'Classifications (0)'. The main area is an aerial satellite image of an airfield with several orange bounding boxes highlighting objects. A top toolbar contains various icons for navigation and editing. A bottom status bar is blue and contains the text 'Automated labelling'.



Home

Classes

None

Current frame:

Instances

Classifications (0)

Submit

Navigation icons: +, x, <math>\llcorner</math>, <math>\lrcorner</math>, <math>\square</math>, <math>\square</math>

Automated labeling

1/10 100% 0/0

Detailed description: This is a screenshot of a computer interface for image classification. The main window displays an aerial satellite image of a city. A blue bounding box is drawn around a large, multi-story building complex in the center of the image. The interface includes a top navigation bar with a home icon and a 'Submit' button. On the left side, there are panels for 'Classes' (currently empty) and 'Instances' (showing 'Classifications (0)'). A 'Current frame' toggle is also present. At the bottom, there is a status bar with 'Automated labeling' on the left and navigation controls (back, forward, zoom, etc.) on the right. A small logo is visible in the top right corner of the overall image.





### Data Summary

Country: Ukraine  
 Location: Lviv International Airport  
 Closest City: Lviv  
 Coordinates: 49.8134° N, 23.9598° E



#### Objects

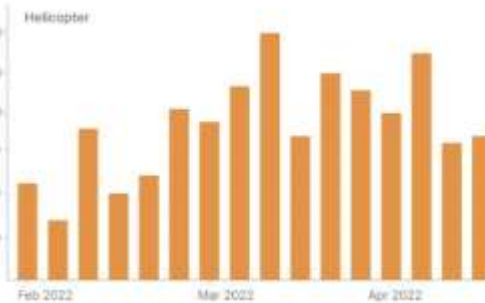
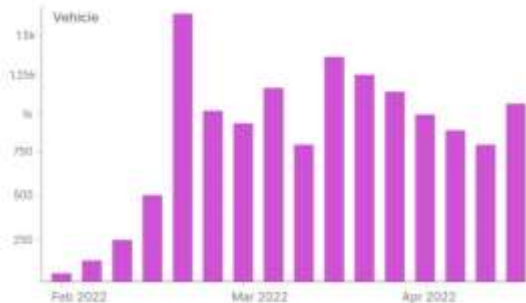
- Helicopter
- Vehicle

Date Images captured: 01/05/2022, 08/05/2022, 12/05/2022

Image Modality: RGB, 30cm

Summary GeoData Timeline

#### Counts



#### Ontology



■ Car ■ Helicopter ■ Vehicle

#### Type of armor



#### Type



#### Type



#### Preview





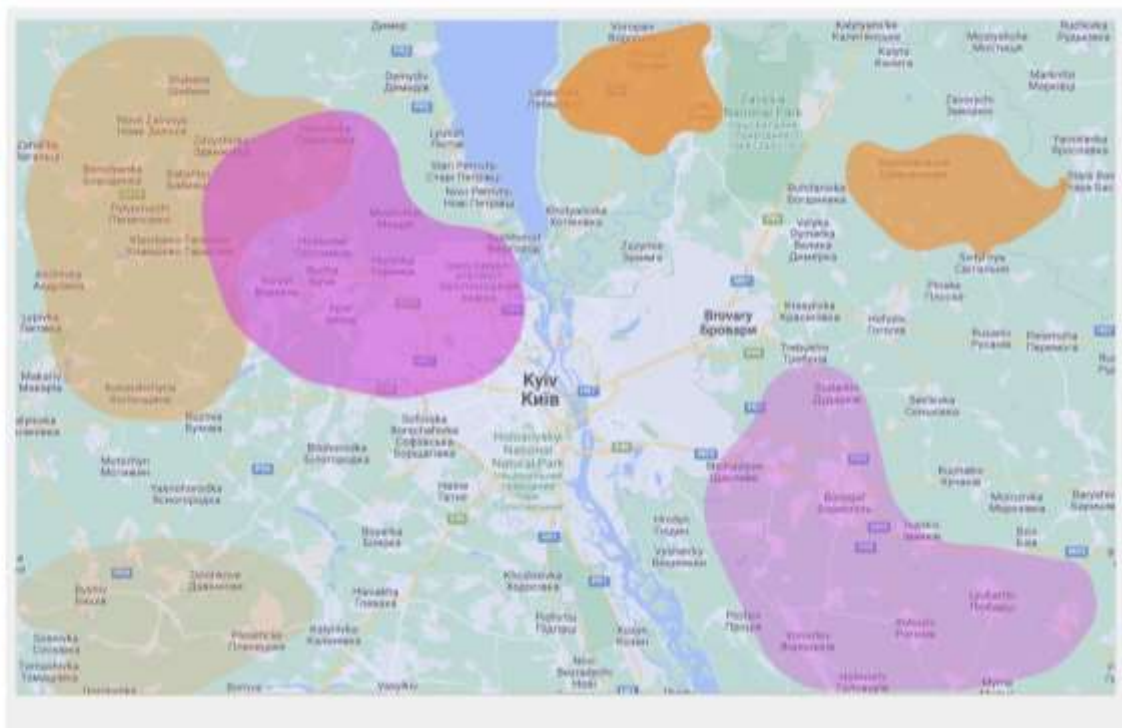
Summary GeoData Timelapse

### Geography



### Classes

- Car
- Helicopter
- Vehicle
- Person



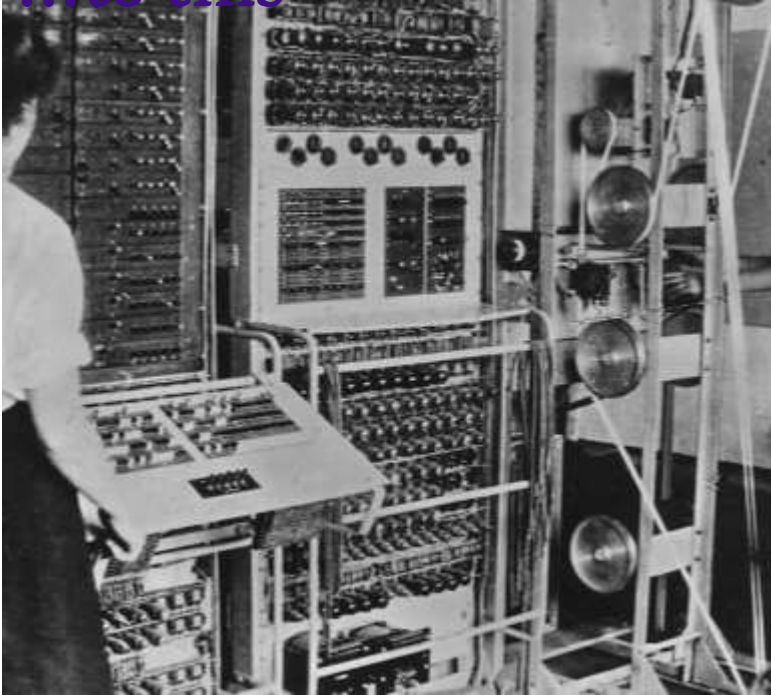
# Summary

- Automate annotation
- Train and test new ontology items quickly
- Run analytics in real time





Take AI from this  
...to this



**Thank you!**

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