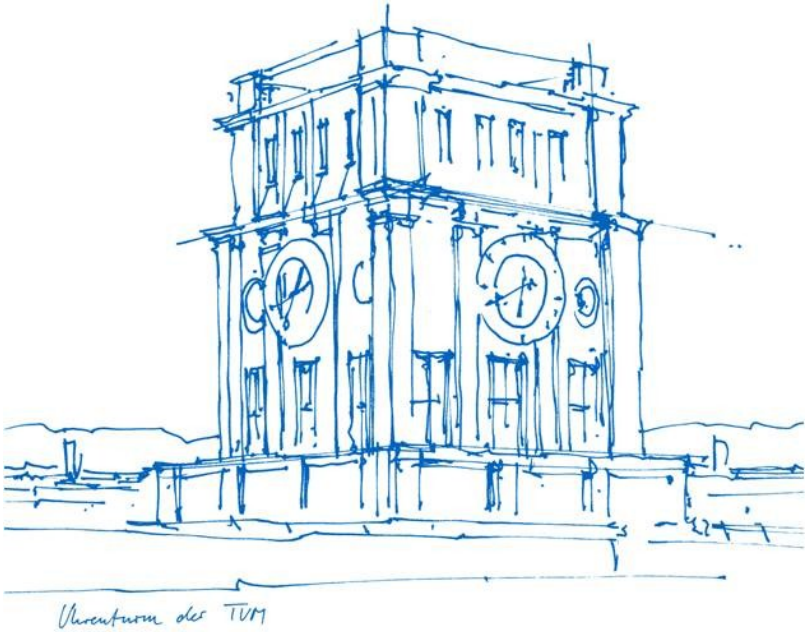
ML4Earth Hackathon 2024

Foundation Models for Earth Observation



Not signed up yet?

https://ml4earth24.devpost.com/

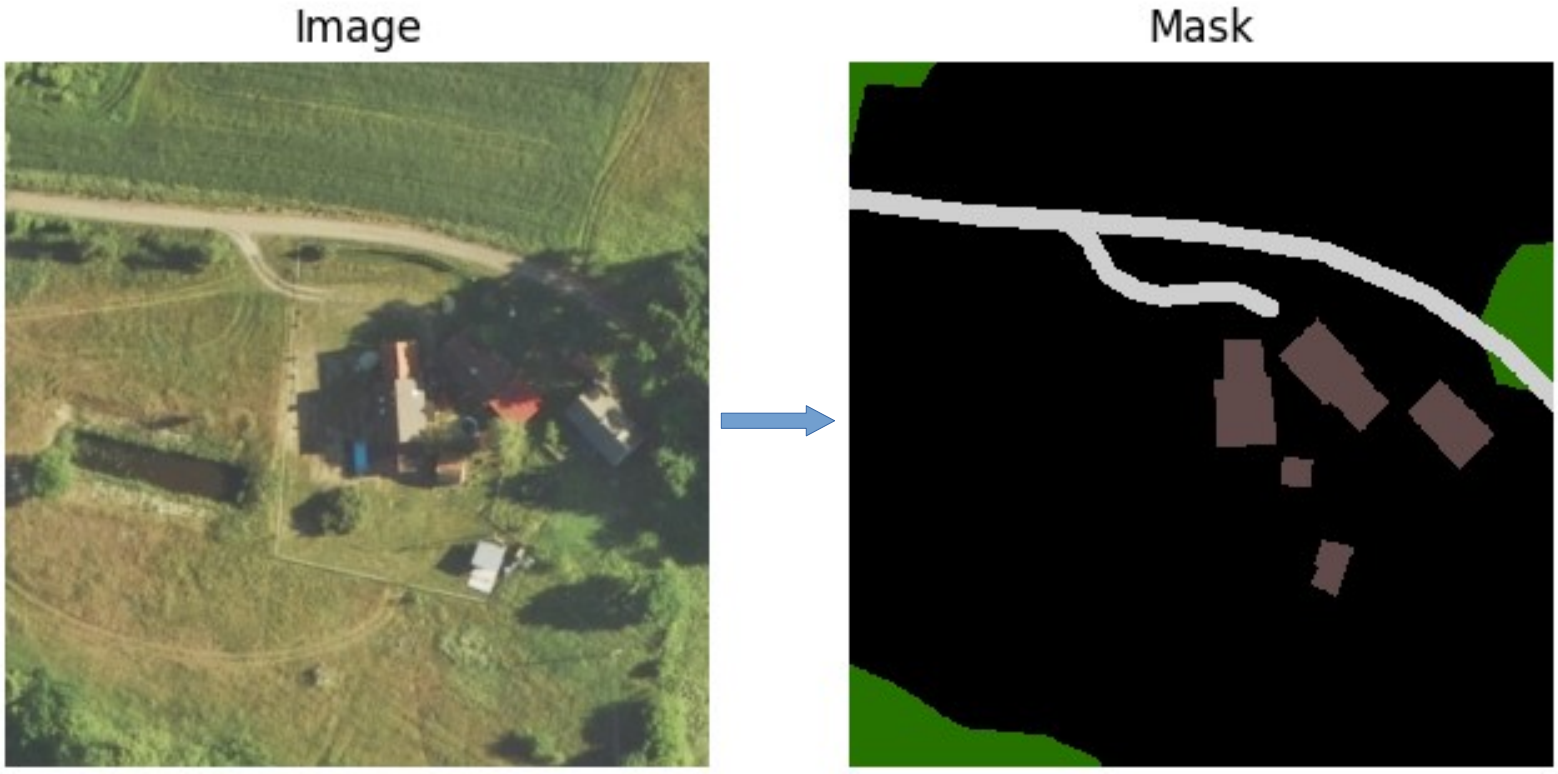
Hackathon on Foundation Models

- Rapidly changing the landscape of machine learning
- Powerful tools for complex tasks like image analysis
- Potential for groundbreaking advancements in Earth observation

Hackathon Goals

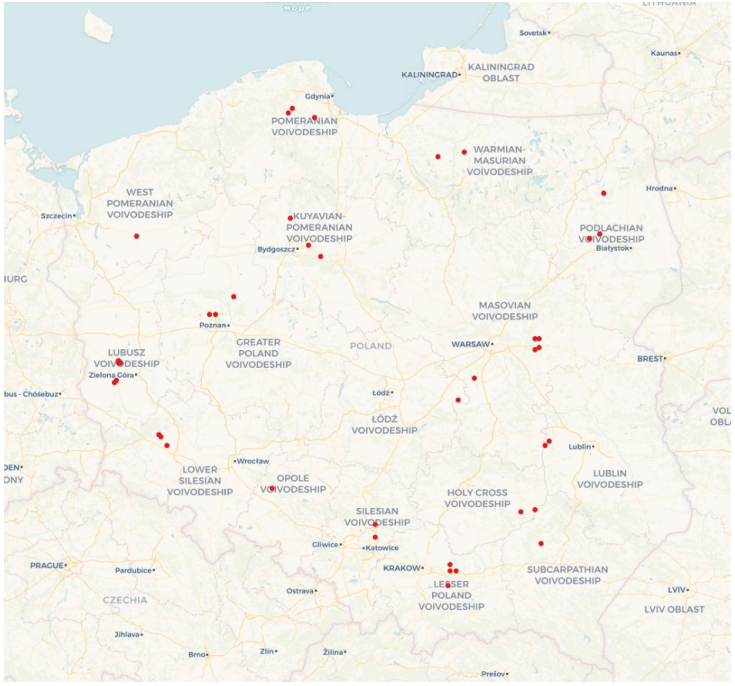
- Select and fine-tune a state-of-the-art foundation model
- Use provided datasets to train and test your model
- Create detailed, accurate maps from aerial imagery

The Dataset: Landcover.ai



The Dataset: Landcover.ai

- High Resolution Aerial Imagery
- Five Classes
  - Background
  - Woodlands
  - Water
  - Road
  - Building
- Study area: Poland



Starter Kit

https://github.com/zhu-xlab/ML4Earth-Hackathon-2024

Starter Kit – Notebook

Hackathon_Starter_Notebook.ipynb

File Edit View Insert Runtime Tools Help

+ Code + Text Copy to Drive

```
[ ]  1 trainer = lightning.Trainer(accelerator="gpu", max_epochs=2, callbacks=[LogMetrics(), RichProgressBar(leave=True)])
     2 trainer.fit(module, datamodule=datamodule)
```

	Name	Type	Params	Mode
0	model	Sequential	89.7 M	train
1	criterion	CrossEntropyLoss	0	train
2	train_metrics	MetricCollection	0	train
3	val_metrics	MetricCollection	0	train
4	test_metrics	MetricCollection	0	train

Trainable params: 1.8 M
Non-trainable params: 87.9 M
Total params: 89.7 M
Total estimated model params size (MB): 358
Modules in train mode: 484
Modules in eval mode: 0

Epoch 0/1 467/467 0:26:03 • 0:00:00 0.30it/s v_num: 1.000

Train loss: 1.23 MulticlassAccuracy: 0.68 MulticlassJaccardIndex: 0.51

What you will need to submit

Performance Metrics
An analysis of your model's performance, including accuracy, speed, and any other relevant metrics.

High-Resolution Maps
The final output maps generated by your model.

Demo/Pitch Video
A short video demonstrating your project's capabilities and showcasing its features.

Source Code
A repository containing all the code used in your project, with clear instructions on how to run it.

Judging Criteria

Model Performance
How accurate are your model's predictions?

Computational Efficiency
How efficient is the model in terms of computational resources?

Innovation
Creativity in adapting the foundation model to the given task

Final-Pitch Performance
Quality of the presentation of the results

Hackathon Timeline

Today (Sep 18)
Beginning of the Hackathon

Monday (Sep 23)
Submission Deadline: 17:00 CEST

Thursday (Sep 26)
Announcement of the winning projects

Slack Space for Communication

https://tinyurl.com/ml4earth-slack

Mentoring Sessions

Thu, Sep 19	Fri, Sep 20	Mon, Sep 23
10:00 – 11:00	10:00 – 11:00	10:00 – 11:00
16:00 – 17:00	16:00 – 17:00	14:00 – 15:00

All times in CEST

https://tinyurl.com/ml4earth-hackathon-mentoring

Still not signed up?

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Thank for your attention!

Questions?