

DeepSentinel

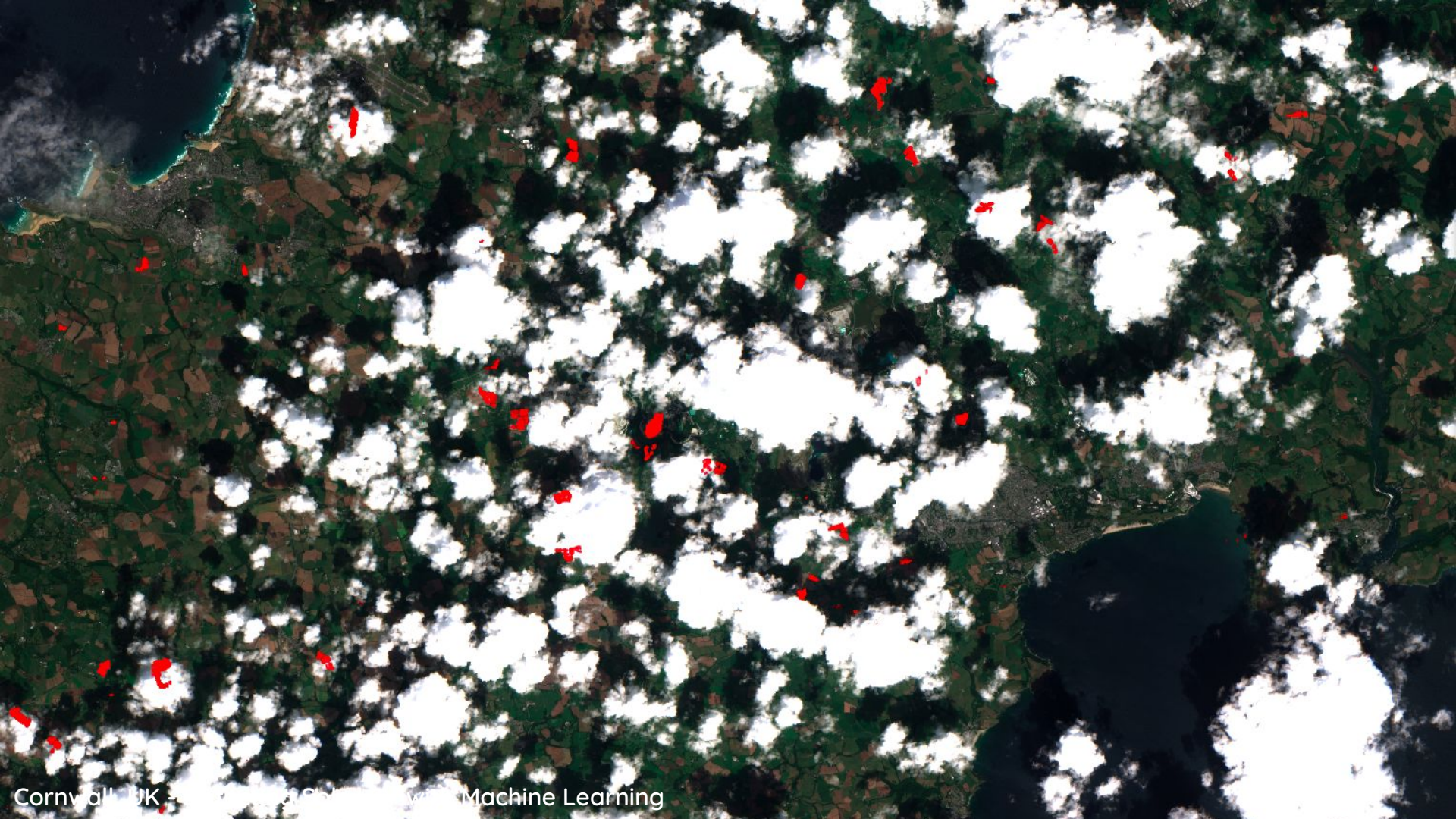
A general-purpose Sentinel-1 and Sentinel-2 computer vision model aiming to unlock an explosion of earth observation use cases for public good.

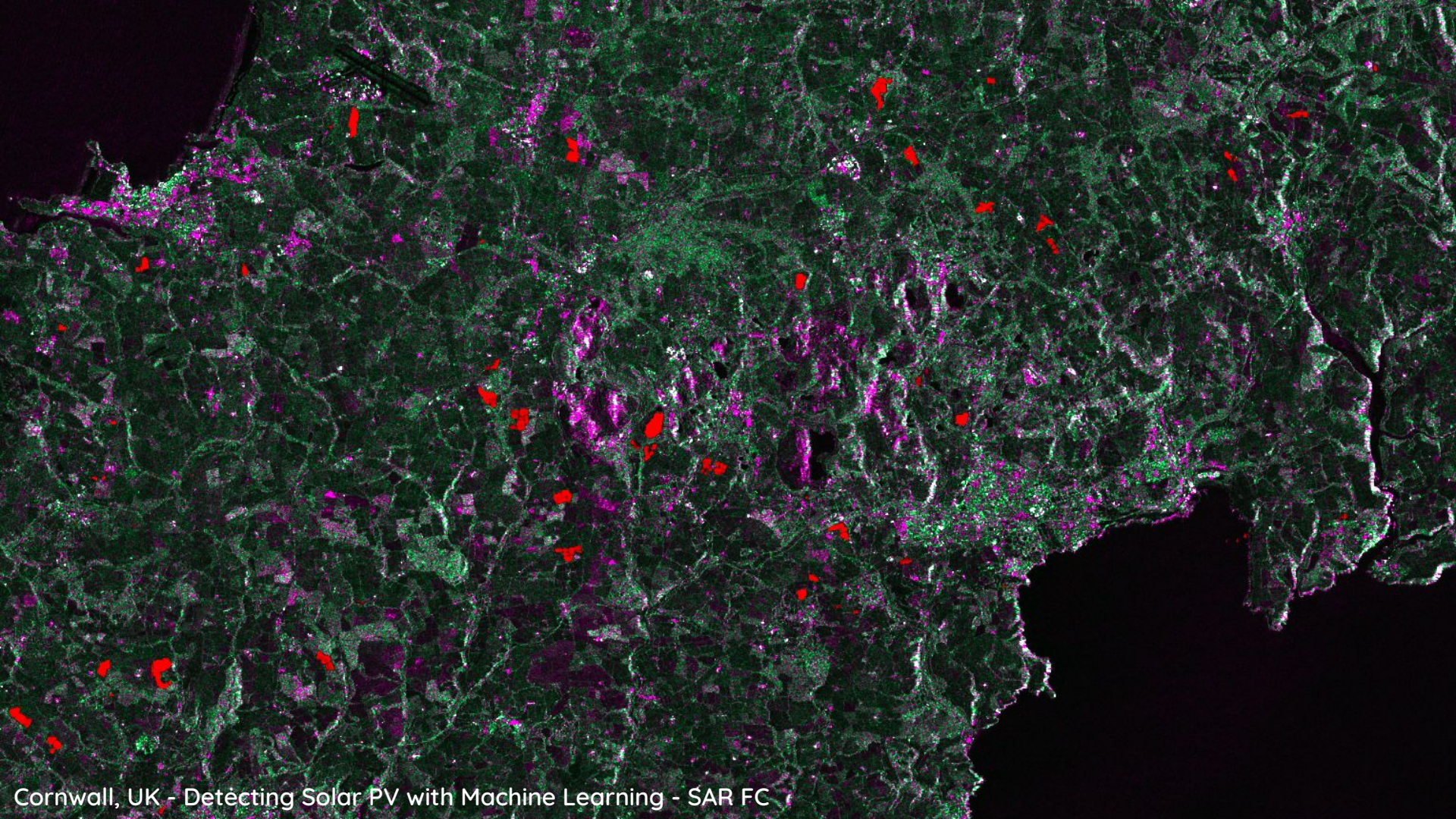


Lucas Kruitwagen, Smith School of Enterprise and the Environment
2020-12-07 - NeurIPS Climate Change AI Workshop - Poster Talk



Cornwall, UK - Detecting Solar PV with Machine Learning





Cornwall, UK - Detecting Solar PV with Machine Learning - SAR FC

So how do we address these problems?

- Atmospheric interference and clouds



Sensor Fusion with SAR

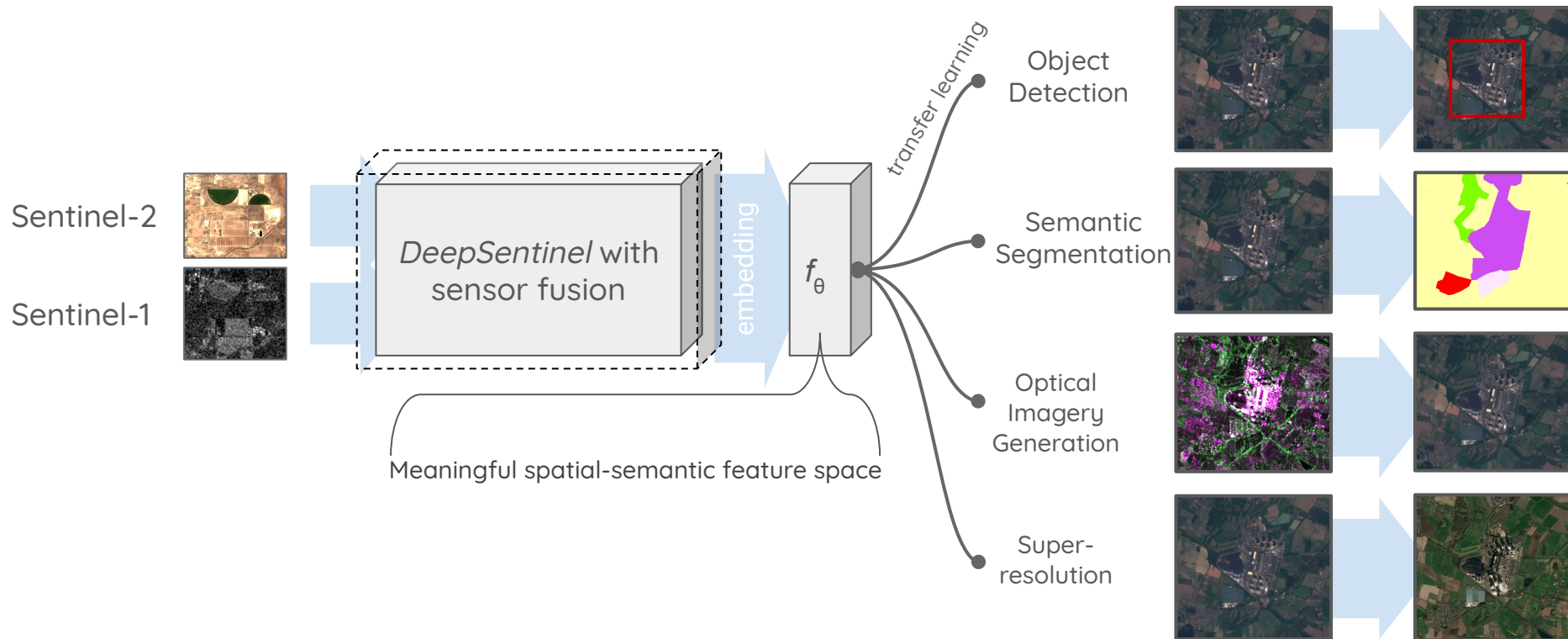
- Plenty of data but a shortage of labels



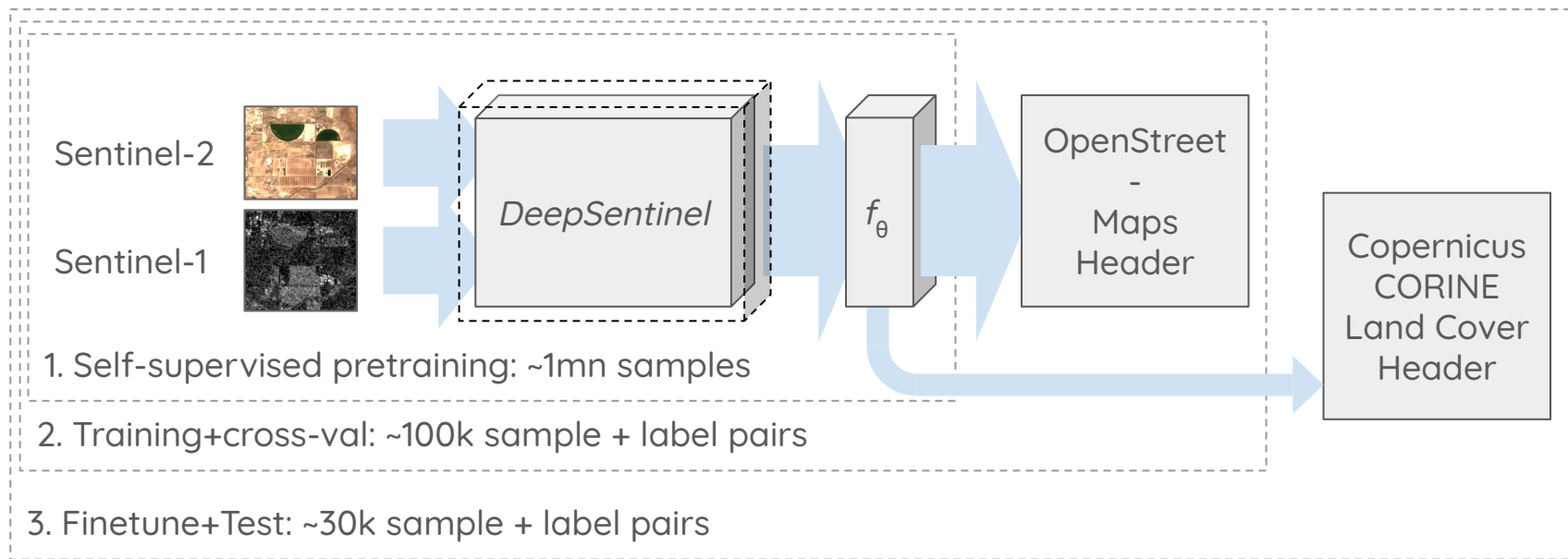
“Self-supervised” learning
+ Transfer Learning

... unlocking extensively more use cases for Sentinel-1 and Sentinel-2 Imagery!

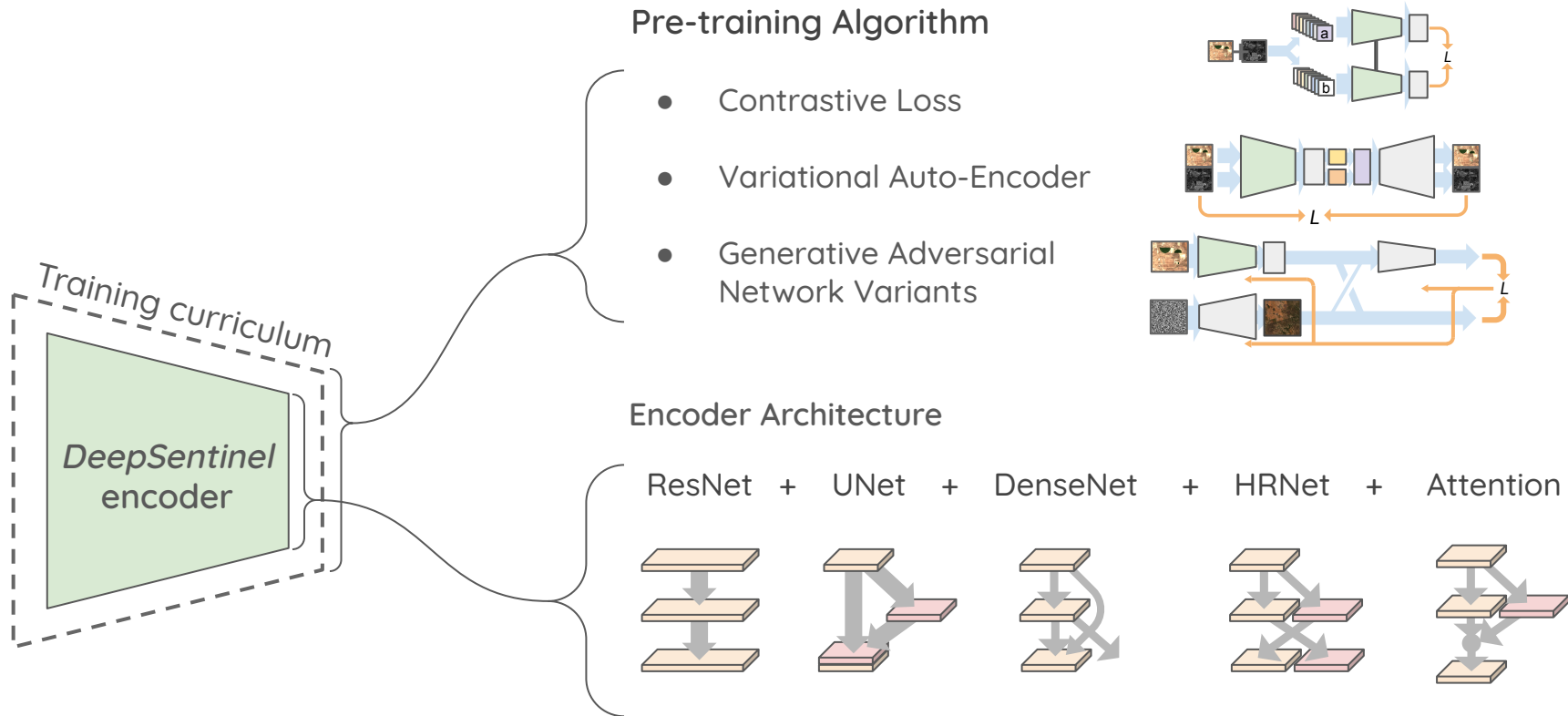
DeepSentinel



DeepSentinel: How does it work?



DeepSentinel: Technical Details



DeepSentinel: Technology Readiness



Infrastructure for model training and obtaining samples is built



Experiments are underway to determine the self-supervision algorithm and the embedding architecture



Secured support of:



**Descartes
Labs**

Impact Science Program



Microsoft

AI for Earth Program



GCP Research Credits

DeepSentinel: Impact



Training data and pre-trained models made publicly available.



Pre-trained model deployed via *Google Earth Engine* for use in on-the-fly inference.



Codebase released via github.



Adding detail to the world's mines sites.



Training Data

Maus, V. et. al (2020)
A global-scale data
set of mining areas,
Nature Scientific Data

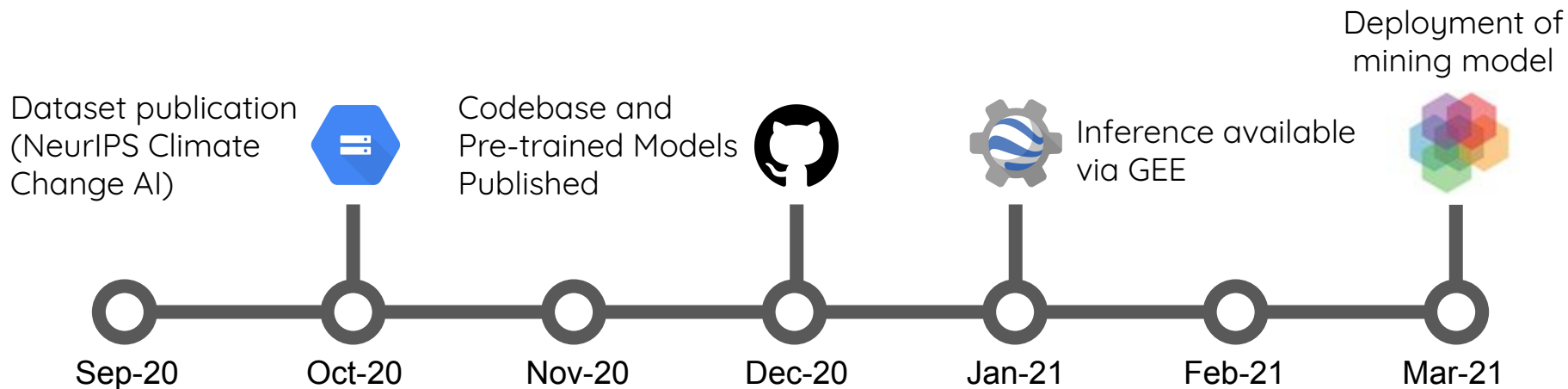


Descartes
Labs



Deployment

DeepSentinel: Timeline



DeepSentinel: Today



<https://console.cloud.google.com/storage/browser/deepsentinel>
<gs://deepsentinel>



<Microsoft Azure: Contact me for access>



<https://github.com/Lkruitwagen/deepsentinel.git>
<https://github.com/Lkruitwagen/deepsentinel-osm.git>

Thank You!



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DeepSentinel

