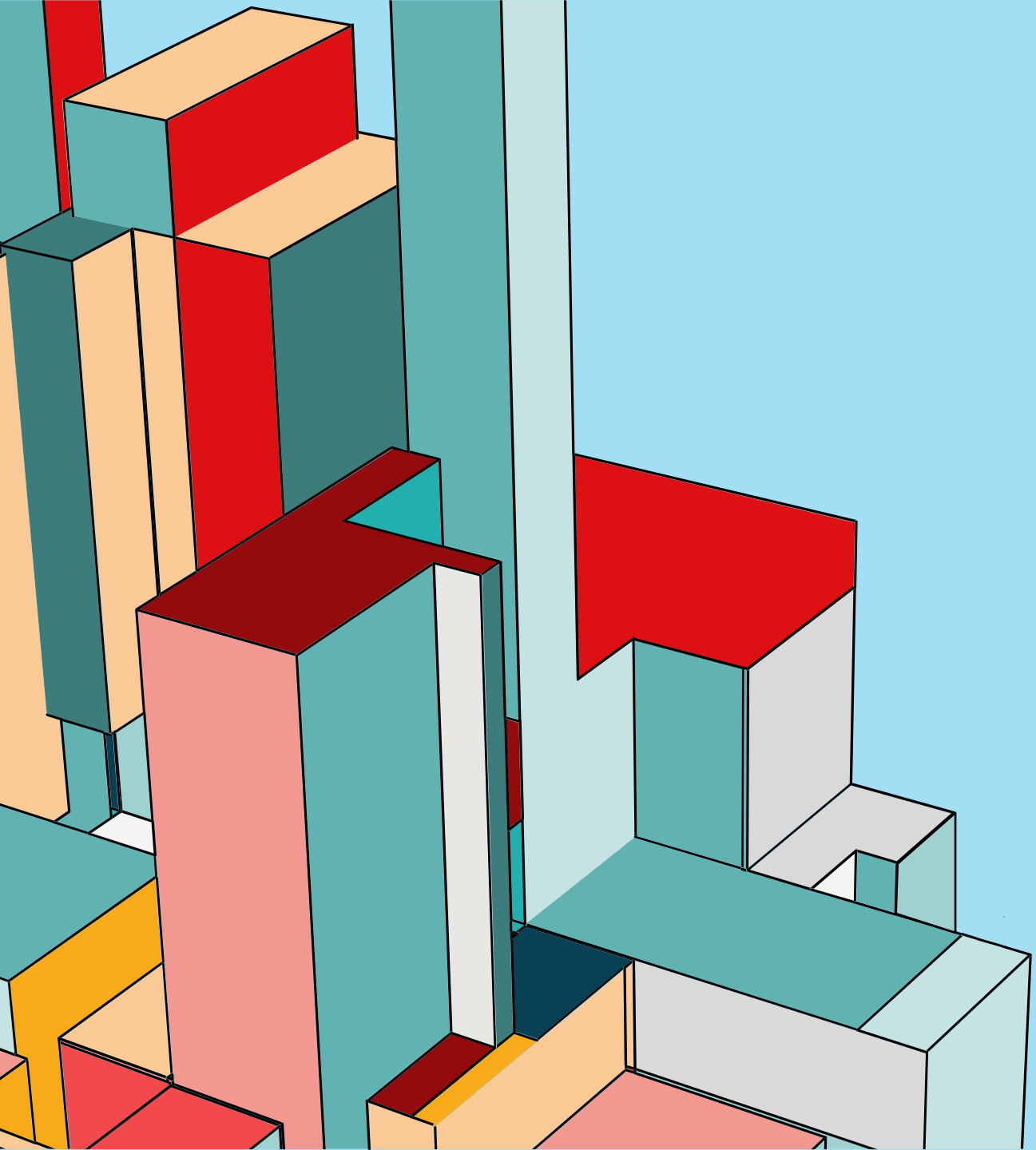


APPLIED DATA SCIENCE PROJECT

OPEN VOCABULARY SEMANTIC SEGMENTATION

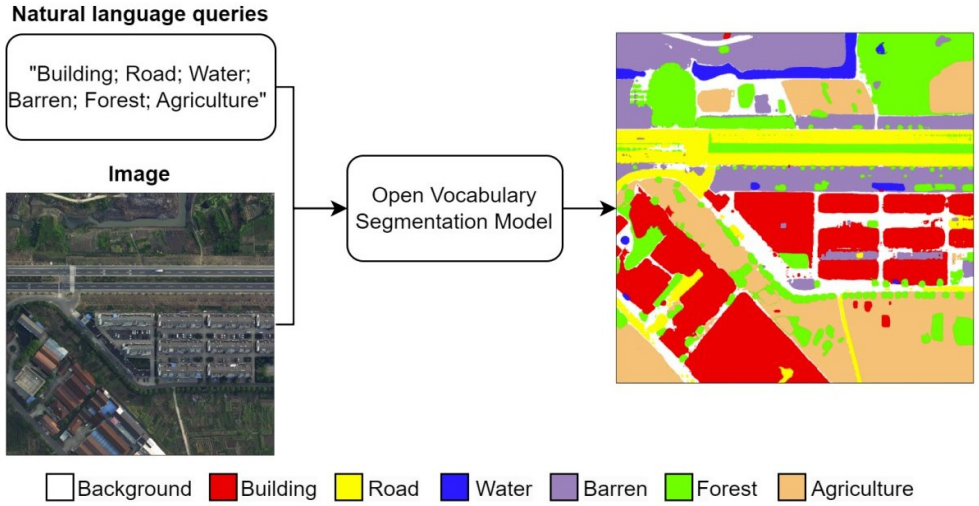
Politecnico di Torino

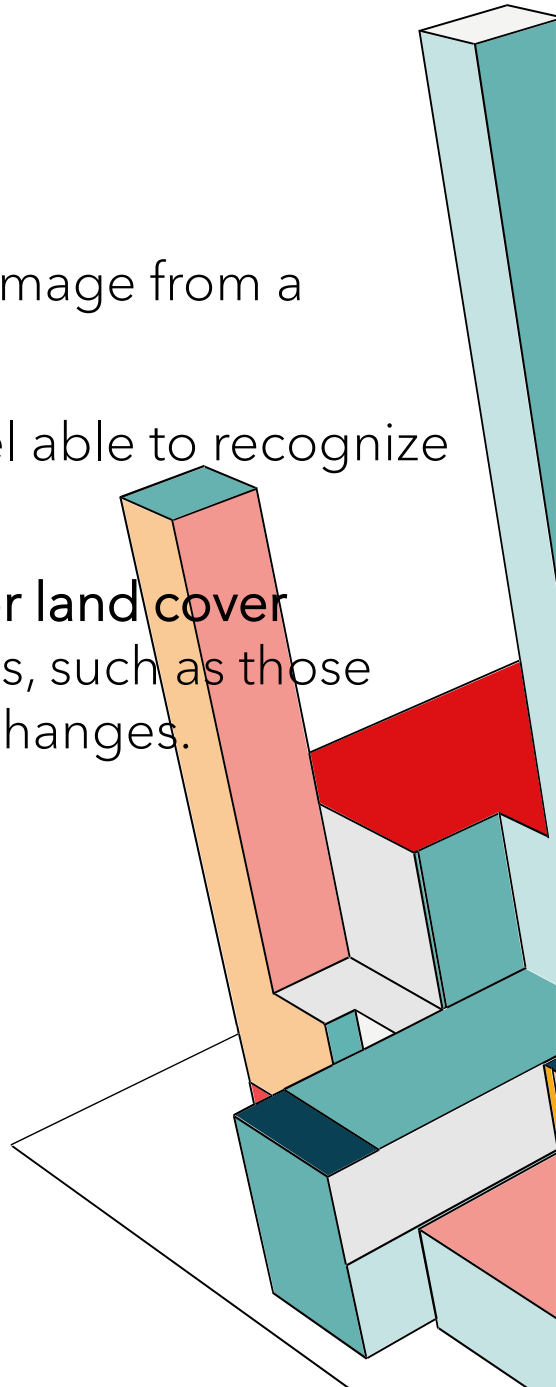
FONDAZIONE links PASSION FOR INNOVATION

ellis European Laboratory for Learning and Intelligent Systems

VALUE-DRIVEN PROJECT

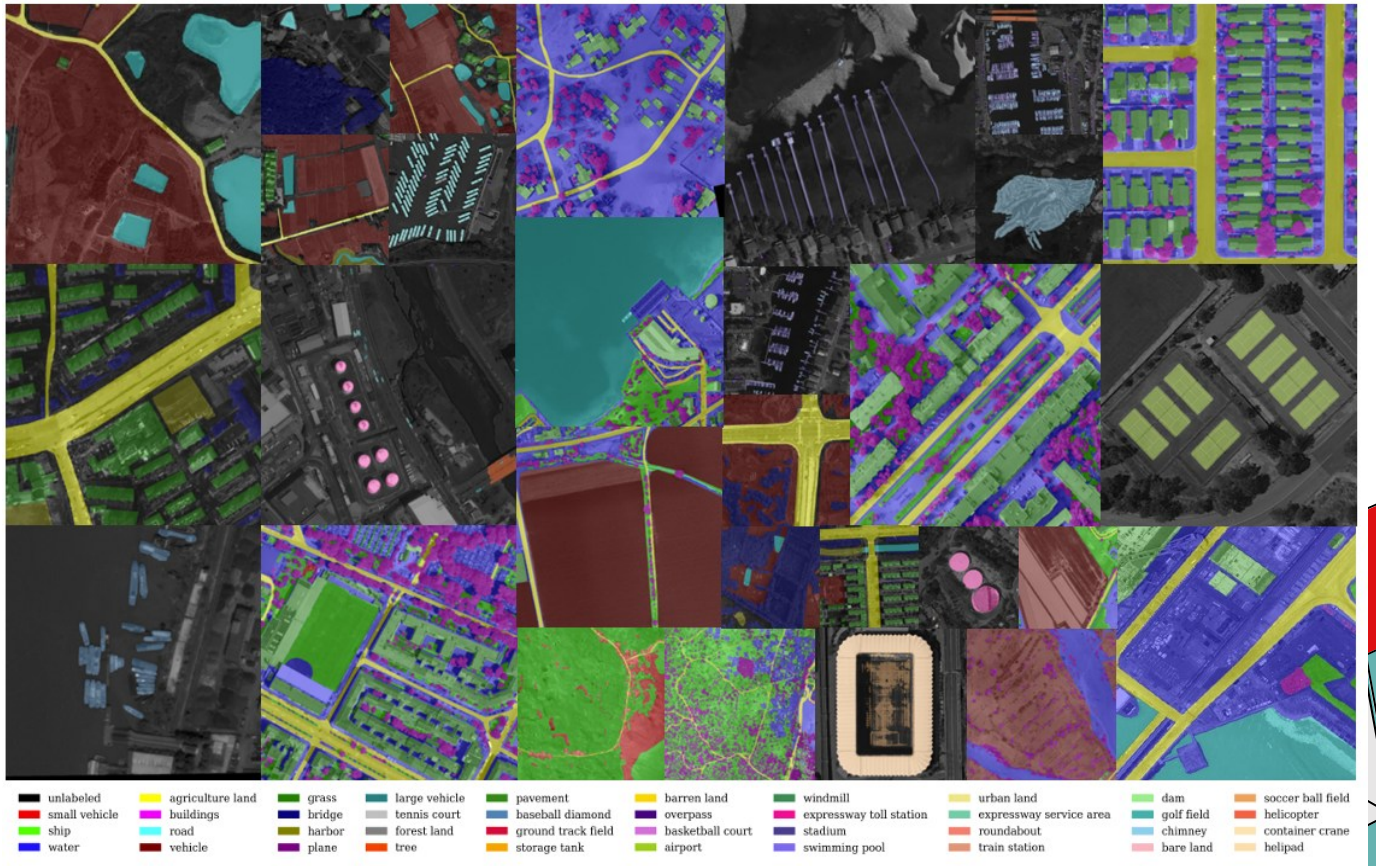
- **Semantic Segmentation** objective is to assign a label to each pixel of an image from a predefined set of classes.
- **Open Vocabulary Semantic Segmentation** objective is to make the model able to recognize new, unseen object categories without retraining.
- The project aims to design an **open-set semantic segmentation model for land cover mapping** that can detect and adapt to previously unseen land cover types, such as those emerging from natural disasters, urban development, or environmental changes.





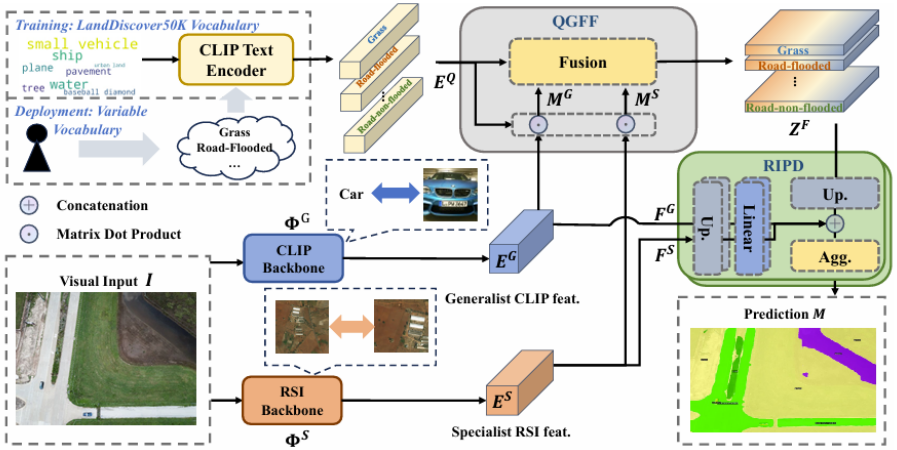
DATA

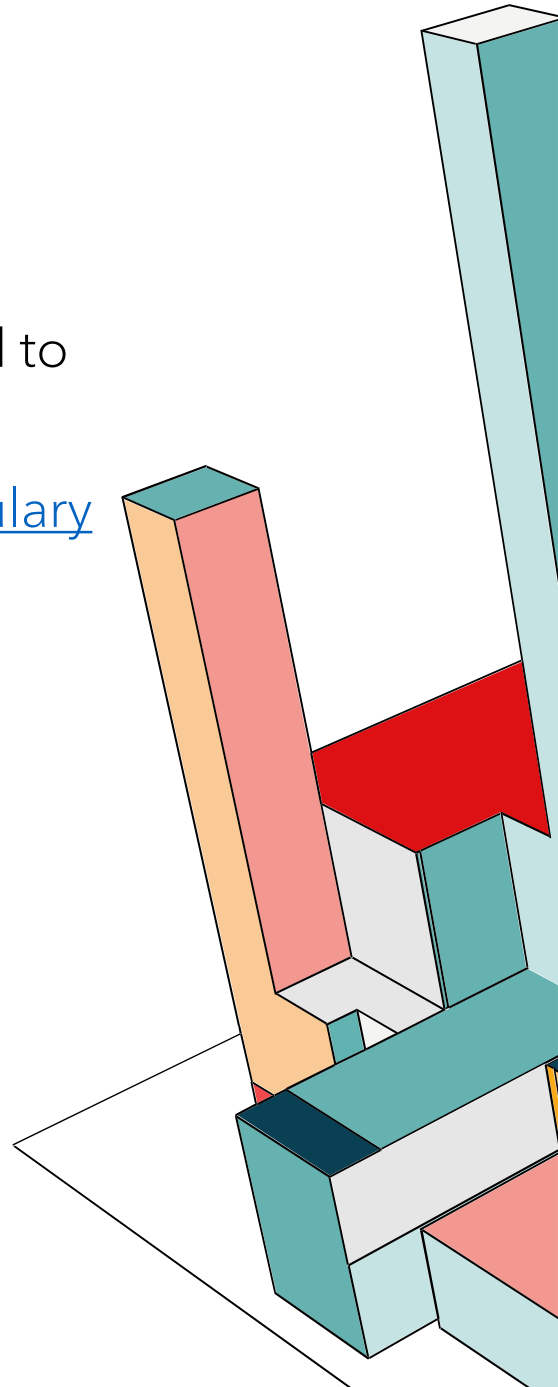
- We will use **LandDiscover50KDataset** proposed in [Towards Open-Vocabulary Remote Sensing Image Semantic Segmentation] containing high-resolution remote sensing images along with precise semantic maps



TASK

- The objective is a Open Vocabulary Semantic Segmentation Task applied to Remote Sensing Image
- First, try to replicate the GSNet model from paper [Towards Open-Vocabulary Remote Sensing Image Semantic Segmentation]
- Then, try to improve performance replacing CLIP ViT with CLIP CNN, and Dinov2 with Dinov3





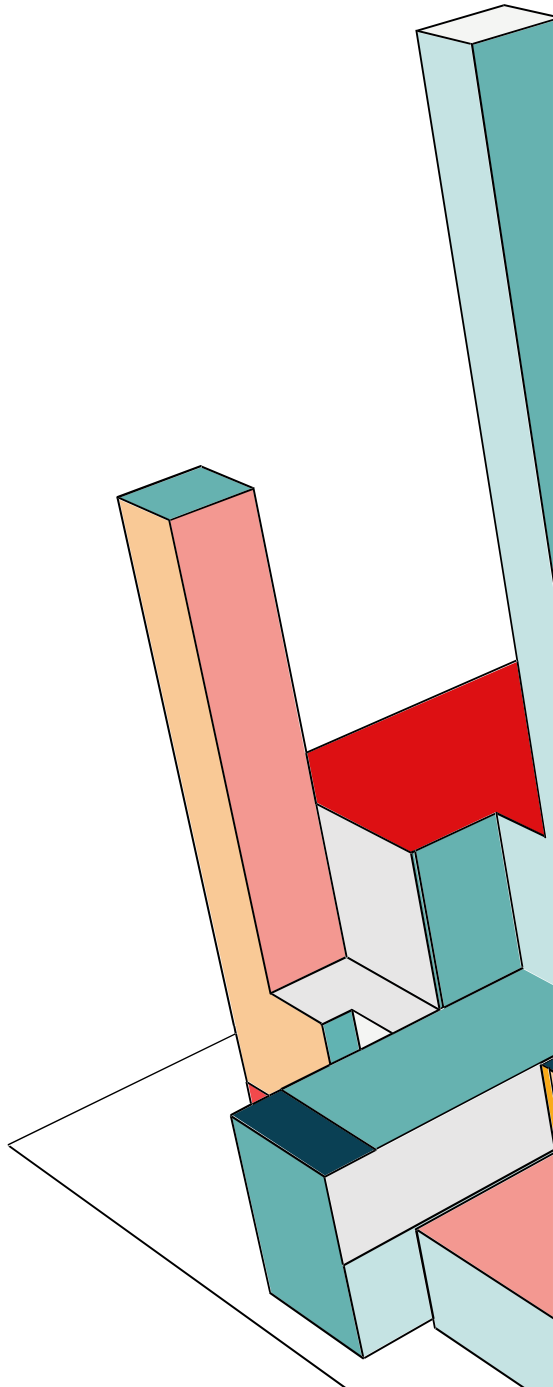
LIGHT MENTORING

Mentors

- Luca Barco luca.barco@linksfoundation.com
- Jacopo Lungo Vaschetti jacopo.lungo@linksfoundation.com

Weekly one-hour calls with students for the whole duration of the semester

Feel free to reach out via **Slack** or **email** at any time for any questions or doubts



POLICY

- Both project descriptions and implementations will be part of a repository group published on GitHub

- The repositories will be public