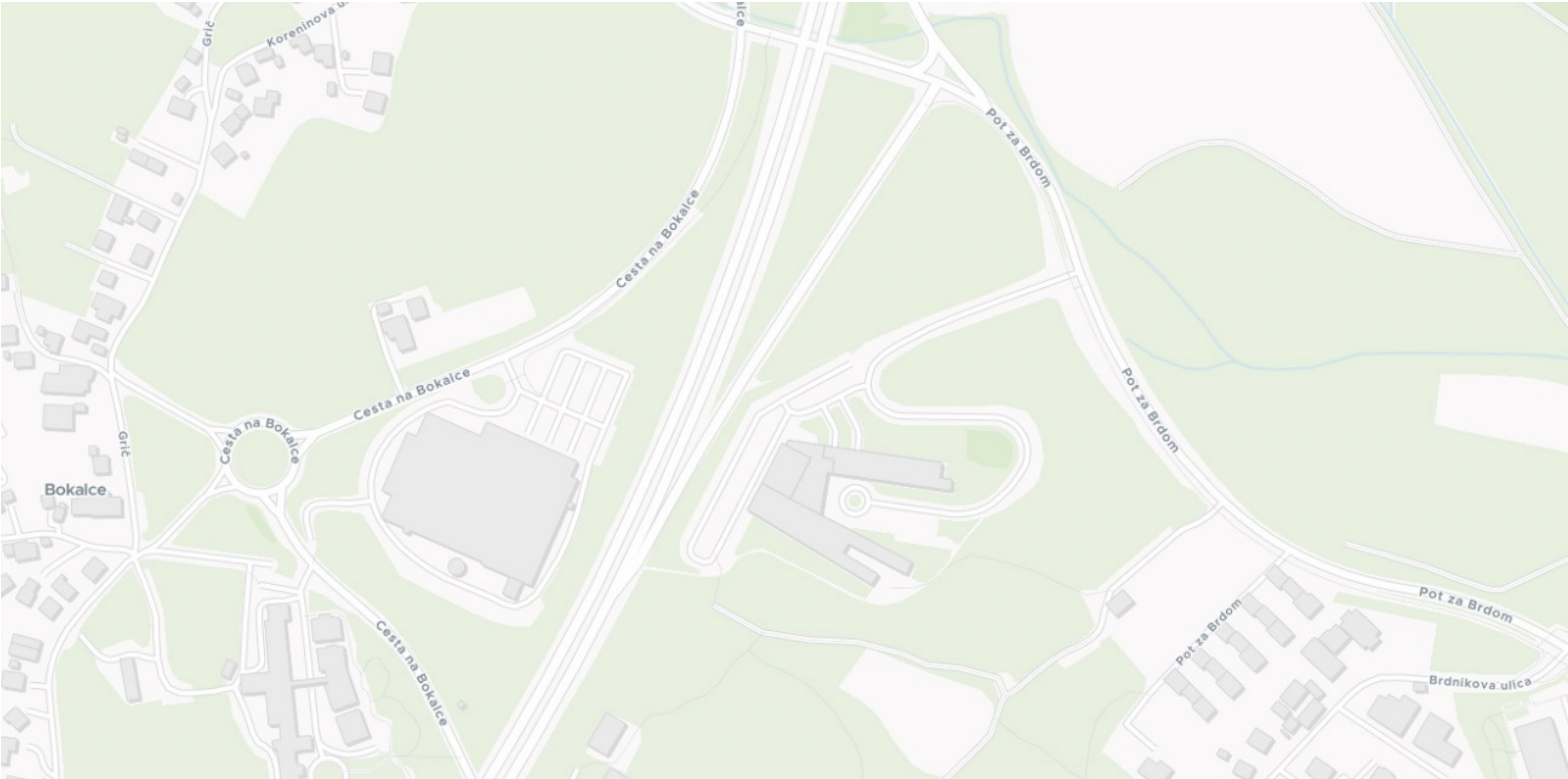
Dnevi SLING

Globoko učenje za razumevanje Lidar oblakov točk in uporaba super računalniške infrastrukture

3.-5. december 2024

- Zakaj potrebujemo Lidar oblake točk?
- Kaj so Lidar oblaki točk?
- Kako lahko uporabimo globoko učenje za razumevanje Lidar oblakov točk?
- Proces učenja.
- Kako uporabljamo različno infrastrukturo - (super) računalnike?

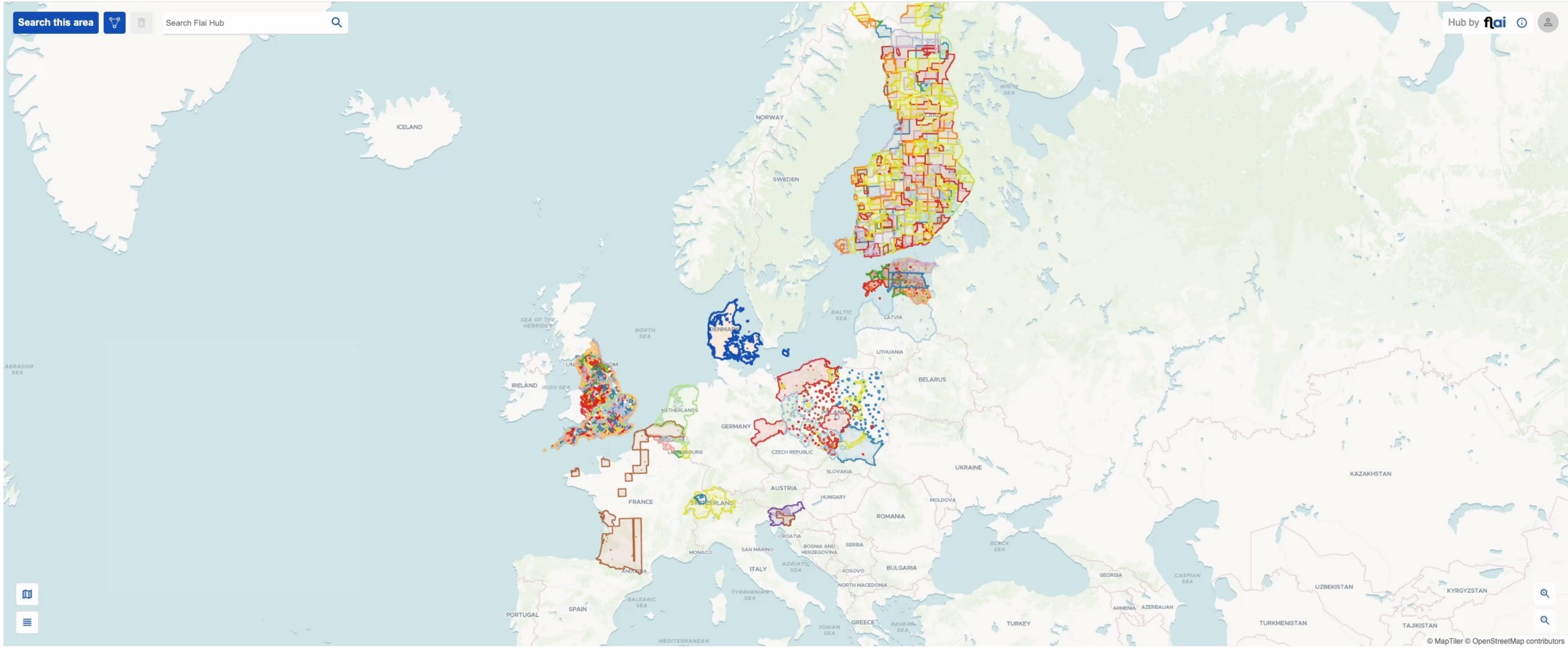

Koreninova
Grič
Cesta na Bokalce
Pot za Brdom
Cesta na Bokalce
Cesta na Bokalce
Grič
Bokalce
Pot za Brdom
Cesta na Bokalce
Pot za Brdom
Pot za Brdom
Brdnikova ulica


Grič
Koreninova ulica
Pot za Brdom
Cesta na Bokalce
Brdnikova ulica
Brdo

Topograska kartiranje

Lidar Hub by Flai

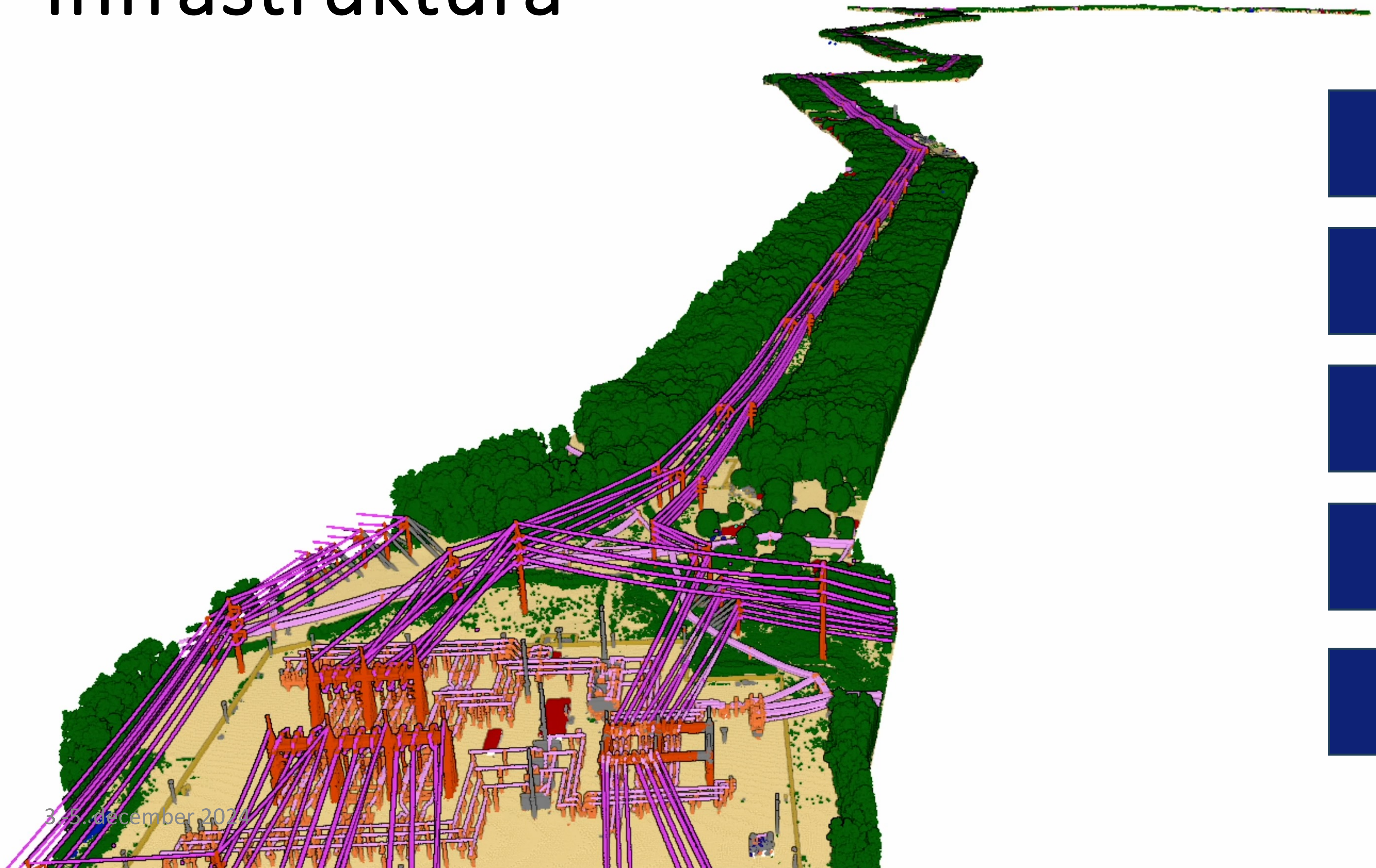
hub.flai.ai/#/



Name	Time frame	Area	Point density	Reference System	License
Estonia (mets)	2015	8459.03 km²	0.17 pts/m²	EPSG:3301	Estonian Land Board, Elevation data 2017-2020 License
Estonia (madal)	2015	512.3 km²	2.64 pts/m²	EPSG:3301	Estonian Land Board, Elevation data 2017-2020 License
Germany	2015 - 2023	18992.41 km²	13.25 pts/m²	EPSG:25833	GeoSN, dl-de/by-2-0
Finland	2015	44552.68 km²	1.54 pts/m²	EPSG:3067	License
United Kingdom	2015	14394.29 km²	3.15 pts/m²	EPSG:27700	© Environment Agency License

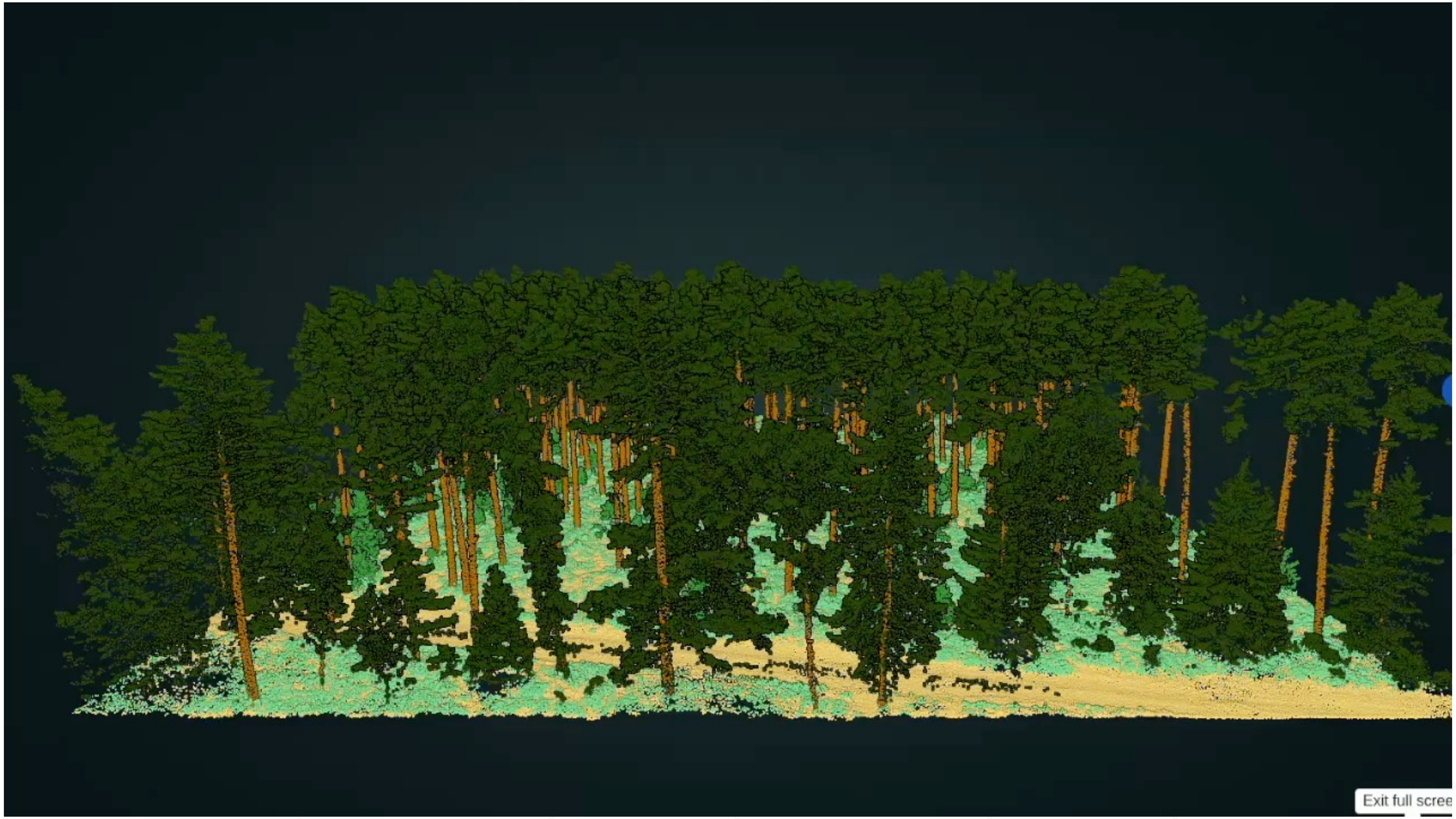
61-65 / 101

Infrastruktura

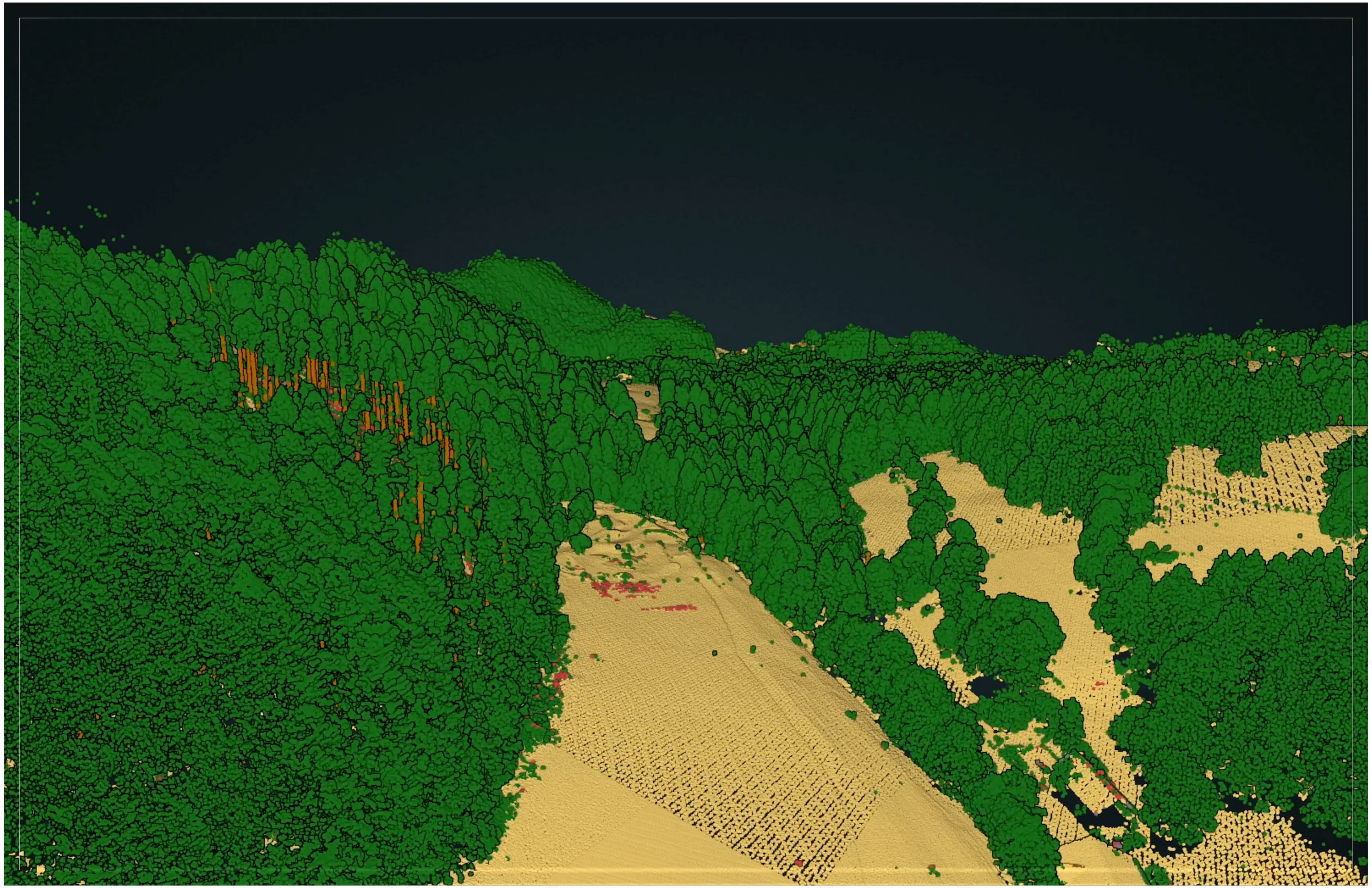


- Upravljanje z vegetacijo
- Pregled infrastrukture
- Popis sredstev
- Ocena stanja sredstev
- Odkrivanje napak

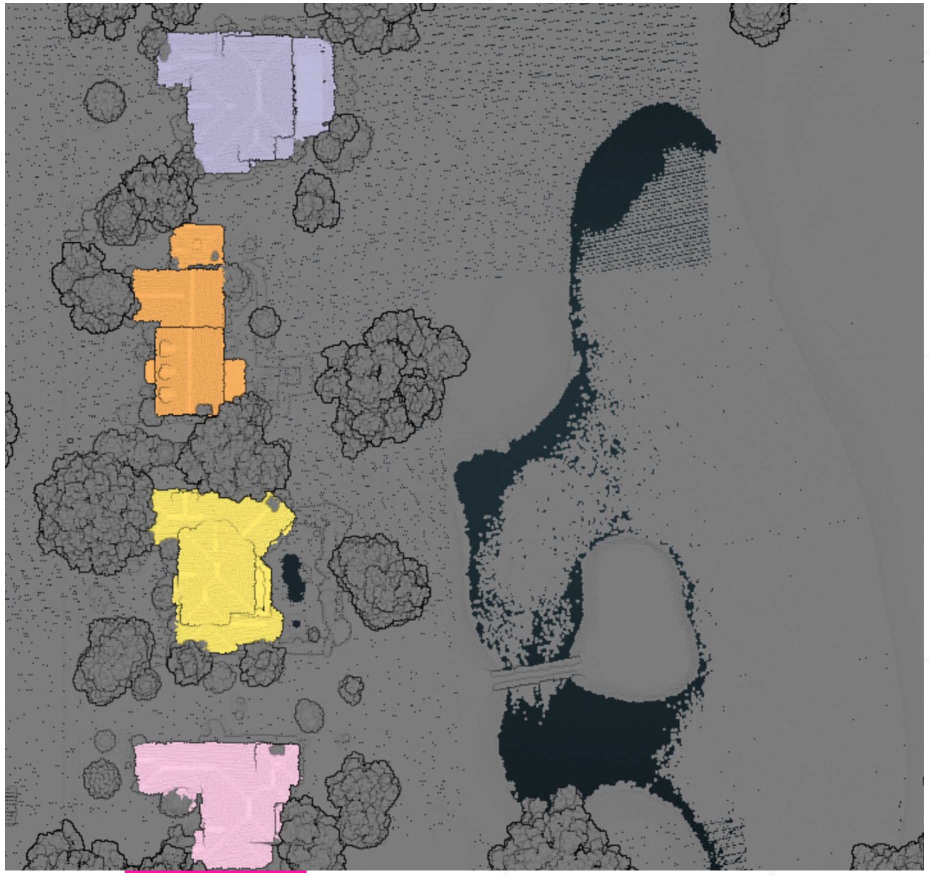
Gozdno gospodarstvo in okoljevarstvo



Obramba in varnost



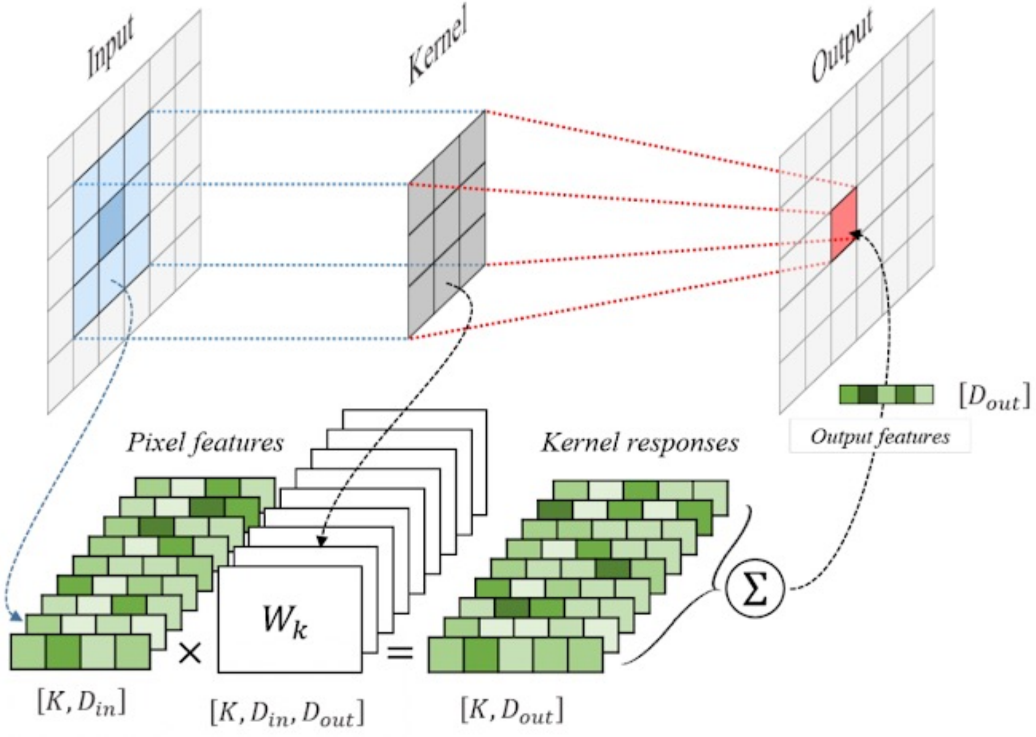
Katere probleme?



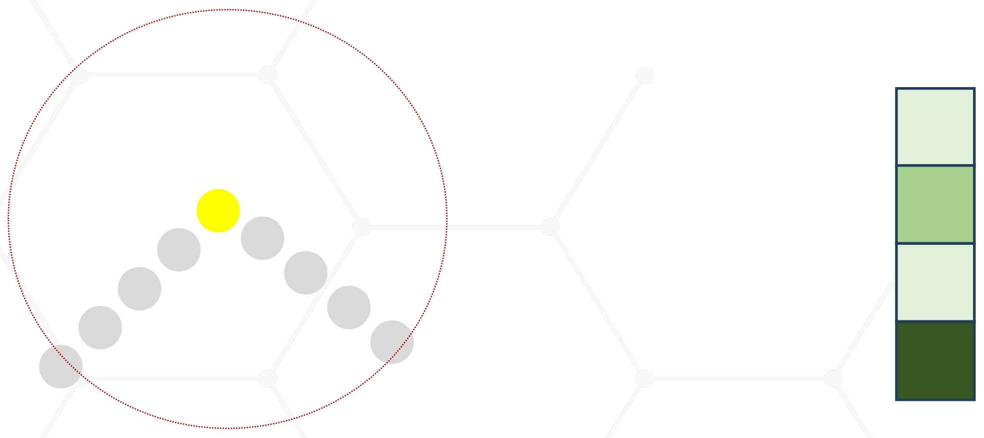
- Klasifikacija
- Detekcija objektov
- Semantična segmentacija
- Segmentacija primerkov

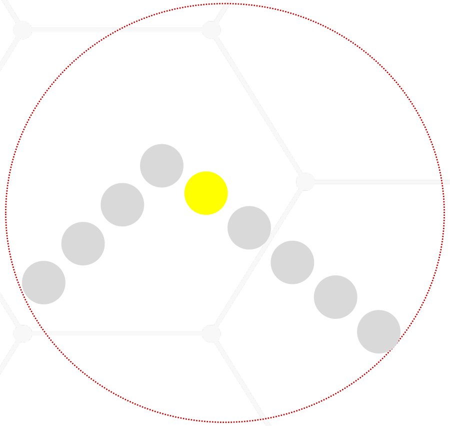
Kako?

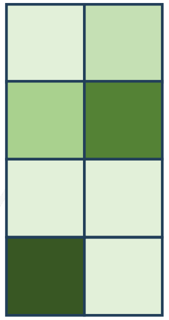
- Globoke nevronske mreže.
- Neposredno na oblaku točk.

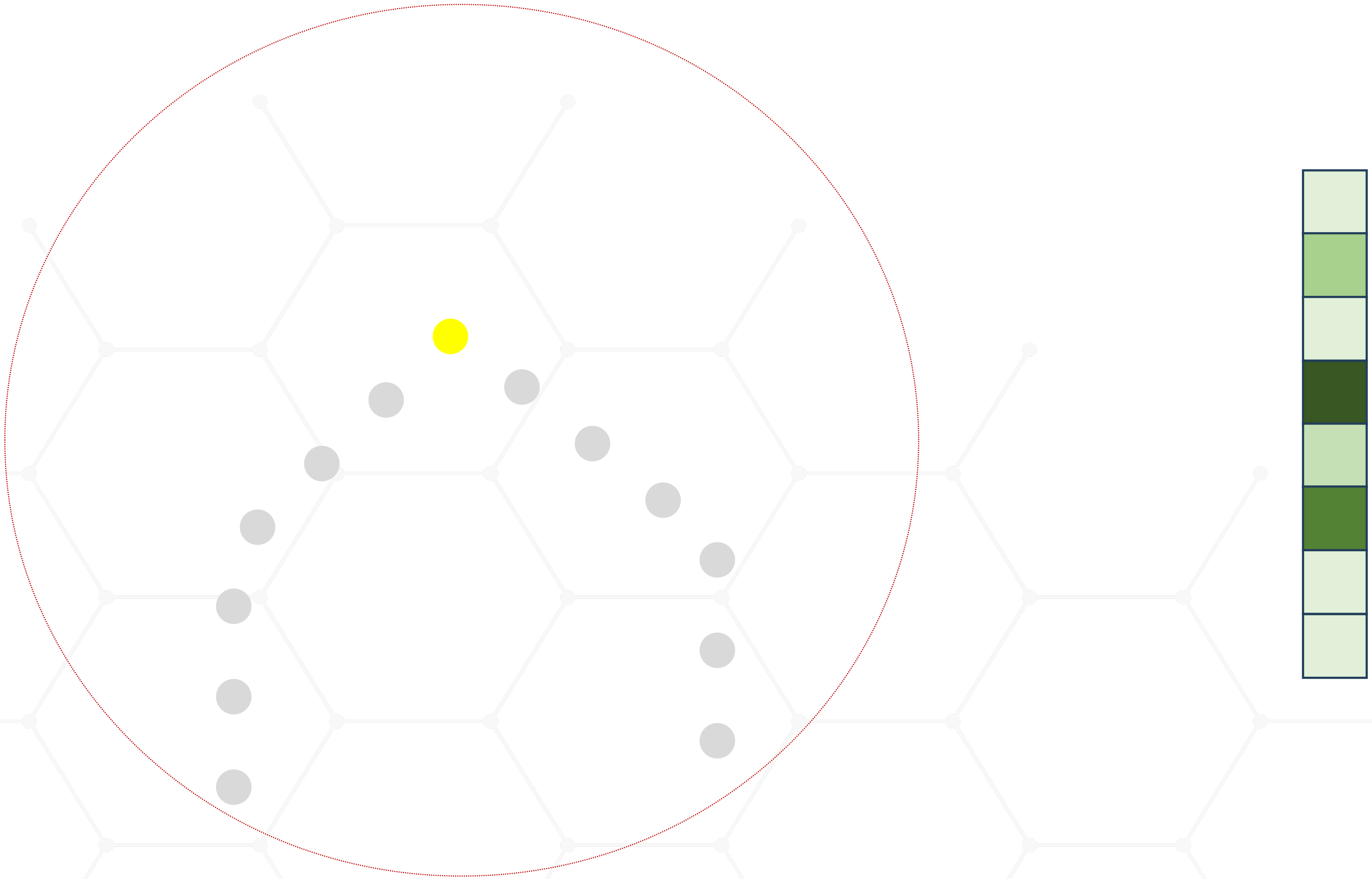


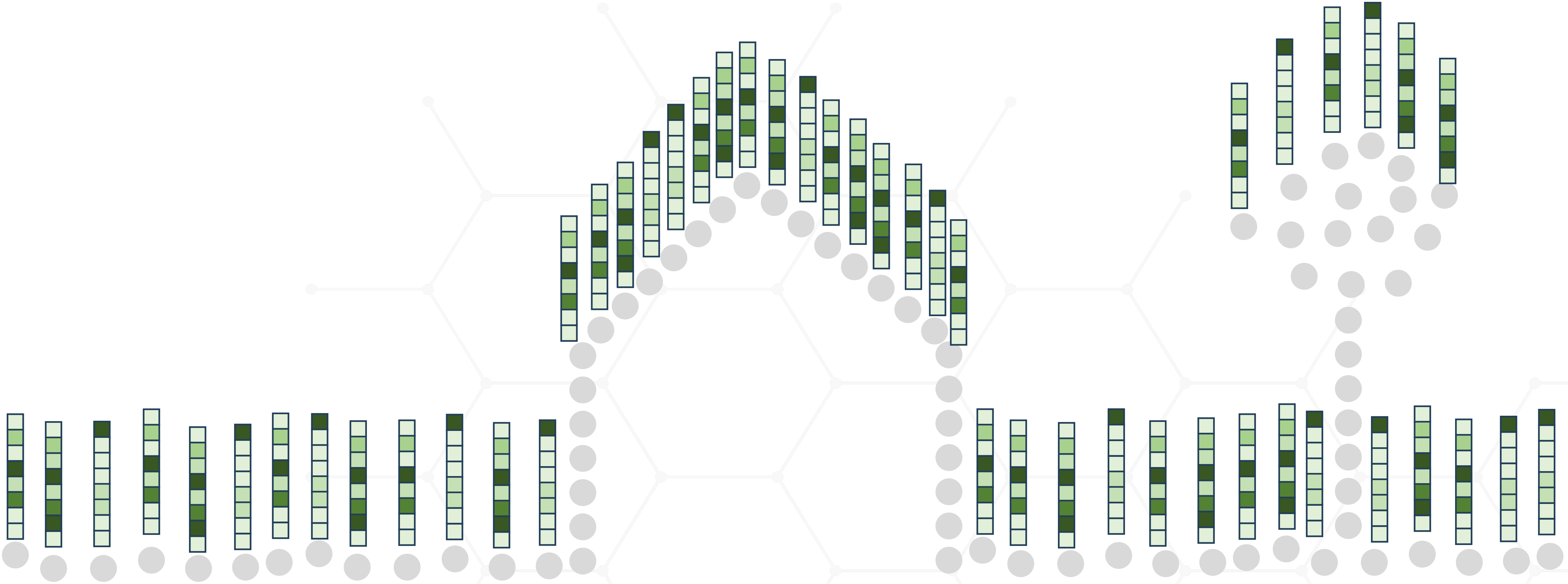
Thomas, H., Qi, C. R., Deschaud, J.-E., Marcotegui, B., Goulette, F., & Guibas, L. J. (2019). KPConv: Flexible and Deformable Convolution for Point Clouds. *IEEE/CVF International Conference on Computer Vision (ICCV)*, 6410–6419. http://arxiv.org/abs/1904.08889

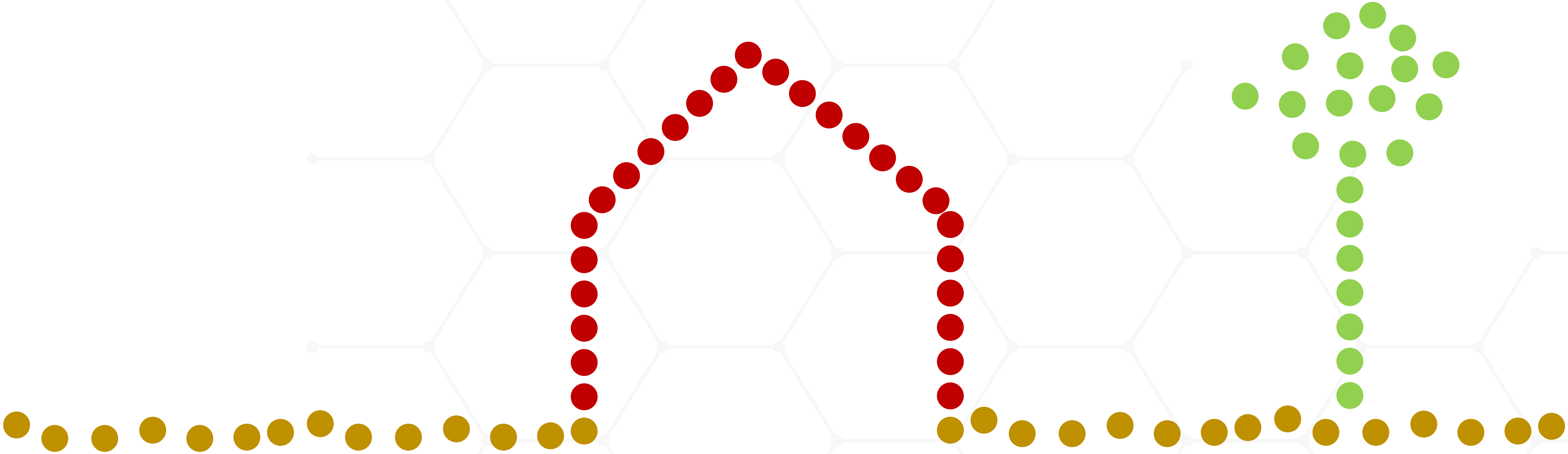


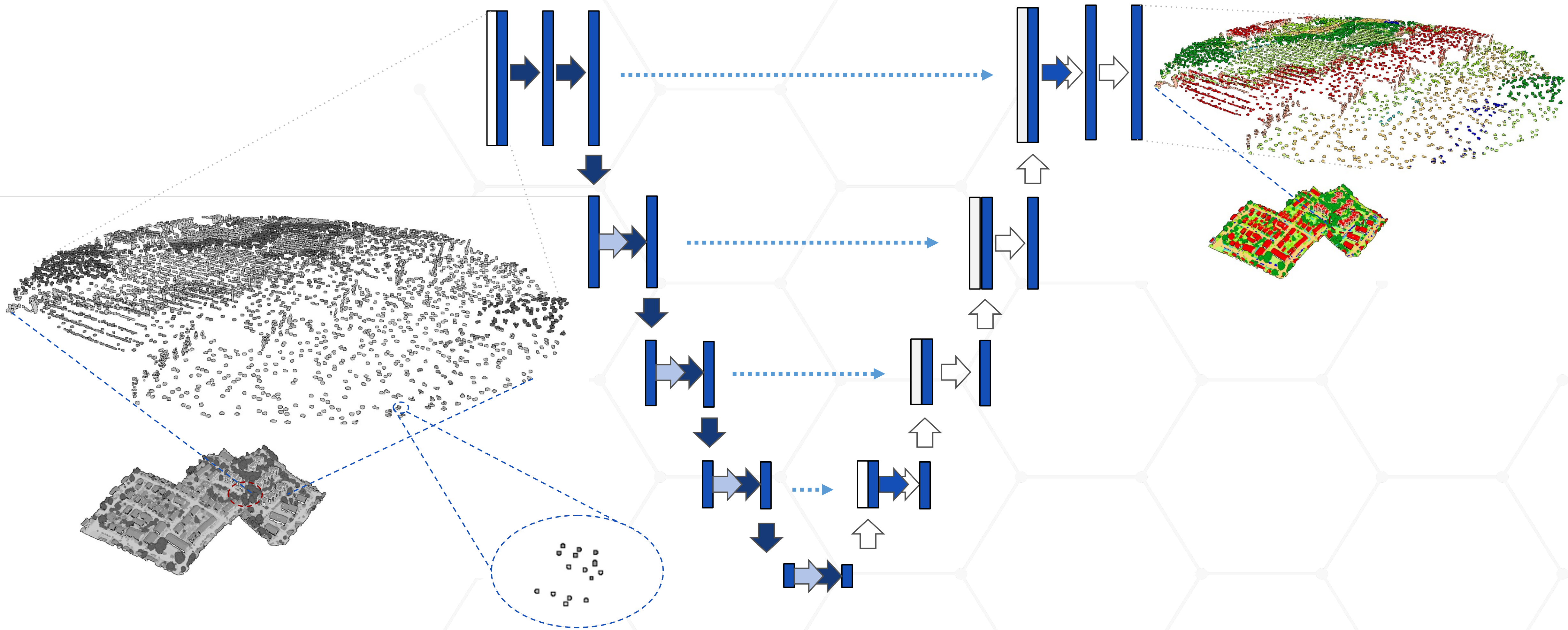




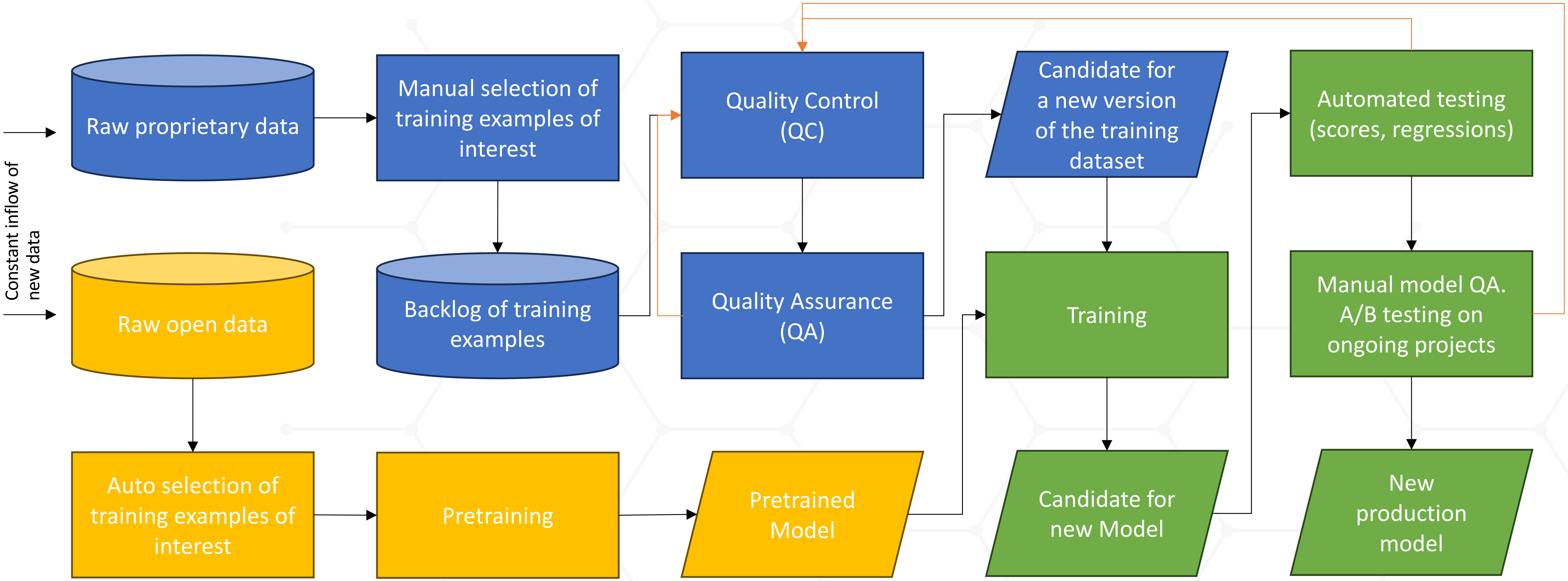








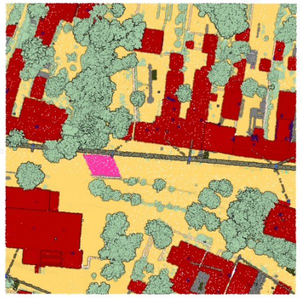
Neprekinjen proces učenja novih modelov

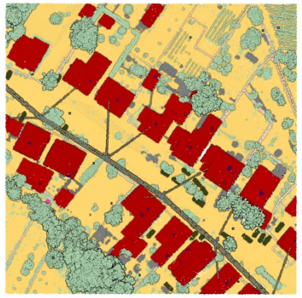


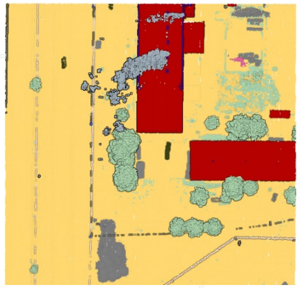
Kakšne količine podatkov?

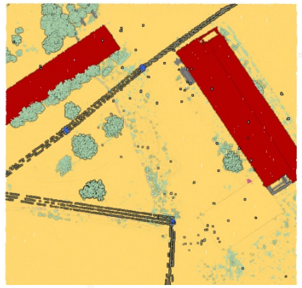
Proprietary data **115,5 TB**

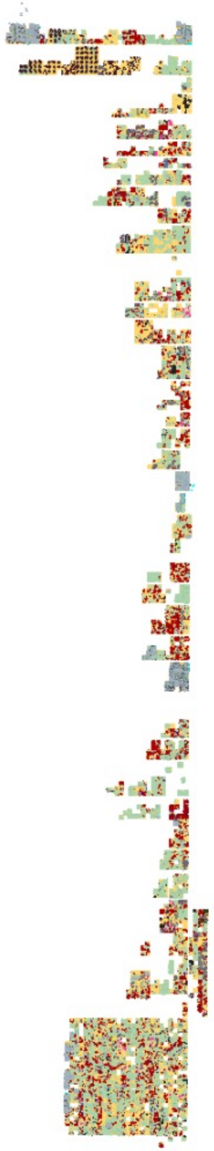
Open data **194,4 TB**





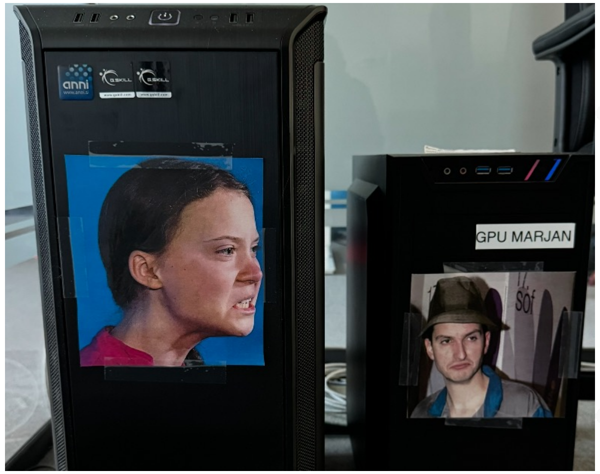






Kje učimo in kje izvajamo inferenco?

Onprem



večinoma A6000

Cloud

aws

Google Cloud Platform

večinoma A100

HPC

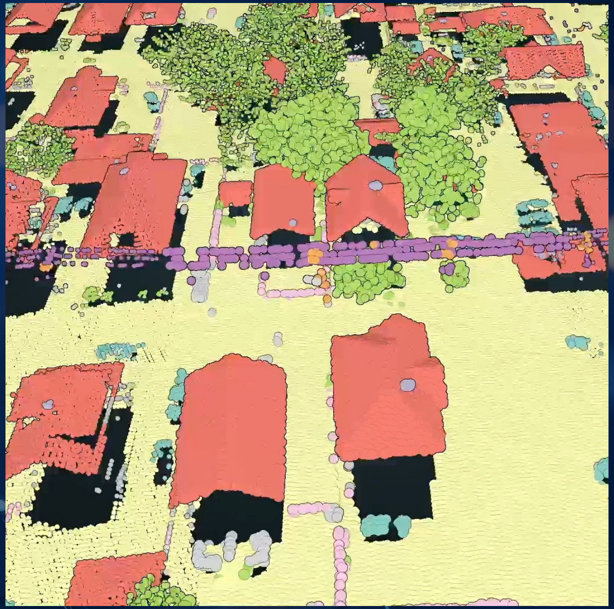
Pending

FORTISSIMO PLUS

VEGA HPC

COMPUTING CENTER OF THE SLOVAK ACADEMY OF SCIENCES

SLING | EURO



Hvala!

Globoko učenje za razumevanje Lidar oblakov točk in uporaba super računalniške infrastrukture

EuroHPC Joint Undertaking

REPUBLIKA SLOVENIJA
MINISTRSTVO ZA VISOKO ŠOLSTVO, ZNANOST IN INOVACIJE

Projekt EuroCC 2 financira Evropska unija. Financiran je s sredstvi Skupnega podjetja za evropsko visokozmogljivo računalništvo (EuroHPC JU) ter Nemčije, Bolgarije, Avstrije, Hrvaške, Cipra, Češke republike, Danske, Estonije, Finske, Grčije, Madžarske, Irske, Italije, Litve, Latvije, Poljske, Portugalske, Romunije, Slovenije, Španije, Švedske, Francije, Nizozemske, Belgije, Luksemburga, Slovaške, Norveške, Turčije, Republike Severne Makedonije, Islandije, Črne gore in Srbije v okviru sporazuma o dodelitvi sredstev št. 101101903.