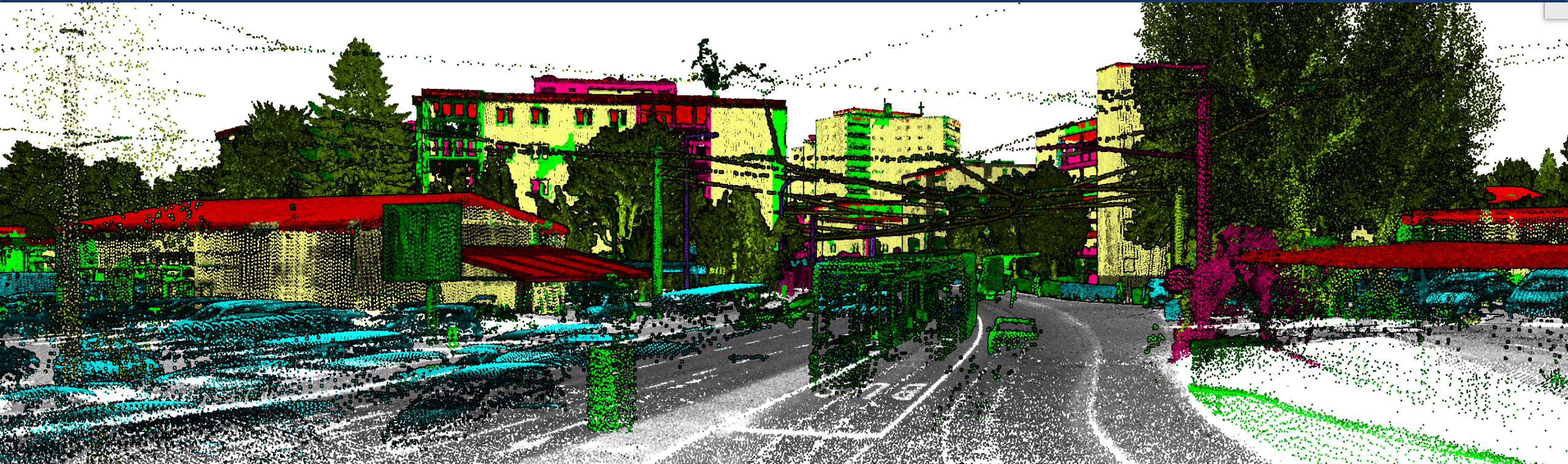


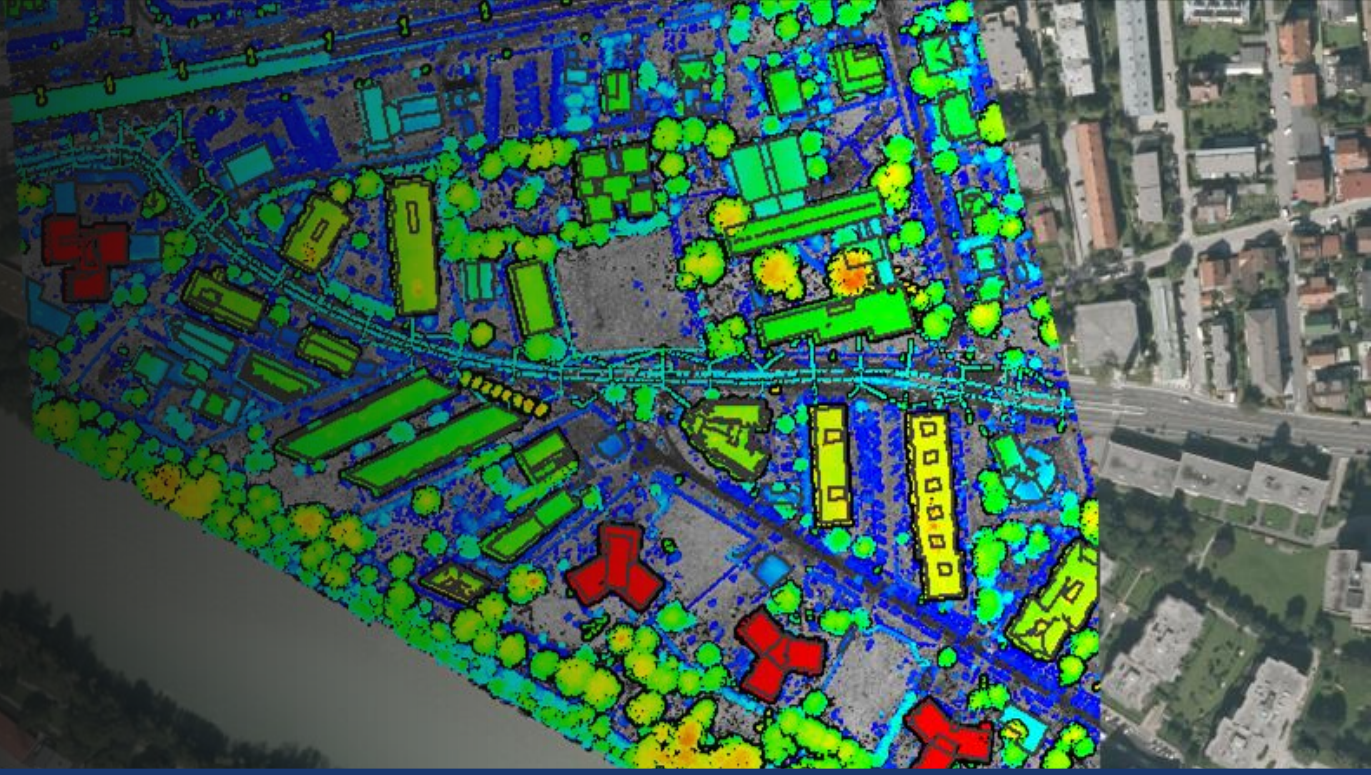


BUILDING A DIGITAL TWIN USING UAV LIDAR



JUSTINA KLIUKAITE
Technical support engineer

LiDAR DATA COLLECTED WITH UAV



- Increased accessibility
- Cost effective
- Flexibility and mobility
- Easier multi-sensor integration





THE INDUSTRY STANDARD SOFTWARE FOR POINT CLOUD AND IMAGE PROCESSING





COMMUNITY



100

COUNTRIES

2,700+

CUSTOMERS

20+

NMA

50+

REGIONAL AGENCIES

MAIN

CONSULTING FIRMS

5,000+

TERRASCAN

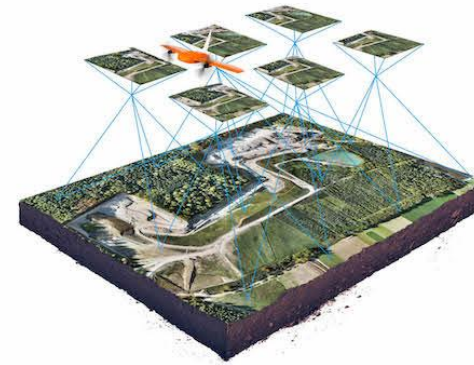
8

INDUSTRY
TOOLSETS



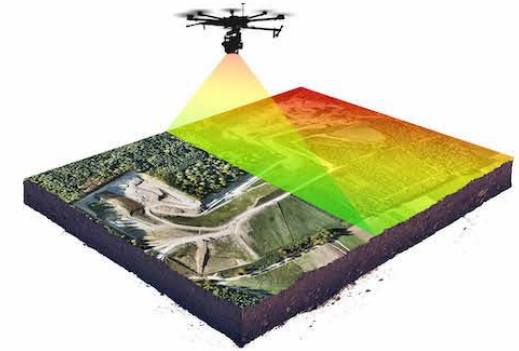
REALITY MODELLING

**ALL POINT CLOUDS
NO MATTER THE SOURCE
NO MATTER THE SENSOR
NO MATTER THE SCALE**

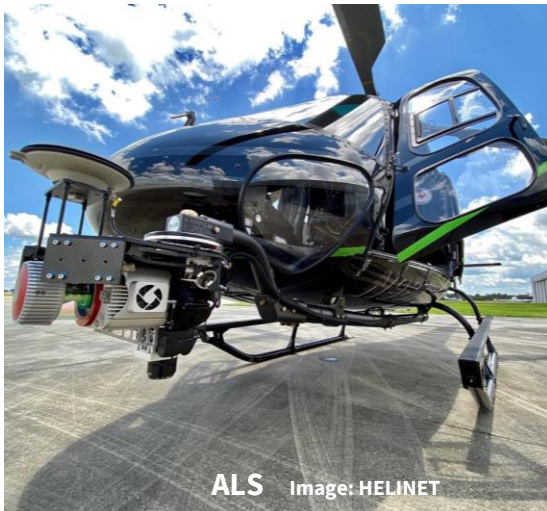


PHOTOGRAMMETRY

Image: Wingtra



LASER SCANNING



ALS Image: HELINET



MLS Image: TOPCON



UAV Image: Phoenix LiDAR



HANDHELD Image: GEO-SLAM

POINT CLOUDS FOR BETTER DECISION-MAKING



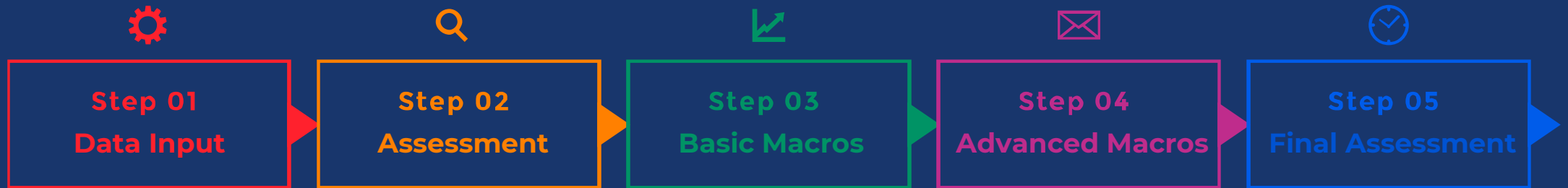
DATA PROCESSING WORKFLOW

FROM SURVEY TO END PRODUCTS

1



2





Step 01 Data Input

• BASIC PROJECT SET-UP INPUT

- Initializes blank design file
- Manages coordinate set-up
- Reads in laser data
- Reads in trajectory data

New Drone Project

Scanner system: DJI L1
Project name: naujas projektas Create default point classes

Laser input: Add... Remove

Input system: 4326 >> 4326 WGS84 longitude & latitude Remove duplicate points
Input elevations: Ellipsoidal Assign color to black points
 Sort points for speed

Trajectory input: D:\3_support\Mic...\DJI_20230421135750_0001_Zenmuse-L1-mission_sbet.out 21.04.2023 Add... Remove

Input system: 4326 >> 4326 WGS84 longitude & latitude
Input elevations: Ellipsoidal

Target system: 3059 >> 3059 LKS92 / Latvia TM
Target elevations: Orthometric ->
Geoid model: Latvia - LV14

Storage folder: Browse...

OK Cancel

2



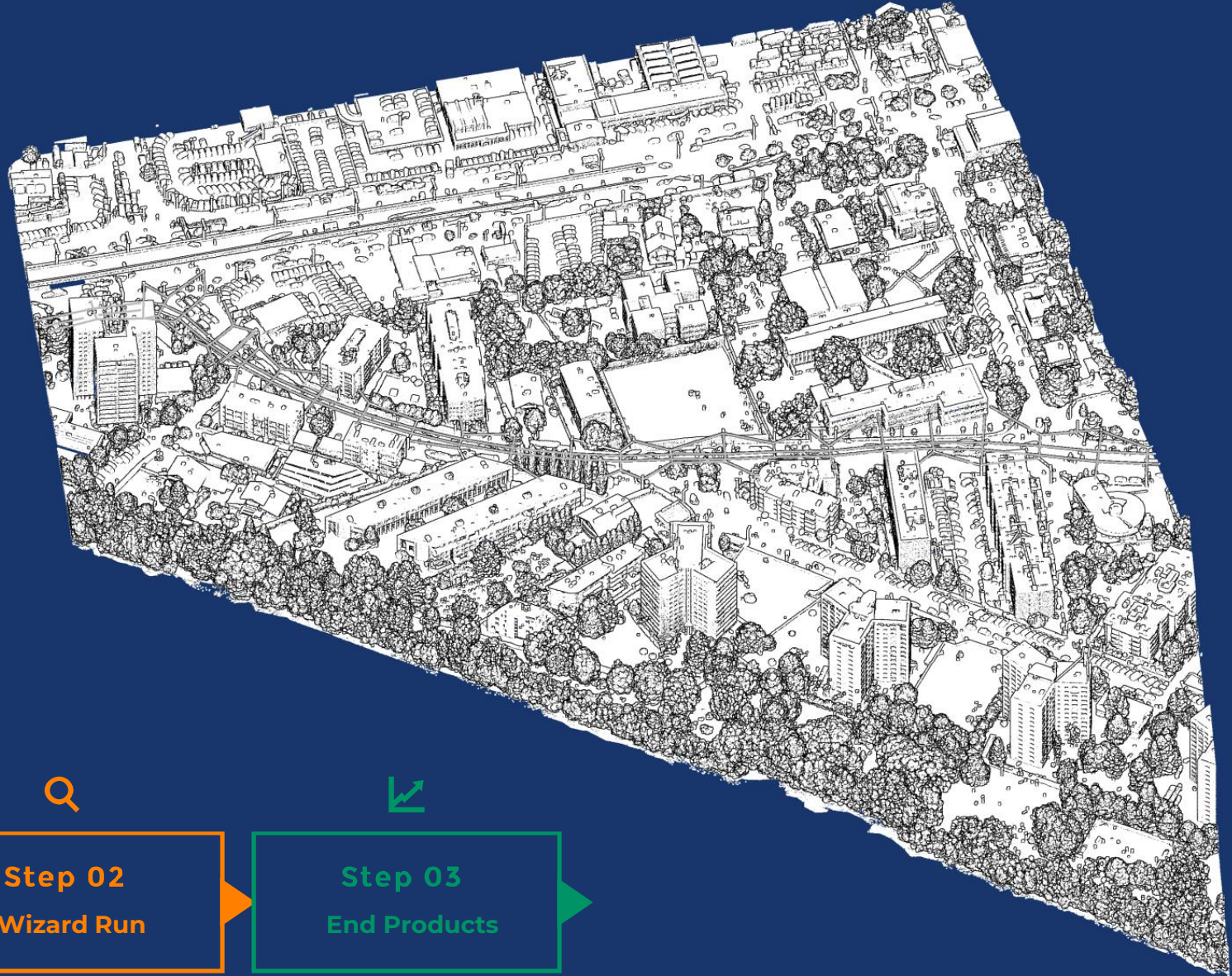
Step 02
Wizard Run

- Combines processing steps to one dialog
- All can be run at once or with manual inspection between steps
- A click away from a DTM export
- A step away from application specific processing

Option	Checked	Settings...
Split trajectory	<input checked="" type="checkbox"/>	Settings...
Match passes	<input checked="" type="checkbox"/>	Settings...
Cut overlap	<input checked="" type="checkbox"/>	Settings...
Smoothen and remove noise	<input checked="" type="checkbox"/>	Settings...
Thin points to inactive	<input checked="" type="checkbox"/>	Settings...
Classify ground	<input checked="" type="checkbox"/>	Settings...
Check ground	<input type="checkbox"/>	
Classify height from ground	<input checked="" type="checkbox"/>	Settings...
Classify above ground features	<input checked="" type="checkbox"/>	Settings...
Copy result to inactive points	<input checked="" type="checkbox"/>	Settings...
Copy result to noise points	<input checked="" type="checkbox"/>	Settings...
OK		Cancel

3 RAW DATA

Step 03
End Results



Step 01
Data Input

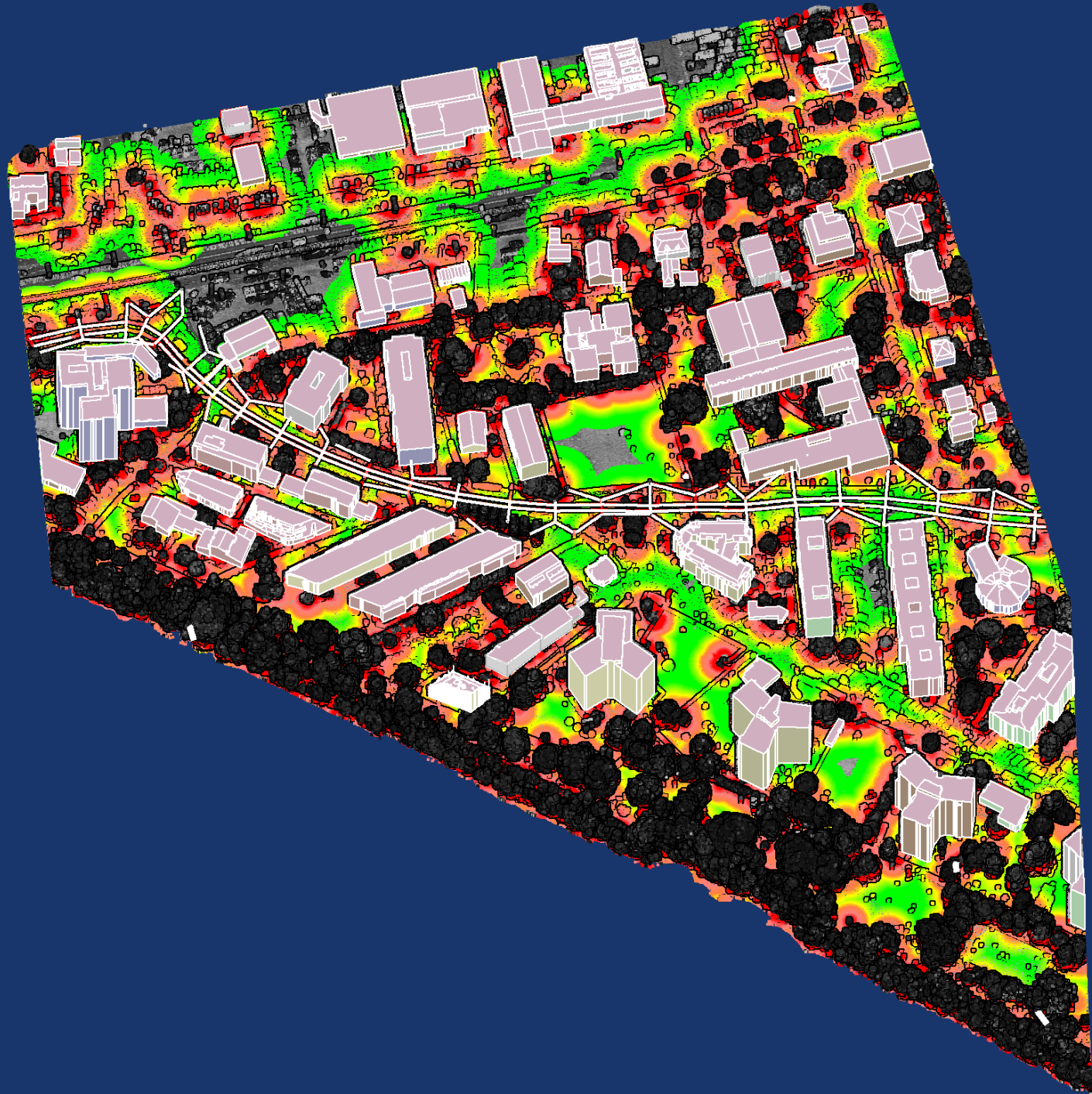
Step 02
Wizard Run

Step 03
End Products

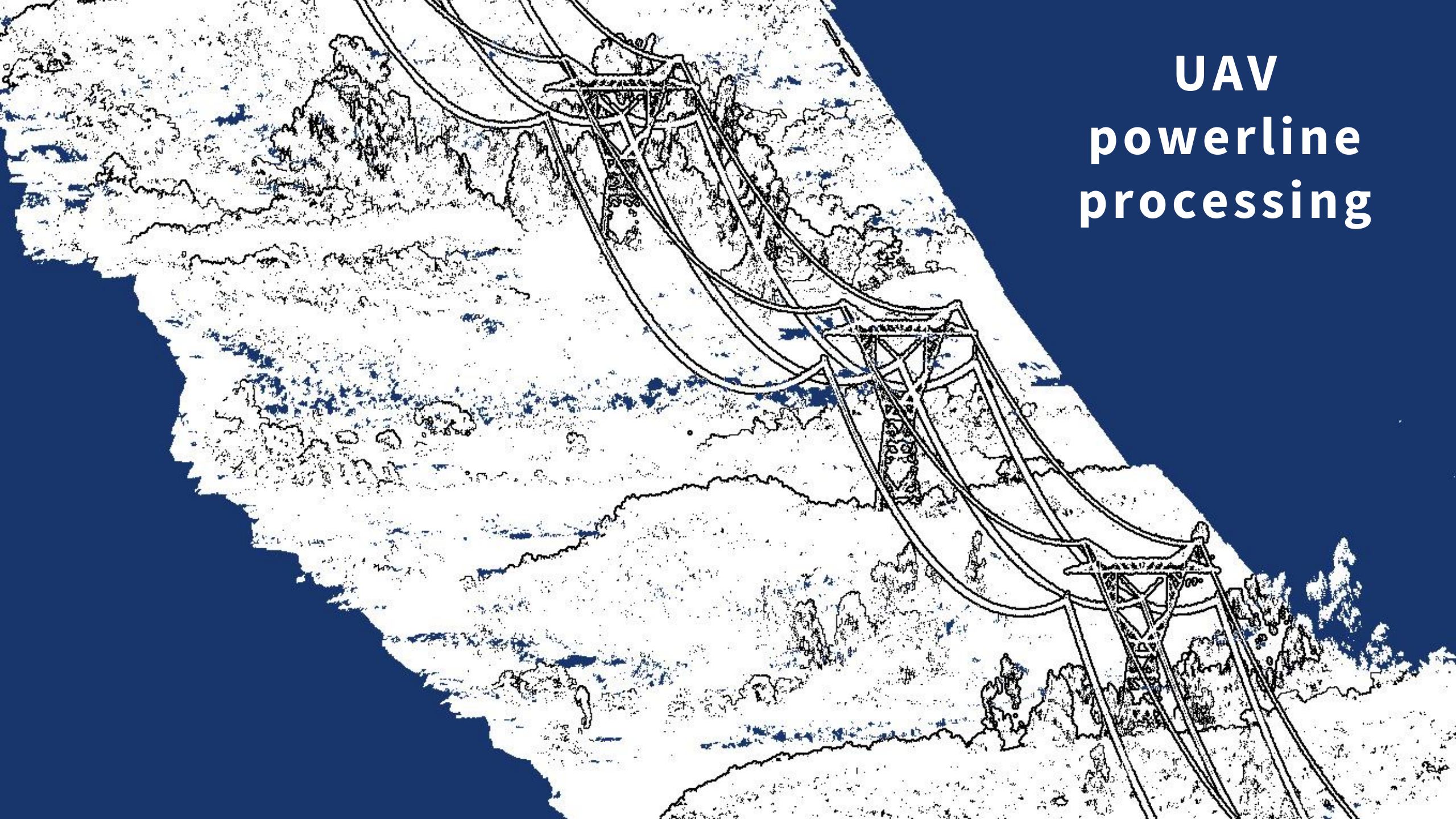
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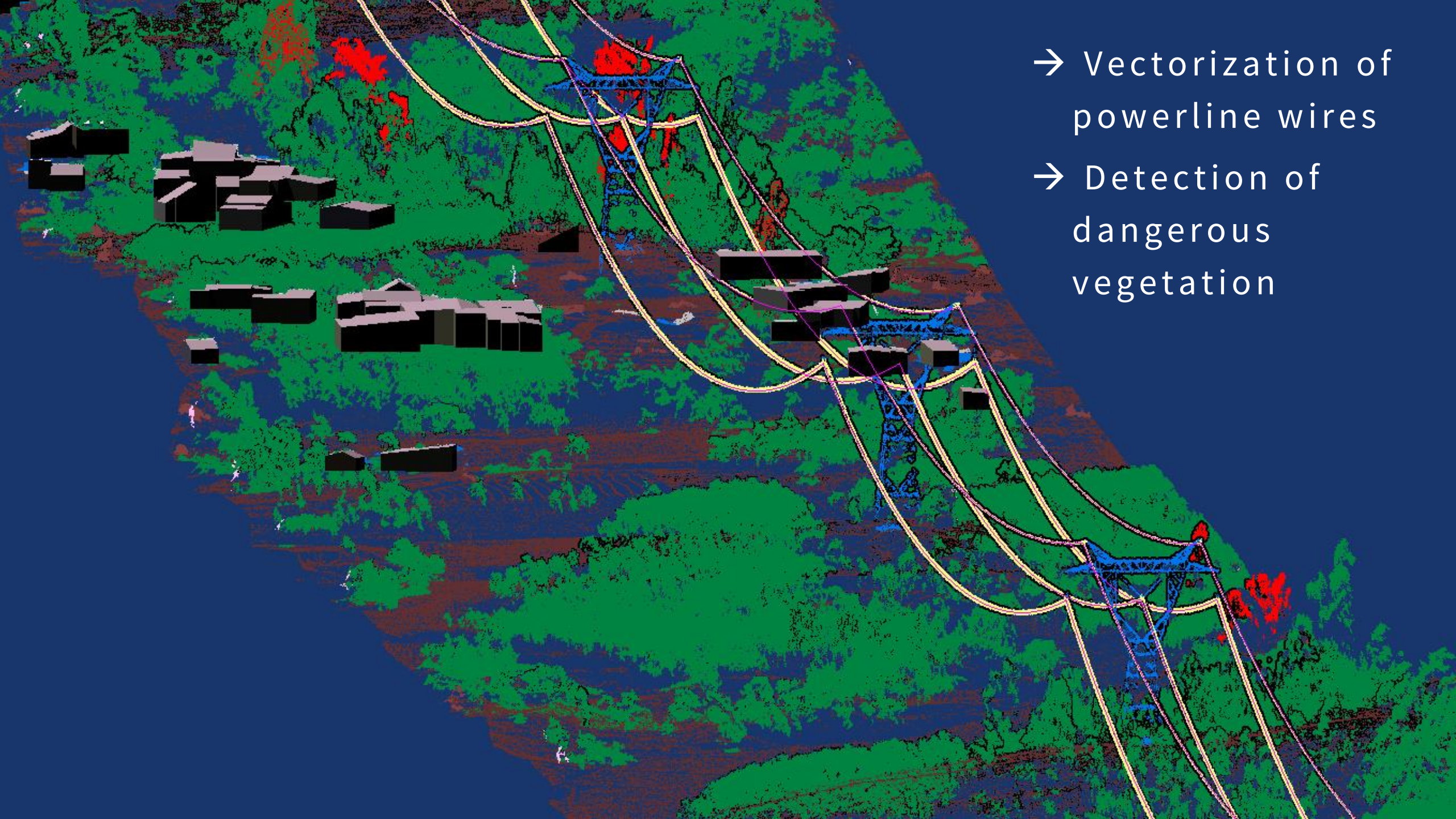


Step 04
Further Processing



UAV powerline processing

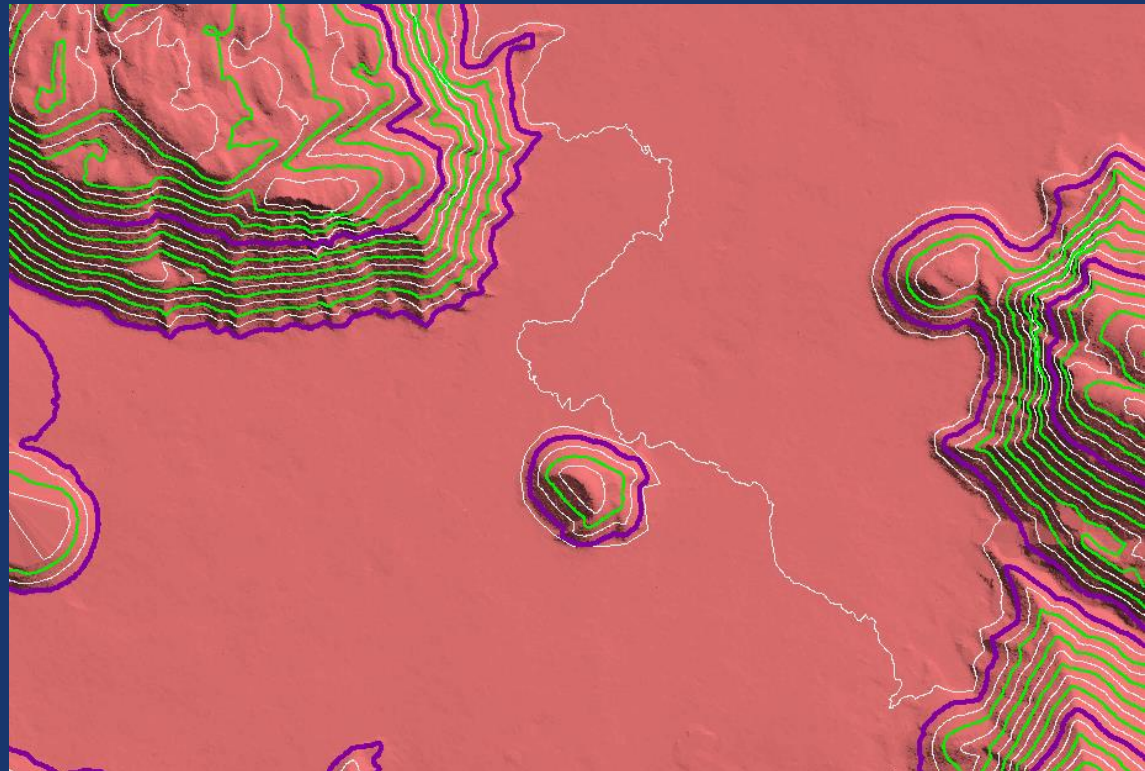
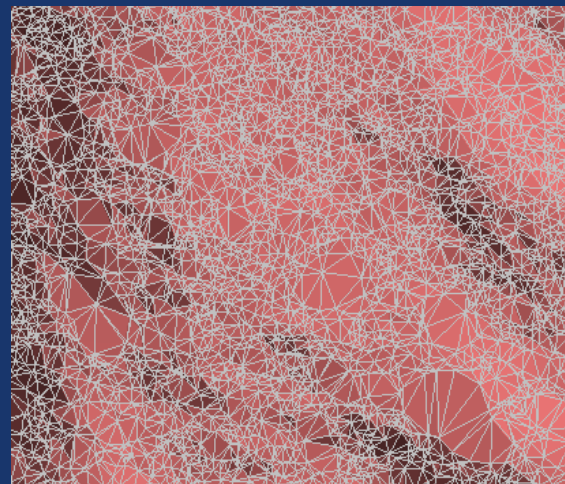
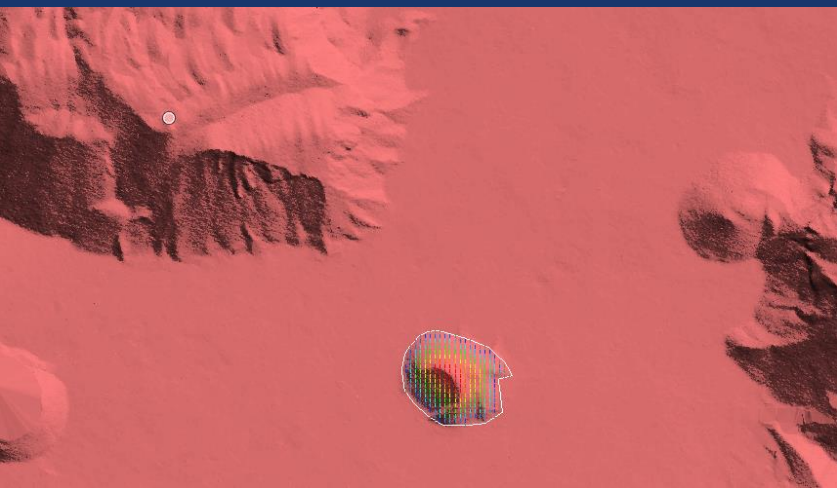
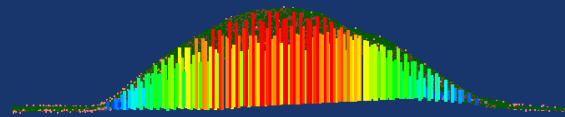
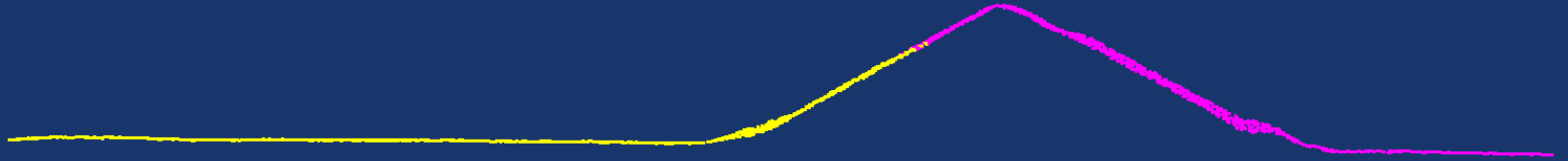
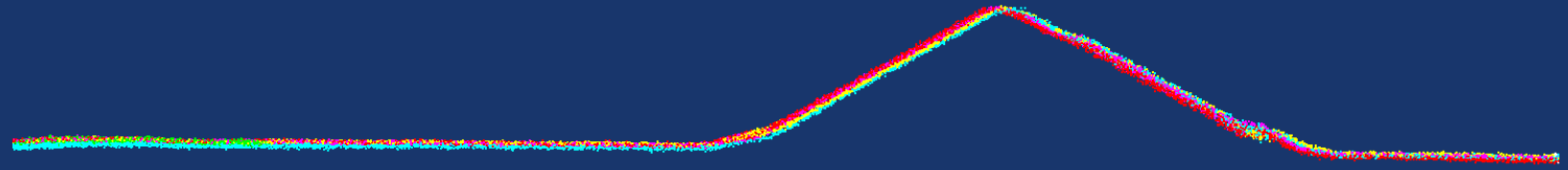




→ Vectorization of powerline wires

→ Detection of dangerous vegetation

Terrain models



HIGHER-PRECISION MAPPING





THANK YOU!

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