

Poles Prediction Map

(Koropi study area)

Version: 0.10



General

This map is a product of Wooden Poles Object Detection project.

The objectives of this project are:

- Detect spatially poles in the study area using aerial imagery.
- Distinguish different types of poles (electrical, lighting, telecommunication poles).
- Evaluate prediction labels with validation labels data.

Validation data were digitized and edited by T.A. Geoforce using aerial imagery 2019. Imagery Data copyright ©NES / Airbus, Maxar Technologies.

T.A. Geoforce used special specifications and criteria for features digitization and labels classification and may be different from the ground truth. The deep learning model is the result of 70%-30% training and validation split data procedure. The training data are not visualized on this map.

Validation study area: 0.6202 km²
Validation study perimeter: 3.8 km

Koropi city is low vegetation and high-class urban area, with maximum 5 floor buildings and very new construction activity. Due buildings density with combination of electricity & telecommunication network complexity, the separation does not clearly distinguish these two classes characteristics. For that reason, poles are characterized as electricity poles as a safe choice.

Evaluation

Overall

Class	Telecommunication pole	Electricity pole	Lighting pole	Average
Precision	0.30	0.44	0.1875	0.40
Recall	0.16	0.50	0.1	0.41
F1	0.21	0.47	0.13	0.40
Count error	-0.467	0.13	-0.46	-0.01
Ground truth	62	271	30	363

Counts

Class	Telecommunication pole	Electricity pole	Lighting pole	Total
Prediction labels count	33	307	16	356
Validation labels count	59	274	30	363

Comments

The model's low precision is caused by:

- the minimum amount of train data
- the low number of training epochs.

The density and distribution of predictions and validation data are very close, sign that the model's chip classification is very efficient. Finally, the validation's data accuracy is not 100%, that's why there are examples that the model is detecting poles , where are not included in the validation data.

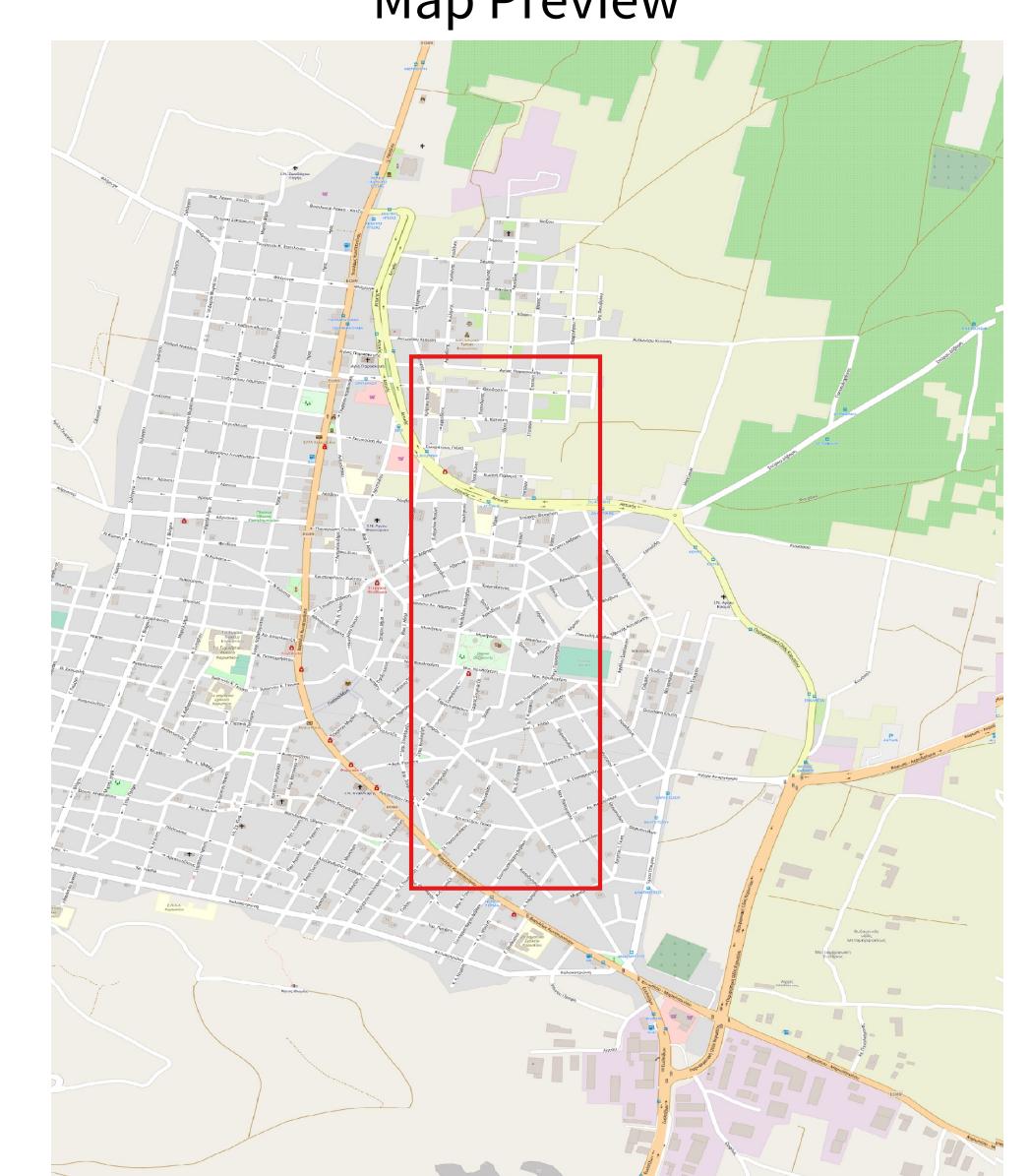
Scale 1: 1000
Coordinate Reference System: WGS '84

Legend

Prediction labels
■ Electricity pole
■ Lighting pole
■ Telecommunication pole

Validation labels
■ Electricity pole
■ Lighting pole
■ Telecommunication pole

Map Preview



Copyright Policy

This map is licensed under the Apache 2 license, quoted below.

Copyright © 2019 T.A. Geoforce <https://tageoforce.com>. All rights reserved.

Licensed under the Apache License, Version 2.0 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Map satellite basemap: Imagery 2019 © NES/ Airbus, Maxar Technologies.

Map preview basemap: © OpenStreetMap contributors.

Contact: info@tageoforce.com