



ICAERUS

Innovations and Capacity building in Agricultural Environmental and Rural UAV Services

Managing Zenodo and GitHub Structure

Tutorial

Esther Vera Moreno (NMN)
Jurrian Doornbos (WU)

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1. Zenodo Template Structure

Small introduction (1-2 lines) about what will be found in the dataset and what is the dataset about (classification, detection, segmentation, for building orthomosaics, parameters). This dataset encompasses the following data:

- Folder: description (number of images / subfolders, type of images, size of images, tables, parameters).
 - Subfolder: description (number of images, type of images, size of images, tables, parameters).
- Folder: description (number of images, type of images, size of images, tables, parameters).

A paragraph explaining the flight conditions or specifications about how this data was collected in detail. This can include: which drone, camera, resolution, other sensors, altitude, where, time when the data was collected, processing parameters,

Possible applications: a description of what you could use this dataset for.

2. Adding a new model to GitHub

UC3_Livestock_Monitoring/

- models/

- 01_cow_detection_v1/

- README.md
- best.pt
- dataset_loader.py
- training_code.py

- 01_cow_detection_v2/

- README.md
- best.pt
- dataset_loader.py
- training_code.py

- 02_sheep_detection_v1/

- README.md
- best.pt
- dataset_loader.py
- training_code.py

2. Adding a new model to GitHub

UC1_Crop_Monitoring / models /			Add file	...
EstherNoumena Renaming folders			ddaf6cd · now	History
Name	Last commit message	Last commit date		
..				
01_plant_disease_detection_yolov8_v1	Renaming folders	now		
02_other_model_test_v1	Renaming folders	now		

2. Adding a new model to GitHub

The main idea is to have the description on the README, the code used for loading the dataset, the code for training and the model itself or the weights. (This may vary and adjusted to each model).

UC1_Crop_Monitoring / models / 01_plant_disease_detection_yolov8_v1 /

EstherNoumena Renaming folders ddaf6cd · now History

Name	Last commit message	Last commit date
..		
README.md	Renaming folders	now
best.pt	Renaming folders	now
plant_disease_detection_yolov8_v1.ipynb	Renaming folders	now

2. Adding a new model to GitHub

MODEL EXAMPLE LINK

- README.md

UC1_Crop_Monitoring / models / 01_plant_disease_detection_yolov8_v1 /

EstherNoumena · Renaming folders · 3 minutes ago · History

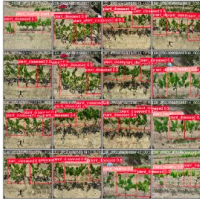
Name	Last commit message	Last commit date
..		
README.md	Renaming folders	2 minutes ago
test.pt	Renaming folders	2 minutes ago
plant_disease_detection_yolov8_v1.pyrb	Renaming folders	2 minutes ago

README.md

Row-view disease detection model with YOLOv8

- **Description:** Row-view disease detection model with YOLOv8. You can find the training and inference [here](#).
- **Dataset:**
- **Input:** Images size (800,800,3)
- **Output:** Labels [0 = diseased, 1 = healthy]
- **Method:** YOLOv8
- **Type:** Detection and classification
- **Date:** 22/12/2023

An example of the performance is shown in the following image:




Authors

- Esther Vera · Noumena · [Esther Vera](#)

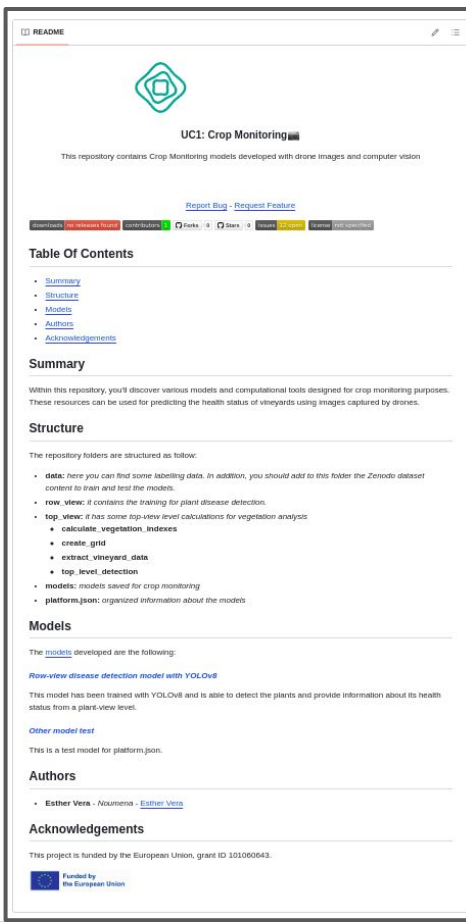
Acknowledgements

This project is funded by the European Union, grant ID 101060643.



3. Main README structure

UC1 GITHUB



3. Main README structure

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Summary

Within this repository, you'll discover various models and computational tools designed for crop monitoring purposes. These resources can be used for predicting the health status of vineyards using images captured by drones.

3. Main README structure

Structure

The repository folders are structured as follow:

- **data:** *here you can find some labelling data. In addition, you should add to this folder the Zenodo dataset content to train and test the models.*
- **top_view:** *it has some top-view level calculations for vegetation analysis*
 - **calculate_vegetation_indexes**
 - **create_grid**
 - **extract_vineyard_data**
 - **top_level_detection**
- **models:** *models saved for crop monitoring*
- **platform.json:** *organized information about the models*

3. Main README structure

- Add references to the models folder and for each model.
- A brief description per model
- Everytime you change a folder or file name, the url pointing to those models should be changed

Models

The [models](#) developed are the following:

Row-view disease detection model with YOLOv8

This model has been trained with YOLOv8 and is able to detect the plants and provide information about its health status from a plant-view level.

Other model test

This is a test model for platform.json.

3. Main README structure

Authors

- Esther Vera - *Noumena* - [Esther Vera](#)

Acknowledgements

This project is funded by the European Union, grant ID 101060643.



Funded by
the European Union

4. Update the *platform.json*

PLATFORM.JSON TEMPLATE

```
[{
  "title": "the title of the algorithm",
  "creator": "the developer/creator of the algorithm",
  "date": "dd/mm/yyyy",
  "icon": "url for an image/icon for the algorithm",
  "url": "url to the path of the github repository",
  "icaerus_applications": ["crop-monitoring", "drone-spraying", "livestock-monitoring", "forestry-and-biodiversity", "rural-logistics"],
  "uses_cases": [1, 2, 3, 4],
  "extra": {
    "key1": "value1",
    "key2": "value2"
  },
  "filters": {
    "content": [
      "Machine learning",
      "Deep learning",
      "Computer vision",
      "Detection",
      "Tracking",
      "Flight control",
      "Path planning",
      "Simulations",
      "Framework",
      "ROS",
      "BVLOS",
      "Networking"
    ],
    "data-type": [
      "RGB images",
      "RGB videos",
      "Hyperspectral/Multispectral images",
      "Thermal",
      "Orthomosaic",
      "Droplet deposition"
    ],
    "subject": [
      "Vineyards",
      "Drone spraying",
      "Drift",
      "Forestry",
      "Fire fuel",
      "Fire prevention",
      "Wild boars",
      "Cattle",
      "Sheep",
      "Other animals"
    ],
    "location": [
      "Spain",
      "Macedonia",
      "Greece",
      "The Netherlands",
      "Lithuania",
      "France"
    ]
  }
}]
```

4. Update the *platform.json*

PLATFORM.JSON TEMPLATE

- Everytime you change the folder, the file name or the image, the url pointing should be updated

```
[{
  "title": "the title of the algorithm",
  "creator": "the developer/creator of the algorithm",
  "date": "dd/mm/YYYY",
  "icon": "uri for an image/icon for the algorithm",
  "url": "url to the path of the github repository"
  "icaerus_applications": ["crop-monitoring", "drone-spraying", "livestock-monitoring", "forestry-and-biodiversity", "rural-logistics"],
  "uses_cases": [1, 2, 3, 4],
  "extra": {
    "key1": "value1",
    "key2": "value2"
  },
},
```


4. Update the *platform.json*

PLATFORM.JSON TEMPLATE

```

"filters":{
  "content": [
    "Machine learning",
    "Deep learning",
    "Computer vision",
    "Detection",
    "Tracking",
    "Flight control",
    "Path planning",
    "Simulations",
    "Framework",
    "ROS",
    "BVLOS",
    "Networking"
  ],
  "data-type": [
    "RGB images",
    "RGB videos",
    "Hyperspectral/Multispectral images",
    "Thermal",
    "Orthomosaic",
    "Droplet deposition",
  ],

```

```

"subject": [
  "Vineyards",
  "Drone spraying",
  "Drift",
  "Forestry",
  "Fire fuel",
  "Fire prevention",
  "Wild boars",
  "Cattle",
  "Sheep",
  "Other animals",
],

"location": [
  "Spain",
  "Macedonia",
  "Greece",
  "The Netherlands",
  "Lithuania",
  "France"
],
}

```

4. Update the *platform.json*

PLATFORM.JSON UC1 EXAMPLE

```
[
  {
    "title": "Plant disease detection with YOLOv8",
    "creator": "Esther Vera",
    "date": "22/12/2023",
    "icon": "https://github.com/ICAERUS-EU/UC1_Crop_Monitoring/assets/148950768/04434b88-4013-4eb2-9af2-a2b07ff77bdc9",
    "url": "https://github.com/ICAERUS-EU/UC1_Crop_Monitoring/tree/main/models/01_plant_disease_detection_yolov8",
    "scaerus_applications": [
      "crop-monitoring"
    ],
    "uses_cases": [
      "1"
    ],
    "extra": {
      "key1": "",
      "key2": ""
    },
    "filters": {
      "content": [
        "Deep learning",
        "Computer vision",
        "Detection"
      ],
      "data-type": [
        "RGB images"
      ],
      "subject": [
        "Vineyards"
      ],
      "location": [
        "Spain"
      ]
    }
  },
  {
    "title": "Other model",
    "creator": "Esther Vera",
    "date": "12/02/2024",
    "icon": "https://github.com/ICAERUS-EU/UC1_Crop_Monitoring/assets/148950768/04434b88-4013-4eb2-9af2-a2b07ff77bdc9",
    "url": "https://github.com/ICAERUS-EU/UC1_Crop_Monitoring/tree/main/models/02_other_model_test",
    "scaerus_applications": [
      "crop-monitoring"
    ],
    "uses_cases": [
      "1"
    ],
    "extra": {
      "key1": "",
      "key2": ""
    },
    "filters": {
      "content": [
        "Deep learning",
        "Computer vision",
        "Detection"
      ],
      "data-type": [
        "RGB images"
      ],
      "subject": [
        "Vineyards"
      ],
      "location": [
        "Spain"
      ]
    }
  }
]
```

4. Update the *platform.json*

