

ML Model Documentation

Model Name: A Spatio-Temporal Deep Learning-Based Crop Classification Model for Satellite Imagery

Description

First place solution for Crop Detection from Satellite Imagery competition organized by CV4A workshop at ICLR 2020. The model architecture consists of 3-layer Conv-net, Masked Features Averaging layer, 3-layer Bi-directional GRU-net and fully connected classification layer. Masked Features Averaging layer is similar to global average pooling but only averages pixels belong to crop field.

Citation

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Creator

Karim Amer <https://www.linkedin.com/in/karim-amer-42188a6b/>

Contact

ml@radiant.earth

Publications

Amer, Karim, and Mohamed Elhelw. "A Spatio-Temporal Deep Learning-Based Crop Classification Model for Satellite Imagery." *AGU Fall Meeting Abstracts*. Vol. 2020. 2020.

Applicable Spatial Extent

The same extent as the training dataset, [ref_african_crops_kenya_02](#) , which is in Western Kenya.

Applicable Temporal Extent

The recommended start/end date of imagery for new inferencing.

Start	End
2019-06-06	2019-11-03

GitHub Repository with Inference/Training Runtimes

<https://github.com/radiantearth/CropDetectionDL>

Related MLHub Dataset

[CV4A Kenya Crop Type Competition](#)

Learning Approach

The learning approach used to train the model. It is recommended that you use one of the values below, but other values are allowed.

- Supervised
- Unsupervised
- Semi-supervised
- Reinforcement-learning
- Other _____

Prediction Type

The type of prediction that the model makes. It is recommended that you use one of the values below, but other values are allowed.

- Object-detection
- Classification
- Segmentation
- Regression
- Other _____

Model Architecture

Identifies the architecture employed by the model. This may be any string identifier, but publishers are encouraged to use well-known identifiers whenever possible.

- CNN
- RNN
- GAN
- Other _____

Training Operating System

Identifies the operating system on which the model was trained.

- Linux
- Windows (win32)



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- Windows (cygwin)
- MacOS (darwin)
- Other _____

Training Processor Type

The type of processor used during training. Must be one of "cpu" or "gpu".

- cpu
- gpu