

TAU-OpenDR Engine Assembly Dataset

The dataset was generated by capturing 195 real images and annotating them with the correct labels (bounding boxes, keypoints and polygons). Further augmentation of the images completes the dataset to around 280,000 images. All tools and scripts to generate and replicate the dataset are provided, as well as the trained model and visualization scripts. More details are given below.

Code and instructions for re-generating the dataset are provided here: <https://github.com/opendr-eu/datasets>

The dataset was developed by Tampere University (TAU) within the H2020 OpenDR Project (<https://opendr.eu/>), which has developed the OpenDR toolkit: <https://github.com/opendr-eu/opendr>

Dataset:

Sampled Images: 195 RGB images present in Dataset/COCO/Images path.

Annotated COCO Json:

Annotated JSON containing Bounding Box, Keypoints, and polygon segmentations.

Trained Model:

Model Folder: It contains trained model named model_final.pth file.

Metrics.json: It contains all the training data example loss, accuracy etc..

Augmentation:

augment.py: Python script containing augmentation code, requires arguments like COCO json file path, coco dataset images directory, and path to the augmentation text file.

SampleAugmentation:

This folder contains some sampled tested augmentations using just 2 transformations.

Augmentations text file:

Please specify transformations using albumentations library, PFB the link below.

Note: each line provides one transformed image per original image.

Link: https://albumentations.ai/docs/api_reference/full_reference/

Visualization:

Presents visualization of annotated images using detectron2.

Visualization.ipynb:

Python notebook presenting the visualization script and some examples.

Visualization.html:

Conversion of python notebook to html format for easy access to the code and plotted images.

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