This directory contains jupyter notebooks and python scripts for analysis of problem described in competition PROBA-V Super Resolution.

Directory structure:

```
tree -L 2
├── Codes
│   ├── EDA_V1.ipynb
│   ├── EDA_V2.ipynb
│   ├── EDA_V3.ipynb
│   ├── SRCNN_test.ipynb
│   ├── SRCNN_train.ipynb
│   ├── Statistical_experimentation.ipynb
│   ├── core
│   ├── generate_median_images.py
│   └── generate_sample_submission.py
├── Data
│   ├── Median_images
│   ├── norm.csv
│   ├── test
│   └── train
├── Result
│   ├── Median_images
│   ├── SRCNN_images
│   ├── mean_sq_err.png
│   └── val_loss.png
└── models
    └── SRCNN
```

Description of each script is as follows:

- EDA_V1.ipynb : Exploratory data analysis of Data directory
- EDA_V1.ipynb: Visualizing given low resolution and high resolution images
- EDA_V3.ipynb : Analyzing the quality of low resolution images(bad pixels, NAN values present etc.)
- Statistical_experimentation.ipynb: Generating super resolution images using central tendency measures.
- SRCNN_train.ipynb : Training on SRCNN.
- SRCNN_test.ipynb : Testing the performance of trained SRCNN network by calculating cPSNR score.
- generate_median_images.py : Script for generating images for training SRCNN.
- generate_sample_submission.py : Utility script for generating submission results on competition website.

Training environment:

Training is done on AWS ec2 instance with Deep learning ami already configured with TensorFlow and Keras 2 on Python 3 with CUDA 10.0 and MKL-DNN.

Local environement:

Local development is done by using kaggel/python docker image.