

SLIC - Semantic Learning for Image Compression

The server files are tested only on windows. There might be a few issues running on Linux/Mac because of varying file separator. (Most of the issues can be resolved by updating `generate_map.py` and `combine_images.py`)

Requirements

Modules required to test

To run the server on local machine, Python 3.6 or above is needed along with the following modules

- flask
- tensorflow
- numpy
- matplotlib
- pillow
- scikit-image
- pandas
- scipy

No other special modules are required for training. Version details for all the modules is available in `requirements.txt` file

How to run

GUI/Server

- Make sure the trained model files are present in models/ folder
- Make sure the folders and files mentioned in the next section are present.
- Run using the following command

```
python3 server.py
```

- The server will be started on localhost:5000

Training

- Make sure you have the dataset downloaded in the data folder along with the pickle files
- Make sure the folders and files mentioned in the next section are present.
- Update [params.py](#), if required
- Run using the following command

```
python3 train_resnet.py
```

- The training will start for 200 epochs by default, with learning rate as 0.001

File structure

- models - contains the trained model file
- static - contains some static CSS, JS, image files
- templates - contains the HTML templates for the website
- combine_images.py - methods to encode using JPEG
- [frameCapture.py](#) - To test video compression by extracting frames
- generate_map.py - methods to generate heatmap and MS-ROI
- get_metrics.py - methods to calculate PSNR, SSIM
- [params.py](#) - params for training
- [README.md](#) - this file
- requirements.txt
- resnet_model.py - model architecture file
- [saveDataNp.py](#) - to improve train performance
- [server.py](#) - flask server
- train_resnet.py - to train resnet
- [util.py](#) - utils functions