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Each folder contains “.ipynb” files stating the Name of the Model, Aim and Results. Each implementation has certain parameters which would be mentioned in the starting of the file. These files also contains GPU and environment information, to enable others to recreate these experiments. One can run each ipynb file independently.

Note 1: SELETED\_VALUES folder contain ipynb file that contain the code for a particular model having all its parameters fixed. (Only these runs will be considered for finally calculating average accuracy values.)

Note 2: For few models average values have been taken but only one or two instance(s) of the run code (.ipynb file) is kept.

Note 3: You need to install 4.5 version of opencv module for all SIFT based approaches: (Running this once per session is enough)

#Req. opencv 4.5+

!pip uninstall opencv-python #for uninstalling older version

!pip install opencv-python

The proposed models are segregated in these 5 Folders:

1. SIFT + KNN:

Contains 4 folders:

1. SIFT\_KNN\_K\_VALUE\_MAX\_KEY\_PADDING:

Contains optimal K value finding code for SIFT + KNN approach (using Max\_key\_pad).

2. SIFT\_KNN\_K\_VALUE\_MIN\_KEY:

Contains optimal K value finding code for SIFT + KNN approach (using Min\_key).

3. SIFT\_KNN\_MAX\_KEY\_PADDING:

Contains code for SIFT+KNN (Max\_key\_padding) for optimal k value

4. SIFT\_KNN\_MIN\_KEY:

Contains code for SIFT+KNN (Min\_key) for optimal k value

2. SIFT + SVM:

1. SIFT\_SVM\_MAX\_KEY\_PADDING:

Contains code for SIFT+SVM (Max\_key\_padding) approach

1. SIFT\_SVM\_MIN\_KEY:

Contains code for SIFT+SVM (Min\_key) approach

3. SIFT + ANN:

1. SIFT\_ANN\_MAX\_KEY\_PADDING:

SIFT+ANN (Max\_key\_padding) with various learning rate and epoch combinations.

SELETED\_VALUES folder contain ipynb file that contain the code for SIFT\_ANN\_MAX\_KEY\_PADDING model having all its parameters fixed. (Only these runs will be considered for finally calculating average accuracy values.)

2. SIFT\_ANN\_MIN\_KEY:

SIFT+ANN (Min\_key\_padding) with various learning rate and epoch combinations.

SELETED\_VALUES folder contain ipynb file that contain the code for SIFT\_ANN\_MIN\_KEY model having all its parameters fixed. (Only these runs will be considered for finally calculating average accuracy values.)

4. CNN\_DRAFT\_SELECTION:

Contains various learning rate and epoch combinations or both CNN\_DRAFT\_1 and CNN\_DRAFT\_2. And a separate run for CNN\_DRAFT\_2 (Refer Report).

Folder with the name “Tests for CNN\_DRAFT\_2 with 2 and 3 dense layers (excl. output layer)” contains test runs to demonstrate that increasing the number of dense layer doesn’t increase the accuracy of the model significantly. (Refer model summary)

SELETED\_VALUES folder contain ipynb file that contain the code for CNN\_DRAFT\_SELECTION model having all its parameters fixed. (Only these runs will be considered for finally calculating average accuracy values.)

5. CLAHE:

Consists of all combinatory models:

1. SIFT+ KNN (Min\_key) using CLAHE
2. SIFT+KNN (Max\_key\_padding) using CLAHE
3. SIFT+SVM (Min\_key) using CLAHE
4. SIFT+SVM (Max\_key\_padding) using CLAHE
5. SIFT+ANN (Min\_key) using CLAHE
6. SIFT+ANN (Max\_key\_padding) using CLAHE
7. CLAHE+CNN\_DRAFT\_2