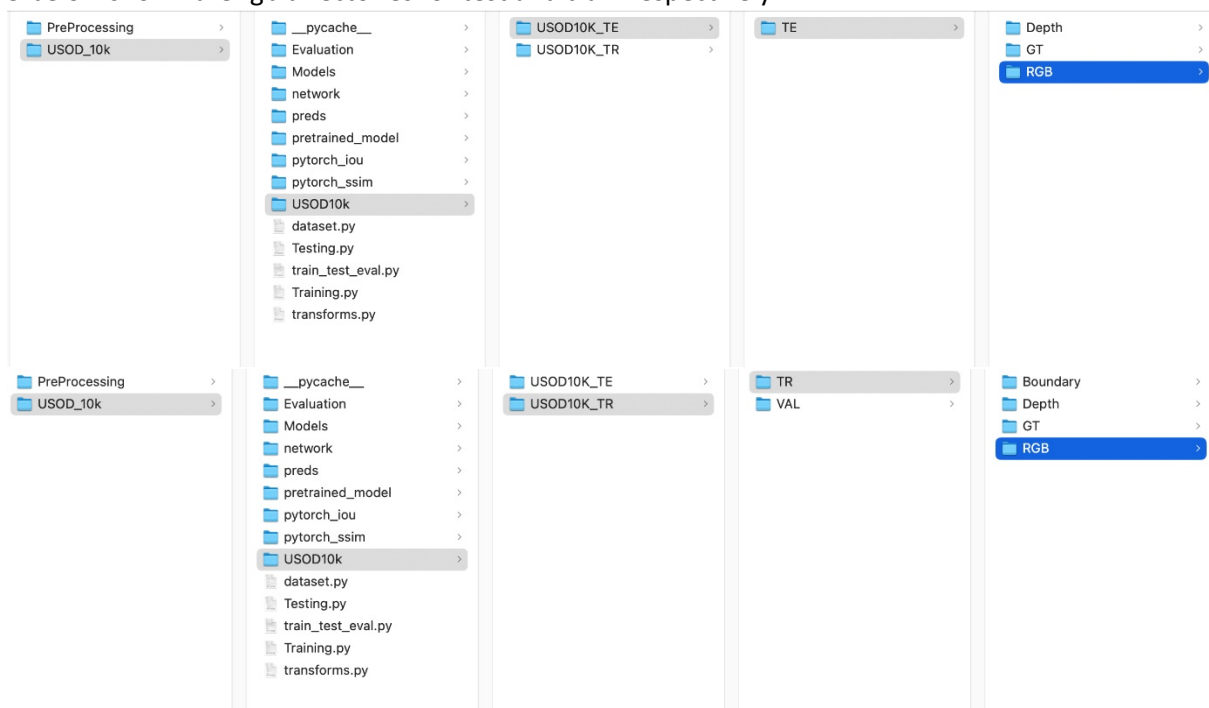
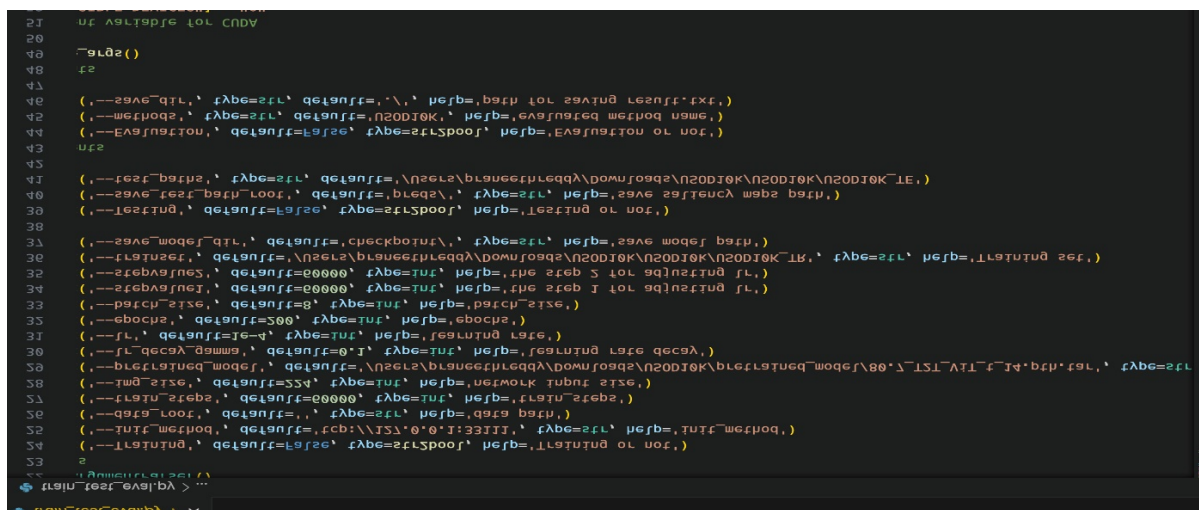


- 1.first go to preprocessing folder which is in the codes folder now to the main.m file
- 2.now change the directories of your inputs RGB images that need to be preprocessed [color fusion and enhancement]
- 3.now store the enhanced images in the output directory mentioned in main.m  

```
% set input and output directories
inputFolder = '/Users/praneethreddy/Downloads/USOD10k/USOD10k/USOD10K_TE/TE/RGB';
outputFolder = '/Users/praneethreddy/Downloads/D1/output_te';
```
4. now store the outputs as required for USOD Code as shown below
- 5.below shown are rgb directories for test and train respectively



- 6.now go to the directory in which train\_test\_eval.py is there and open it change the paths where ever you stored the required pretrained model, trainset,testset ..etc



7. after setting all the directories and all the requirements for training testing evaluation at a time run the below command

```
python3 train_test_eval.py --Training 1 --Testing 1 --Evaluation 1 > log/loss.log &
```

8.

```
:/home/USOD10k_2# python3 train_test_eval.py --Training 1 --Testing 1 --Evaluation 1 > log/loss.log &
```

9. then after you can see epochs are running like below

for checking last 300 lines use this command

```
tail -f -n 5 log/loss.log
```

```
root@iit:/home/USOD10k_2 -- ssh attunurip@10.250.101.55
whole_iter_num: 8918 --- 0.9420 --- total_loss: 13.414548 --- bce loss: 0.637312 --- e loss: 1.025336
whole_iter_num: 8919 --- 0.9431 --- total_loss: 13.333829 --- bce loss: 0.635137 --- e loss: 0.989778
whole_iter_num: 8920 --- 0.9443 --- total_loss: 13.658703 --- bce loss: 0.629851 --- e loss: 1.068687
whole_iter_num: 8921 --- 0.9454 --- total_loss: 15.403211 --- bce loss: 0.645419 --- e loss: 1.002643
whole_iter_num: 8922 --- 0.9465 --- total_loss: 13.813672 --- bce loss: 0.637168 --- e loss: 1.038928
whole_iter_num: 8923 --- 0.9476 --- total_loss: 13.903922 --- bce loss: 0.638468 --- e loss: 0.998111
whole_iter_num: 8924 --- 0.9487 --- total_loss: 14.135058 --- bce loss: 0.644136 --- e loss: 0.973196
whole_iter_num: 8925 --- 0.9498 --- total_loss: 13.576781 --- bce loss: 0.643968 --- e loss: 1.025945
whole_iter_num: 8926 --- 0.9509 --- total_loss: 14.654517 --- bce loss: 0.629310 --- e loss: 1.071784
whole_iter_num: 8927 --- 0.9521 --- total_loss: 14.050865 --- bce loss: 0.626217 --- e loss: 1.029453
whole_iter_num: 8928 --- 0.9532 --- total_loss: 13.897047 --- bce loss: 0.650803 --- e loss: 0.933699
whole_iter_num: 8929 --- 0.9543 --- total_loss: 14.654517 --- bce loss: 0.665165 --- e loss: 0.923846
whole_iter_num: 8930 --- 0.9554 --- total_loss: 13.132347 --- bce loss: 0.622499 --- e loss: 1.061176
whole_iter_num: 8931 --- 0.9565 --- total_loss: 12.655477 --- bce loss: 0.645261 --- e loss: 0.954601
whole_iter_num: 8932 --- 0.9576 --- total_loss: 13.444117 --- bce loss: 0.609651 --- e loss: 1.126025
whole_iter_num: 8933 --- 0.9588 --- total_loss: 12.898547 --- bce loss: 0.632499 --- e loss: 0.992172
whole_iter_num: 8934 --- 0.9599 --- total_loss: 14.163046 --- bce loss: 0.632499 --- e loss: 0.944192
whole_iter_num: 8935 --- 0.9610 --- total_loss: 12.853951 --- bce loss: 0.655339 --- e loss: 1.179002
whole_iter_num: 8936 --- 0.9621 --- total_loss: 14.163046 --- bce loss: 0.607709 --- e loss: 1.145011
whole_iter_num: 8937 --- 0.9632 --- total_loss: 13.127161 --- bce loss: 0.606922 --- e loss: 1.032131
whole_iter_num: 8938 --- 0.9643 --- total_loss: 13.635107 --- bce loss: 0.636041 --- e loss: 1.126148
whole_iter_num: 8939 --- 0.9654 --- total_loss: 12.726273 --- bce loss: 0.607990 --- e loss: 0.974799
whole_iter_num: 8940 --- 0.9666 --- total_loss: 13.376040 --- bce loss: 0.645931 --- e loss: 0.985903
whole_iter_num: 8941 --- 0.9677 --- total_loss: 14.210673 --- bce loss: 0.639473 --- e loss: 1.071147
whole_iter_num: 8942 --- 0.9688 --- total_loss: 13.625788 --- bce loss: 0.621514 --- e loss: 1.153964
whole_iter_num: 8943 --- 0.9699 --- total_loss: 14.210673 --- bce loss: 0.630832 --- e loss: 0.909877
whole_iter_num: 8944 --- 0.9710 --- total_loss: 13.625788 --- bce loss: 0.654725 --- e loss: 0.934726
whole_iter_num: 8945 --- 0.9721 --- total_loss: 14.680049 --- bce loss: 0.652847 --- e loss: 1.109496
whole_iter_num: 8946 --- 0.9732 --- total_loss: 12.912962 --- bce loss: 0.609236 --- e loss: 1.062717
whole_iter_num: 8947 --- 0.9744 --- total_loss: 13.776265 --- bce loss: 0.629162 --- e loss: 0.849234
whole_iter_num: 8948 --- 0.9755 --- total_loss: 14.397865 --- bce loss: 0.671412 --- e loss: 1.110623
whole_iter_num: 8949 --- 0.9766 --- total_loss: 12.600859 --- bce loss: 0.608355 --- e loss: 0.943581
whole_iter_num: 8950 --- 0.9777 --- total_loss: 14.096679 --- bce loss: 0.647085 --- e loss: 1.139660
whole_iter_num: 8951 --- 0.9788 --- total_loss: 13.179414 --- bce loss: 0.611404 --- e loss: 0.886041
whole_iter_num: 8952 --- 0.9799 --- total_loss: 14.669308 --- bce loss: 0.653069 --- e loss: 1.128945
whole_iter_num: 8953 --- 0.9810 --- total_loss: 13.749640 --- bce loss: 0.617117 --- e loss: 0.999597
whole_iter_num: 8954 --- 0.9822 --- total_loss: 13.358132 --- bce loss: 0.648656 --- e loss: 1.089267
whole_iter_num: 8955 --- 0.9833 --- total_loss: 14.409875 --- bce loss: 0.653440 --- e loss: 0.934299
whole_iter_num: 8956 --- 0.9844 --- total_loss: 12.952634 --- bce loss: 0.596373 --- e loss: 0.957429
whole_iter_num: 8957 --- 0.9855 --- total_loss: 13.031050 --- bce loss: 0.608477 --- e loss: 1.185593
whole_iter_num: 8958 --- 0.9866 --- total_loss: 13.100767 --- bce loss: 0.607967 --- e loss: 1.125404
whole_iter_num: 8959 --- 0.9877 --- total_loss: 13.424906 --- bce loss: 0.607967 --- e loss: 1.139660
whole_iter_num: 8960 --- 0.9889 --- total_loss: 13.962014 --- bce loss: 0.650787 --- e loss: 0.886041
whole_iter_num: 8961 --- 0.9900 --- total_loss: 14.008411 --- bce loss: 0.645708 --- e loss: 0.952846
whole_iter_num: 8962 --- 0.9911 --- total_loss: 12.977508 --- bce loss: 0.619952 --- e loss: 0.986258
whole_iter_num: 8963 --- 0.9922 --- total_loss: 13.333904 --- bce loss: 0.630197 --- e loss: 1.068918
whole_iter_num: 8964 --- 0.9933 --- total_loss: 13.125684 --- bce loss: 0.630474 --- e loss: 1.020259
whole_iter_num: 8965 --- 0.9944 --- total_loss: 13.138375 --- bce loss: 0.617722 --- e loss: 1.043894
whole_iter_num: 8966 --- 0.9955 --- total_loss: 12.979497 --- bce loss: 0.620256 --- e loss: 1.083778
whole_iter_num: 8967 --- 0.9967 --- total_loss: 14.034346 --- bce loss: 0.656875 --- e loss: 1.074192
whole_iter_num: 8968 --- 0.9978 --- total_loss: 13.482658 --- bce loss: 0.621133 --- e loss: 0.931327
whole_iter_num: 8969 --- 0.9989 --- total_loss: 13.572515 --- bce loss: 0.652144 --- e loss: 1.074450
whole_iter_num: 8970 --- 1.0000 --- total_loss: 13.466271 --- bce loss: 0.644456 --- e loss: 0.919252
Epoch finished ! Loss: 13.719996100520757
Starting epoch 11/200
epoch: 11 --- lr: 0.0001
root@iit:/home/USOD10k_2#
```

10. after 200 epochs u can see testing procedure has started that can be seen below

11. after 60000 Whole iternumber check point will be saved as UVST.pth

```
whole_iter_num: 59969 --- 0.8048 --- total_loss: 13.499423 --- bce loss: 0.647876 --- e loss: 0.938275
whole_iter_num: 59970 --- 0.8051 --- total_loss: 13.434415 --- bce loss: 0.642585 --- e loss: 0.938612
whole_iter_num: 59971 --- 0.8053 --- total_loss: 12.964916 --- bce loss: 0.636328 --- e loss: 0.940377
whole_iter_num: 59972 --- 0.8054 --- total_loss: 13.128073 --- bce loss: 0.644217 --- e loss: 1.011239
whole_iter_num: 59973 --- 0.8084 --- total_loss: 13.091476 --- bce loss: 0.643386 --- e loss: 0.932375
whole_iter_num: 59974 --- 0.8095 --- total_loss: 12.616163 --- bce loss: 0.647721 --- e loss: 0.914696
whole_iter_num: 59975 --- 0.8086 --- total_loss: 13.592085 --- bce loss: 0.618868 --- e loss: 1.066468
whole_iter_num: 59976 --- 0.8629 --- total_loss: 12.175953 --- bce loss: 0.644199 --- e loss: 0.894322
whole_iter_num: 59977 --- 0.8648 --- total_loss: 12.488484 --- bce loss: 0.619662 --- e loss: 0.940863
whole_iter_num: 59978 --- 0.8651 --- total_loss: 12.371328 --- bce loss: 0.606525 --- e loss: 1.066358
whole_iter_num: 59979 --- 0.8662 --- total_loss: 12.529736 --- bce loss: 0.623635 --- e loss: 1.166569
whole_iter_num: 59981 --- 0.8673 --- total_loss: 12.723641 --- bce loss: 0.636848 --- e loss: 0.974994
whole_iter_num: 59982 --- 0.8685 --- total_loss: 13.435351 --- bce loss: 0.628881 --- e loss: 1.068935
whole_iter_num: 59983 --- 0.8707 --- total_loss: 12.574854 --- bce loss: 0.654828 --- e loss: 0.982659
whole_iter_num: 59984 --- 0.8718 --- total_loss: 13.087758 --- bce loss: 0.689164 --- e loss: 1.185453
whole_iter_num: 59985 --- 0.8729 --- total_loss: 12.506569 --- bce loss: 0.654538 --- e loss: 0.893528
whole_iter_num: 59986 --- 0.8740 --- total_loss: 12.957270 --- bce loss: 0.627892 --- e loss: 1.085383
whole_iter_num: 59987 --- 0.8751 --- total_loss: 12.726444 --- bce loss: 0.633282 --- e loss: 0.999680
whole_iter_num: 59988 --- 0.8763 --- total_loss: 13.783867 --- bce loss: 0.678635 --- e loss: 0.782651
whole_iter_num: 59989 --- 0.8774 --- total_loss: 13.291338 --- bce loss: 0.682325 --- e loss: 1.173597
whole_iter_num: 59990 --- 0.8785 --- total_loss: 12.696916 --- bce loss: 0.664481 --- e loss: 0.846825
whole_iter_num: 59991 --- 0.8796 --- total_loss: 12.631577 --- bce loss: 0.613832 --- e loss: 1.082253
whole_iter_num: 59992 --- 0.8807 --- total_loss: 12.273543 --- bce loss: 0.609863 --- e loss: 1.117185
whole_iter_num: 59993 --- 0.8818 --- total_loss: 12.394924 --- bce loss: 0.594778 --- e loss: 1.182649
whole_iter_num: 59994 --- 0.8829 --- total_loss: 12.384519 --- bce loss: 0.622185 --- e loss: 1.125930
whole_iter_num: 59995 --- 0.8841 --- total_loss: 12.556894 --- bce loss: 0.628884 --- e loss: 1.054795
whole_iter_num: 59996 --- 0.8852 --- total_loss: 12.614848 --- bce loss: 0.612829 --- e loss: 1.084697
whole_iter_num: 59997 --- 0.8863 --- total_loss: 13.363996 --- bce loss: 0.632852 --- e loss: 0.989390
whole_iter_num: 59998 --- 0.8874 --- total_loss: 12.840129 --- bce loss: 0.654544 --- e loss: 0.902638
whole_iter_num: 59999 --- 0.8885 --- total_loss: 12.785737 --- bce loss: 0.624722 --- e loss: 1.052679
whole_iter_num: 60000 --- 0.8896 --- total_loss: 12.785737 --- bce loss: 0.628025 --- e loss: 1.054638

Model loaded from /home/USOD10k_2/pretrained_model/80_7_T2T_ViT_t_14.pth.tar
adopt transformer encoder for tokens-to-token
Model loaded from /home/USOD10k_2/pretrained_model/80_7_T2T_ViT_t_14.pth.tar
checkpoint/UVST.pth
Model loaded from checkpoint/UVST.pth

Starting testing:
dataset:
Testing size: 1026

dataset: cost:76.81131293282883
eval[MAE]:/home/USOD10k_2/USOD10k/USOD10k_TE/TE dataset with USOD10k_2 method.
eval[FMeasure]:/home/USOD10k_2/USOD10k/USOD10k_TE/TE dataset with USOD10k_2 method.
eval[AP]:/home/USOD10k_2/USOD10k/USOD10k_TE/TE dataset with USOD10k_2 method.
eval[AUC]:/home/USOD10k_2/USOD10k/USOD10k_TE/TE dataset with USOD10k_2 method.
eval[EMeasure]:/home/USOD10k_2/USOD10k/USOD10k_TE/TE dataset with USOD10k_2 method.
eval[SMeasure]:/home/USOD10k_2/USOD10k/USOD10k_TE/TE dataset with USOD10k_2 method.
[cost:2576.84626] /home/USOD10k_2/USOD10k/USOD10k_TE/TE (USOD10k_2): 0.0238 mae || 0.9087 max-fm || 0.8946 mean-fm || 0.9561 max-Emeasure || 0.9516 mean-Emeasure || 0.9116 S-measure || 0.89
63 AP || 0.9638 AUC.
root@lit:/home/USOD10k_2#
```

12. now evaluation metrics can be seen as result.txt now attaching the below results for our model

```
-- root@lit:/home/USOD10k_2 -- ssh attunurip@10.250.101.55
root@lit:/home/USOD10k_2 -- ssh attunurip@10.250.101.55
/home/USOD10k_2/USOD10k/USOD10k_TE/TE (USOD10k_2): 0.1527 mae || 0.8682 max-fm || 0.7171 mean-fm || 0.9419 max-Emeasure || 0.8247 mean-Emeasure || 0.7350 S-measure || 0.8360 AP || 0.96
7 AUC.
/home/USOD10k_2/USOD10k/USOD10k_TE/TE (USOD10k_2): 0.0228 mae || 0.9147 max-fm || 0.9021 mean-fm || 0.9613 max-Emeasure || 0.9568 mean-Emeasure || 0.9149 S-measure || 0.8953 AP || 0.96
/home/USOD10k_2/USOD10k/USOD10k_TE/TE (USOD10k_2): 0.0238 mae || 0.9087 max-fm || 0.8946 mean-fm || 0.9561 max-Emeasure || 0.9516 mean-Emeasure || 0.9116 S-measure || 0.8963 AP || 0.9638 AU
C.
```

13. now in the zip 30\_dl\_code iam keeping preproccesing and USOD\_10k code preproccesing includes color enhancement matlabcode and USOD\_10k has data sets pretrained model evaluation testing training in python files

