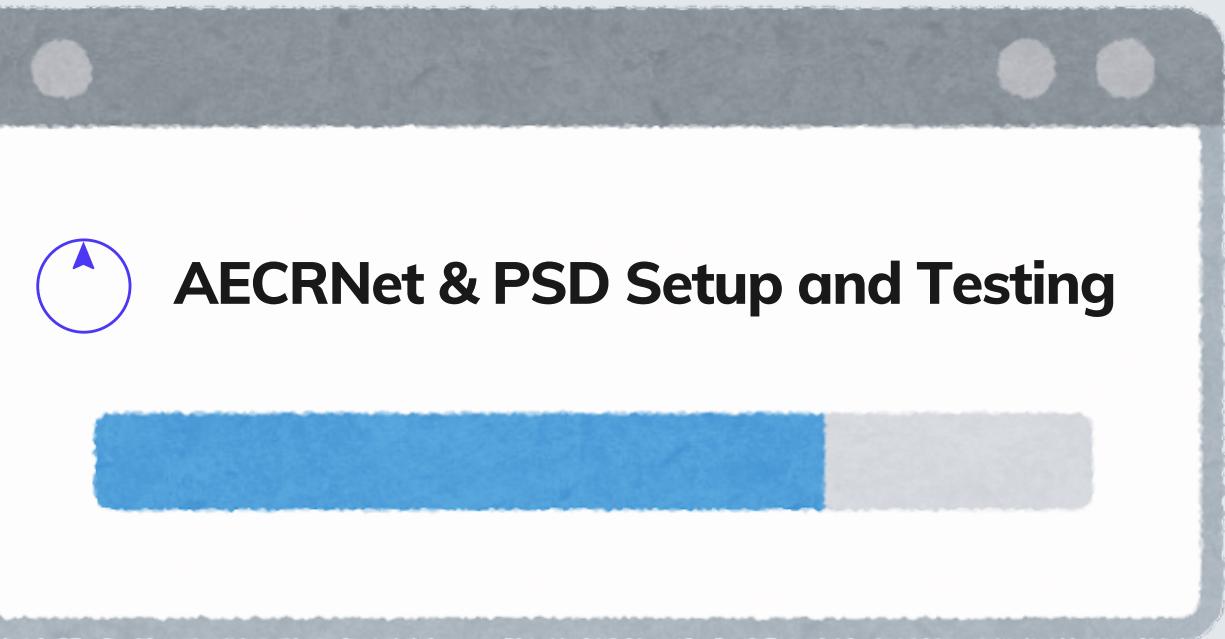


Progress Report

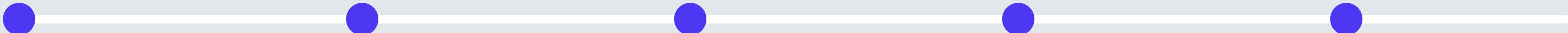
January 14, 2022

JOHN BENEDICT DU





Progress So Far



01

Train & Test RESIDE
Dataset on UNet

02

Study & Get AECRNet
to Work

03

Test RESIDE Dataset
on AECRNet

04

Study & Get Principled
S2R Dehazing to
Work

05

Test PSD Pretrained
Models



01

Train & Test RESIDE
Dataset on UNet

Training Results



100% | 4509/4509 [1:29:35<00:00, 1.19it/s, MSELoss=0.00337]

1: train_loss = 0.0033703100614858616, test_loss = 0.02690415237378329

100% | 4509/4509 [52:00<00:00, 1.45it/s, MSELoss=0.00158]

2: train_loss = 0.00158192764462001, test_loss = 0.023417626614682375

100% | 4509/4509 [1:09:27<00:00, 1.08it/s, MSELoss=0.00113]

3: train_loss = 0.0011257231258095292, test_loss = 0.020947122629731894

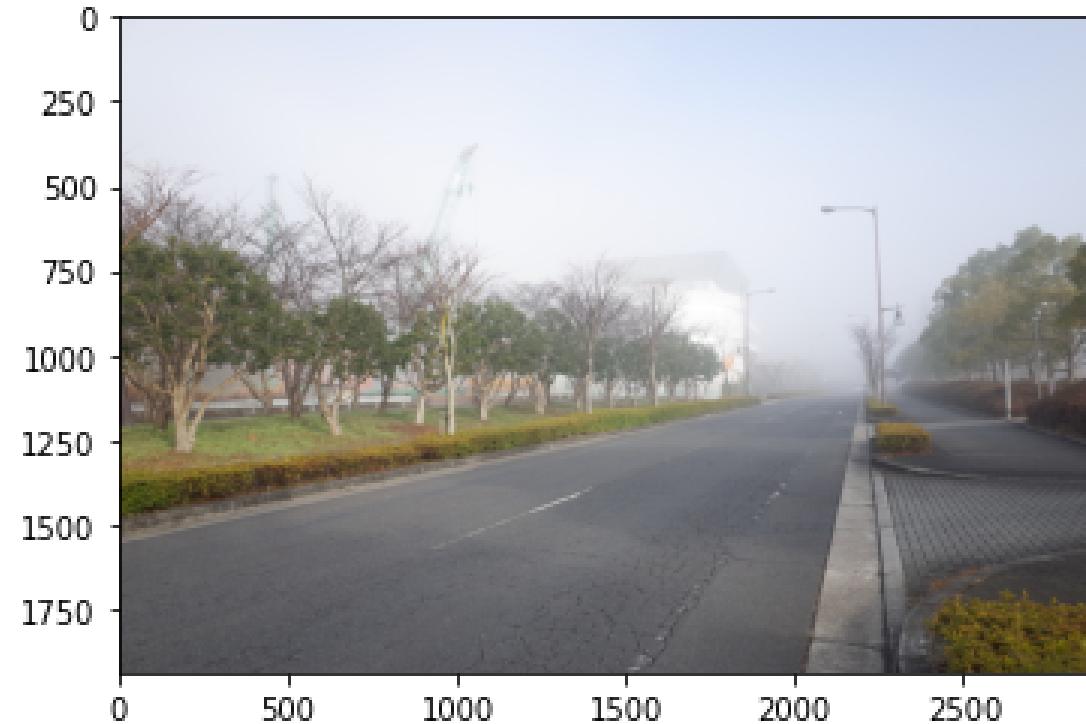
100% | 4509/4509 [44:59<00:00, 1.67it/s, MSELoss=0.000899]

4: train_loss = 0.0008990263292854288, test_loss = 0.02198259266000241

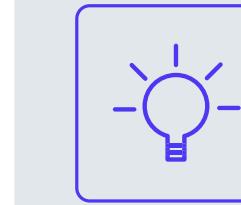
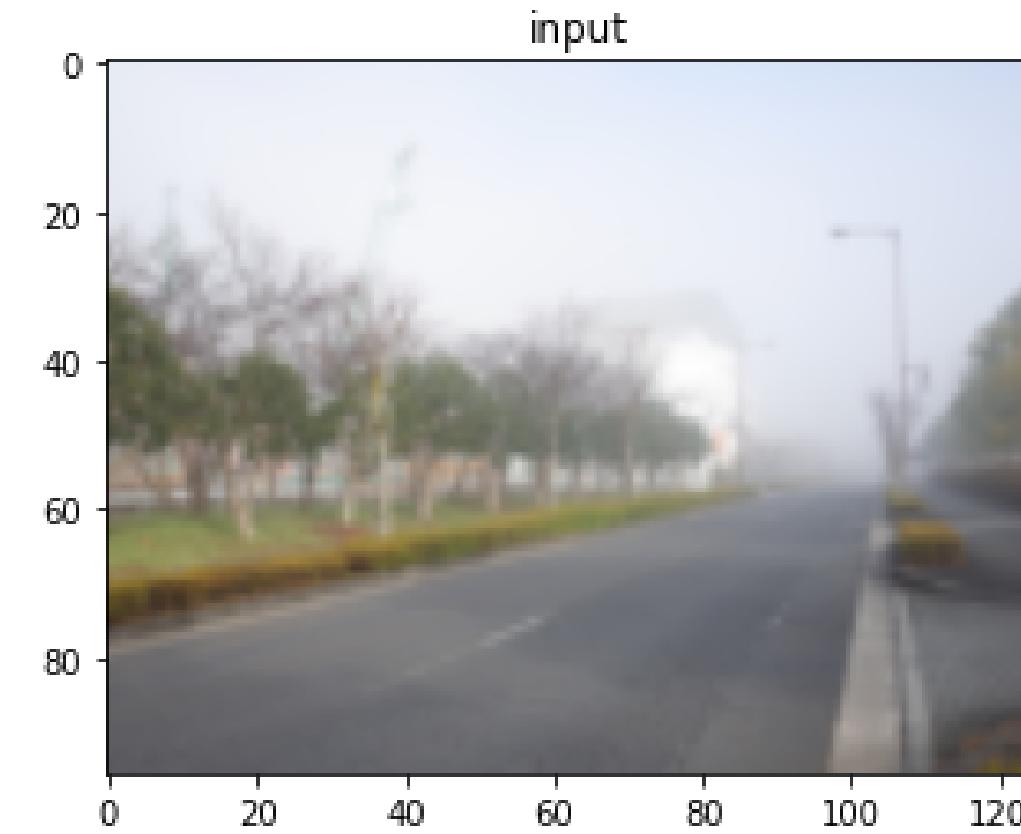
100% | 4509/4509 [49:54<00:00, 1.51it/s, MSELoss=0.000756]

5: train_loss = 0.0007560352785879946, test_loss = 0.023325972576625643

Original Image

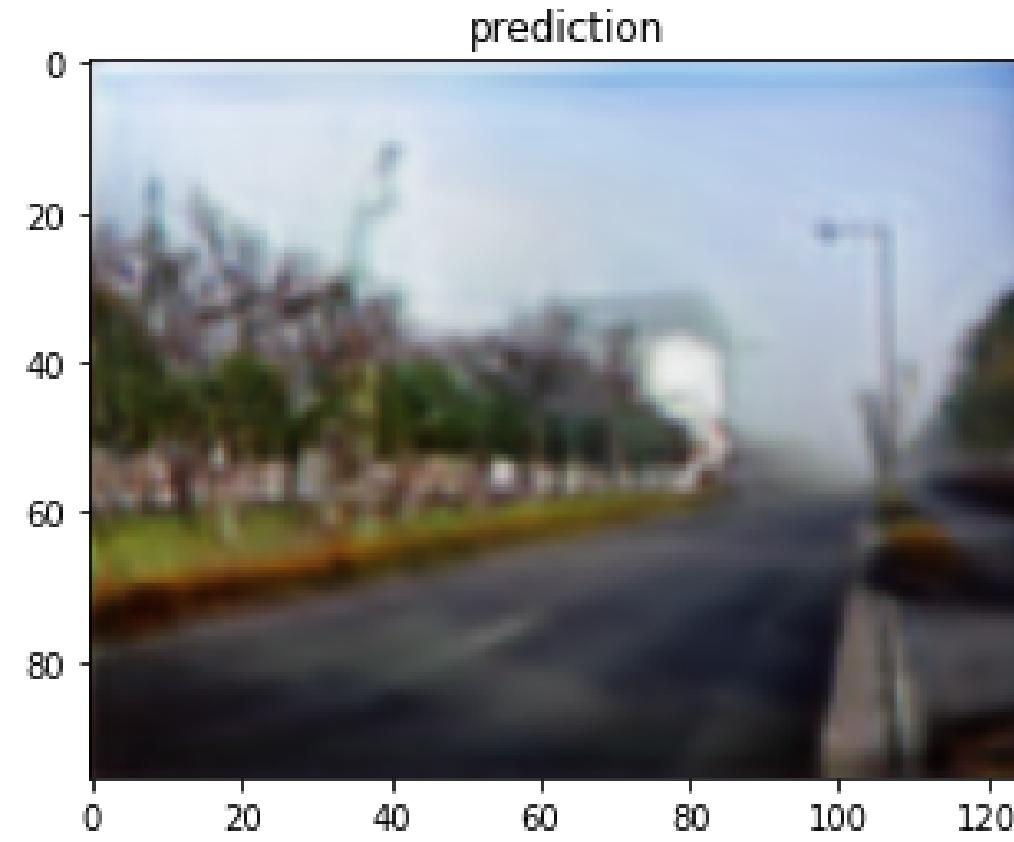


Input

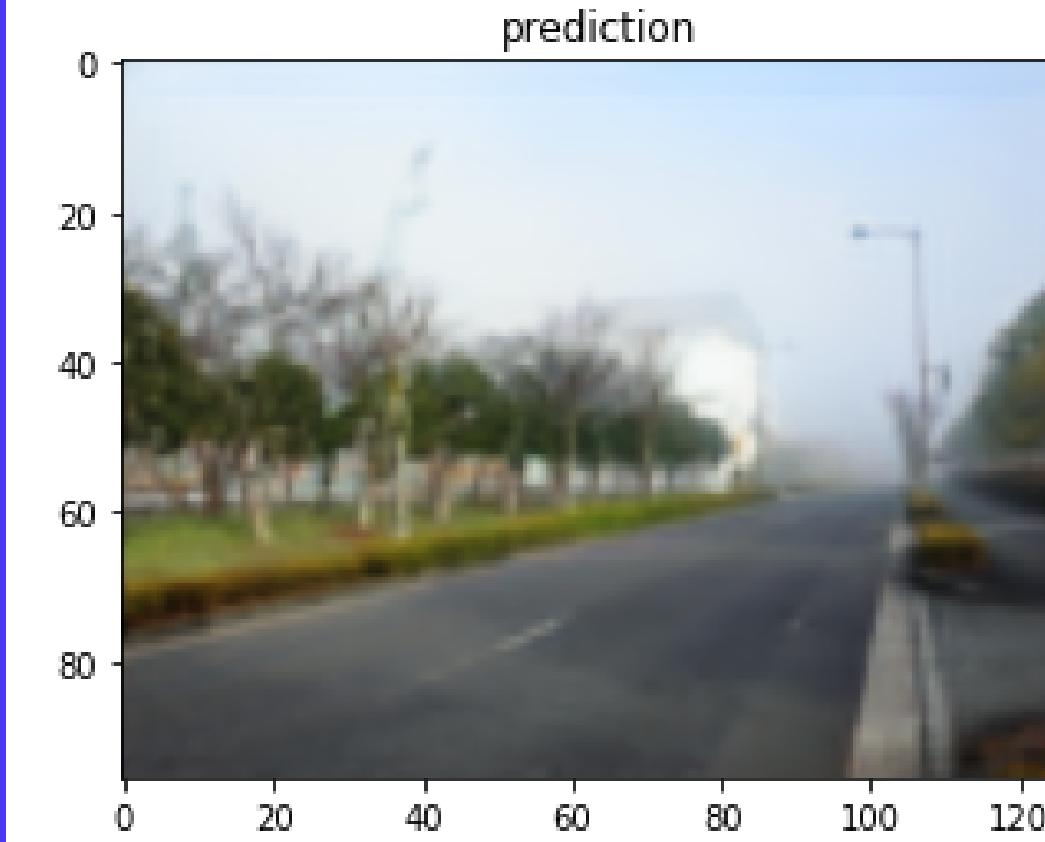


01
Train & Test
RESIDE Dataset
on UNet

Original Dataset



RESIDE Dataset



AECRNet Setup

Missing Modules

- deconv
- DCNv2

deconv

[https://github.com/yechengxi/
deconvolution](https://github.com/yechengxi/deconvolution)

DCNv2

[https://github.com/jinfagang/
DCNv2_latest](https://github.com/jinfagang/DCNv2_latest)

DCNv2 Setup

- NVIDIA CUDA Toolkit is required
- Run terminal w/ admin in DCNv2 folder
and execute:

```
python setup.py build develop --user
```

Training & Testing

- Run Jupyter notebook as administrator
- RESIDE dataset for training



03

Test RESIDE Dataset on AECRNet

Training Results



```
0%| | 0/4509 [00:00<?, ?it/s]D:\NAIST\Proj\deconv\models\deconv.py:305: UserWarning: This overload of addmm is
      addmm(Number beta, Tensor input, Number alpha, Tensor mat1, Tensor mat2, *, Tensor out)
Consider using one of the following signatures instead:
      addmm(Tensor input, Tensor mat1, Tensor mat2, *, Number beta, Number alpha, Tensor out) (Triggered
rch\csrc\utils\python_arg_parser.cpp:1025.)
  Cov = torch.addmm(self.eps, Id, 1. / X.shape[0], X.t(), X)
100%| | 4509/4509 [1:28:20<00:00, 1.18s/it, MSELoss=0.00747]
```



```
1: train_loss = 0.007470459224475292, test_loss = 0.022357574785593897
100%| | 4509/4509 [51:46<00:00, 1.45it/s, MSELoss=0.00294]
```



```
2: train_loss = 0.0029417823343918822, test_loss = 0.027451496018096804
100%| | 4509/4509 [1:08:54<00:00, 1.09it/s, MSELoss=0.00215]
```



```
3: train_loss = 0.002146455644982886, test_loss = 0.021380720484536143
100%| | 4509/4509 [43:35<00:00, 1.72it/s, MSELoss=0.0016]
```



```
4: train_loss = 0.0016048347070533515, test_loss = 0.022263601581100374
100%| | 4509/4509 [49:42<00:00, 1.51it/s, MSELoss=0.00124]
```

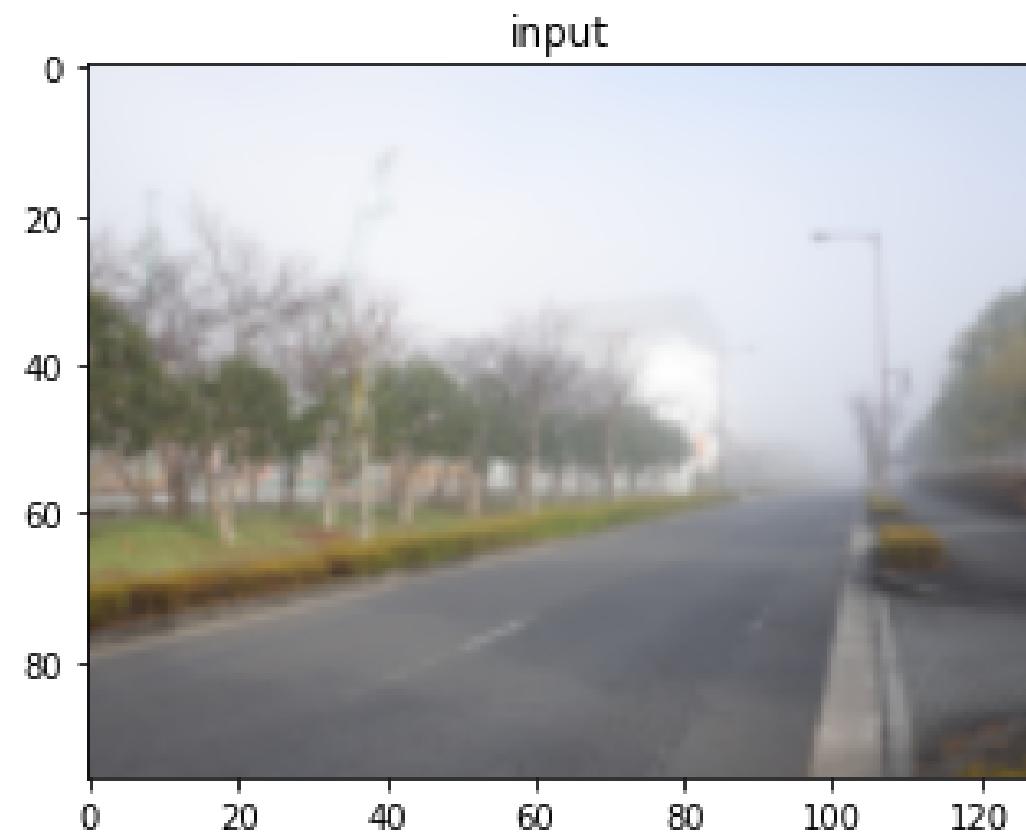


```
5: train_loss = 0.0012353309126557188, test_loss = 0.020639119562692942
```

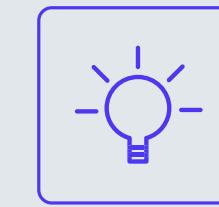
Original Image



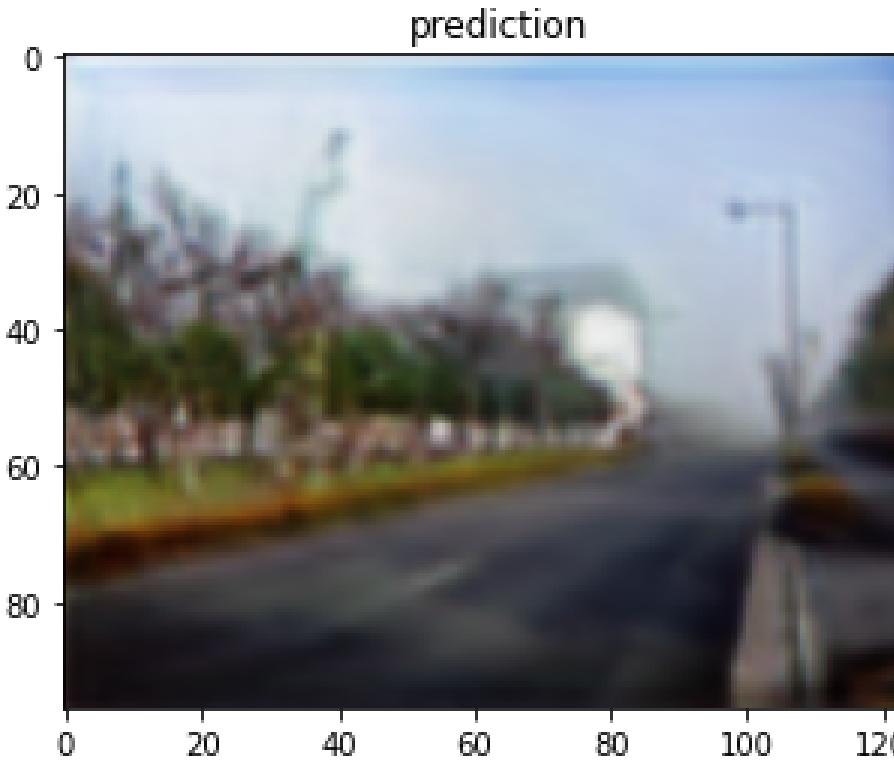
Input



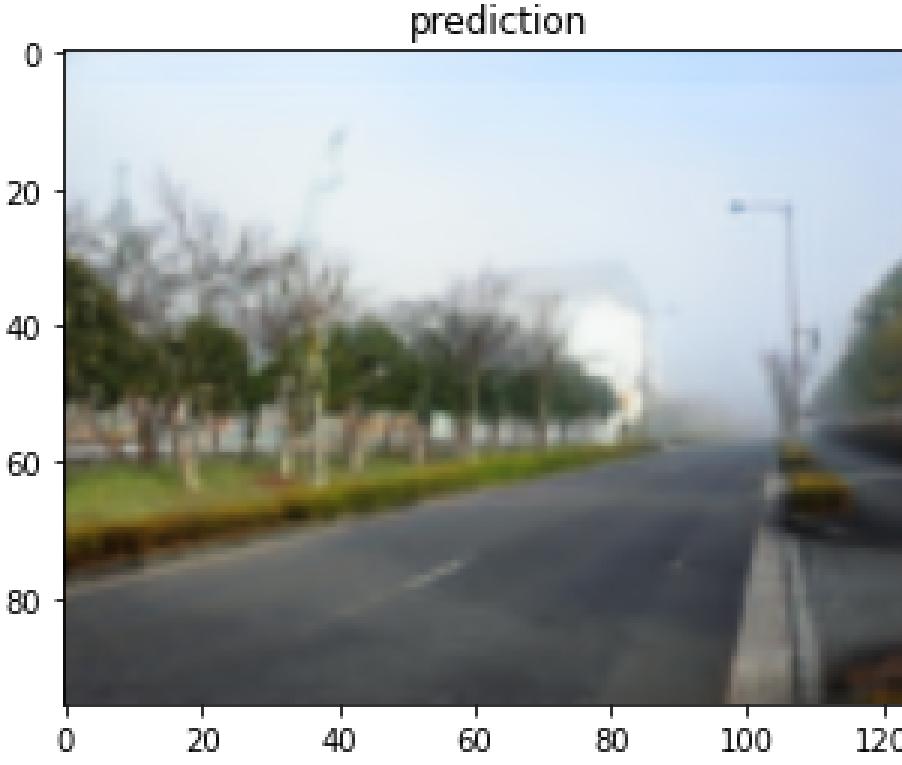
03
Test RESIDE
Dataset on
AECRNet



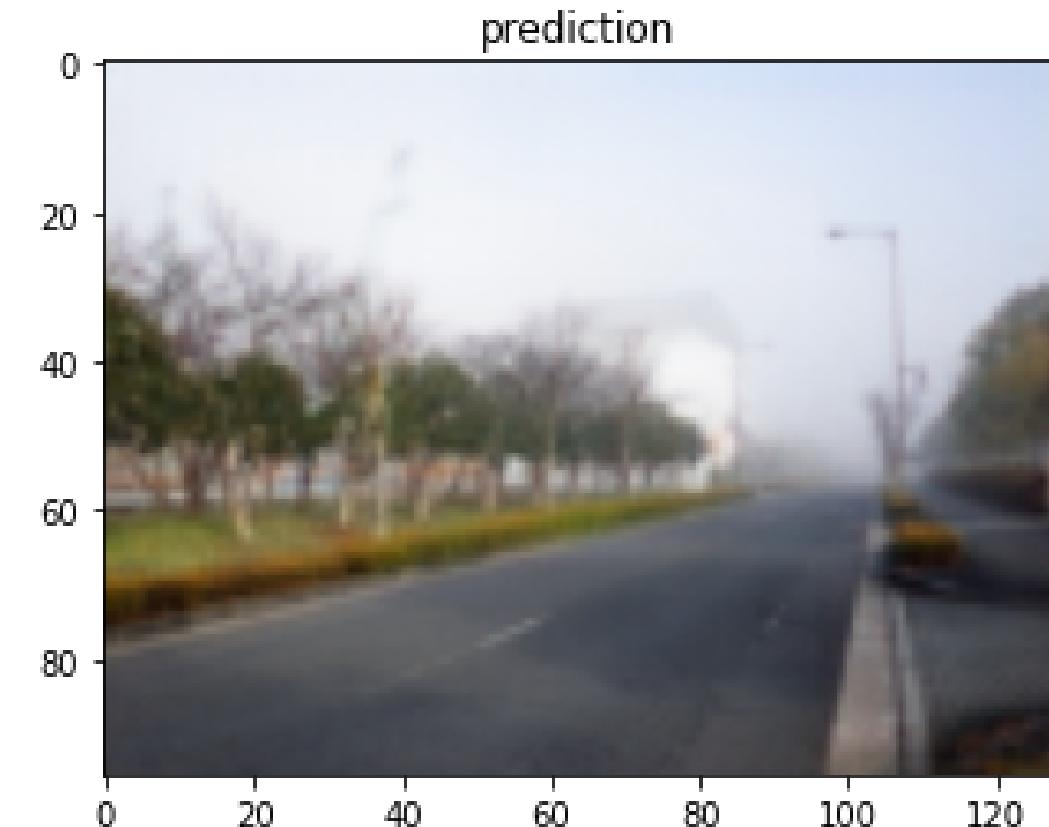
UNet w/ Original Dataset



UNet w/ RESIDE



AECRNet w/ RESIDE



PSD Setup

Testing

- The test.py file is hard coded, and the default code is for the testing FFANET model.
- If the program reports an error when going through A-Net.

Made Test Files for each Pre-trained RESIDE OTS Models

- MSBDN
- FFANET
- GCANET

Test Dataset was Hardcoded

<https://www.kaggle.com/zekunn/merge-label-unlabel/data>

Testing Test Dataset

- Disabled A-Net for FFANET & MSBDN (only for testing).
- Used the hardcoded Test Dataset
- Outputs predictions to a selected directory

PSD-FFANET



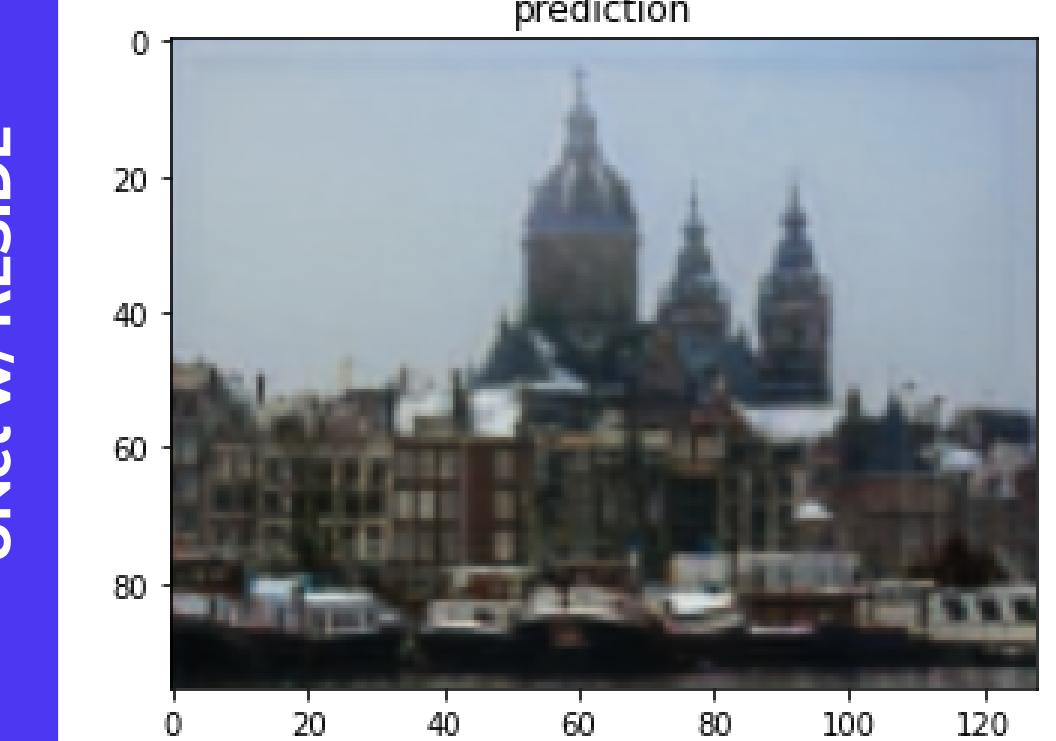
Original Image



PSD-GCANET



UNet w/ RESIDE



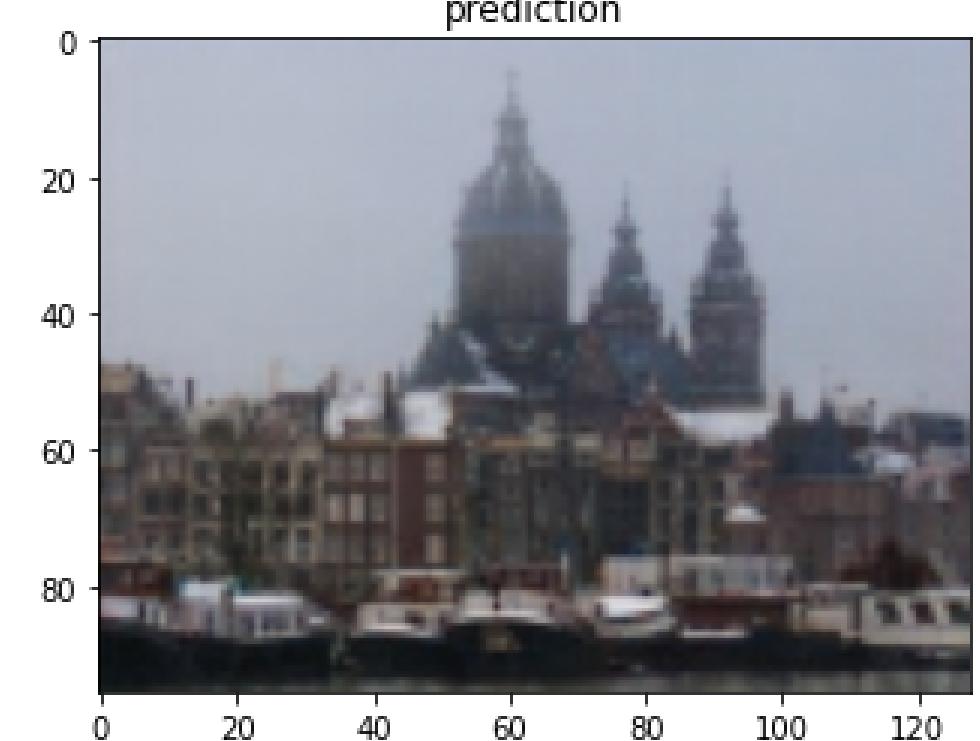
05

Test PSD Pretrained Models

PSD-MSBDN



AECRNet w/ RESIDE



Project Plan

JAN 8 - 11	JAN 12 - 14	JAN 15 - 17	JAN 18 - 19	JAN 20 - 21
Setup Local Python Environment	Study & Get AECR-Net to Work		Testing & Debugging	
Download RESIDE Dataset	Study & Get Principled S2R Dehazing to Work		Data Gathering	
	Modify AECR-Net to work as PSD backbone		Code Clean Up & Documentation	
	Train with Model RESIDE Dataset			Final Report

Thank you!

