

Machine Learning Final Project DeHazing

Bo4901069 林志皓

Bo4901072 劉雨東

Bo4901104 吳添聚

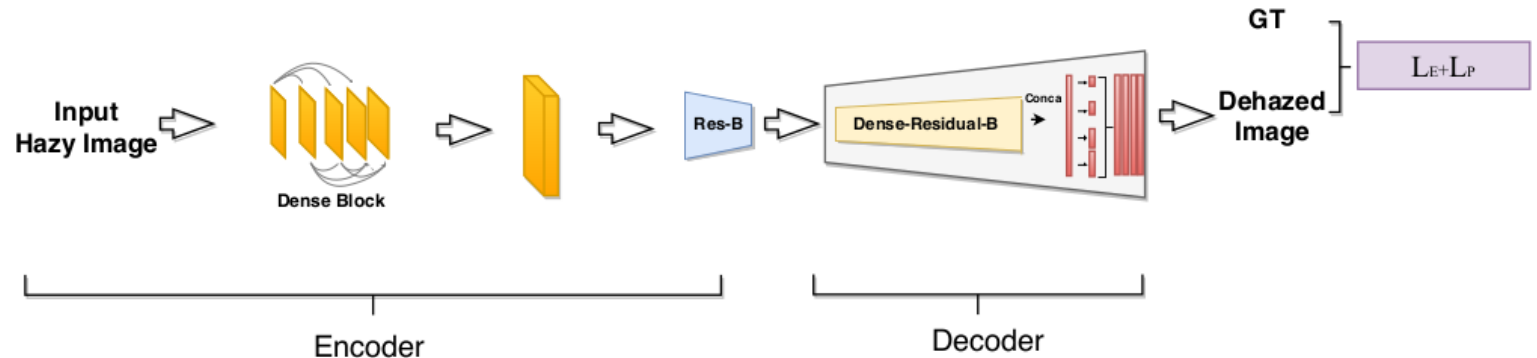
Method

Base on "Multi-scale Single Image Dehazing using Perceptual Pyramid Deep Network"

Focus on post-processing.

Multi-scale Single
Image Dehazing using
Perceptual Pyramid
Deep Network, 2018

- Model Structure :



- Dense connection
- Trainde on cropped pairs
- Multi-scale ensemble inference

Postprocessing method

Patch ensemble

Special process on specific image

General postprocessing network

Patch ensemble

- Flip input patch.
- Use "CUBIC" method on image resizing.
- Try ensemble methods different from original work.
- Whether to transform data type to uint8 before storing image influence scores a lot.

Special
process on
specific image

- Only focus on testing image 7 & 10.
- These two is obviously bad.

Image 7

- Training image 5 and testing image 7 is same scene.
- It is obvious that original output's tone is strange.



Training data 5



Original output

Solution

- We use histogram matching to fix this problem, using training image 5 as reference image.



Before histogram matching



After histogram matching

Image 10

- Compare with training data 25, original output is quite gloomy.
- The ground of training data is yellow, but the group of output image is bluish.



Training data 25



Original output

Solution

- Since training image 25 and testing image 10 main color is quite different, match histogram is not appropriate in this case.
- Instead, we divide three channel of output image with three constants such that means of three channel is same (85 in our work).



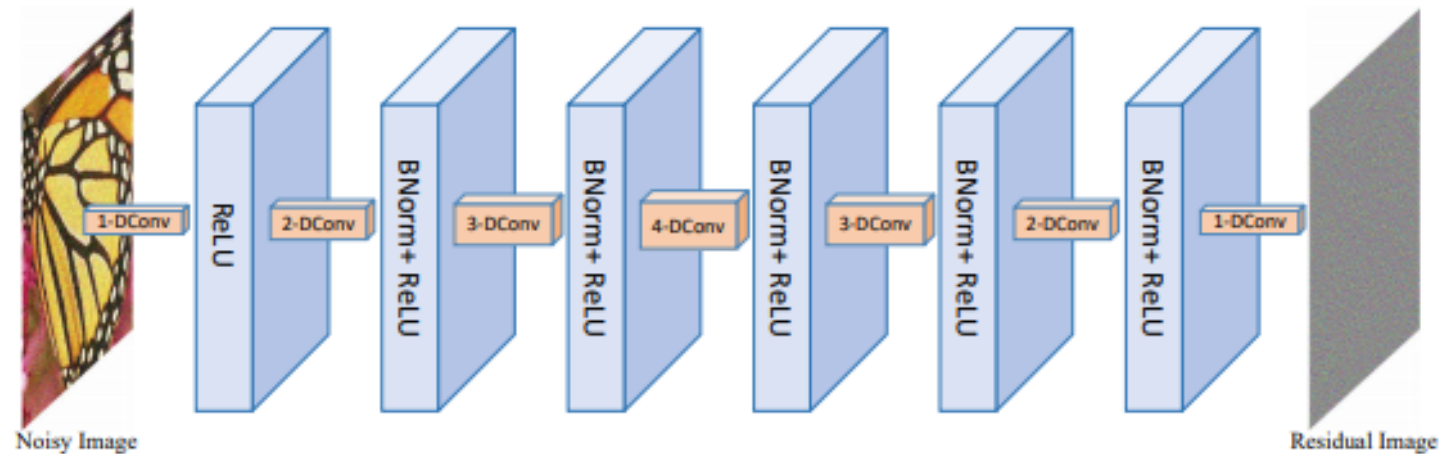
Before



After

IRCNN postprocessing network

- <https://github.com/tToNG/AtJ-DH>
- A denoising network that can slightly increase final score.



Score

- Original output: 20.385703
- After 7/10 post processing: 20.632757
- After IRCNN: 20.669156