

# Joint Image Deblurring/Super-Resolution and Low-light Image Enhancement

Computer Vision (CS6350)  
TPA-7

## 1. Problem Statement

The problem introduces the super-resolution task with the presence of motion blur. Given a natural image with severe blur, the task is to generate a clear high-resolution Image and enhance the image(input) taken in low-light conditions.

## 2. Input

A blurred image/ low-light image/ both

## 3. Expected Output

For Blurry image

- Clear High-resolution Image.
- Quantitative Evaluation metric PSNR and SSIM.
- Demo to run on a given image.



Input: Blurry, Low-resolution Image



Output: High-Resolution Image

### For Low-light Image

- Image enhanced
- Demo to run on given image



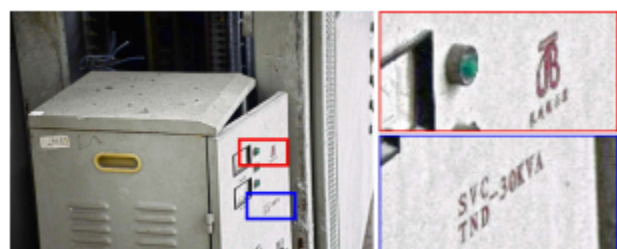
Input



Output



Input



Output

## 4. Dataset

- [GOPRO](#) [5]: The dataset contains 2103 blurry and sharp HR image pairs.
- [LOL](#)[6]: The dataset for low light images

## 5. References

1. Zhang, Xinyi, et al. "Gated Fusion Network for Joint Image Deblurring and Super-resolution", in British Machine Vision Conference (BMVC), 2018.
2. Zhang, Xinyi, et al. "A Deep Encoder-Decoder Networks for Joint Deblurring and Super-resolution", In IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2018.
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4. Alblwi, Fatma, Vladimir A. Krylov, and Rozenn Dahyot. "Image Deblurring and Super-resolution using Deep Convolutional Neural Networks" in IEEE 28th International Workshop on Machine Learning for Signal Processing (MLSP), 2018
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7. Liu, Risheng, et al. "Retinex-inspired unrolling with cooperative prior architecture search for low-light image enhancement." *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*. 2021.

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