

ABSTRACT

Low-resolution images in digital imagery can cause a lack of clarity in image details. This can be due to color degradation, blurring, or noise, which makes the image visually unclear. In addition, low resolution can negatively affect images used in face recognition, leading to poor detection performance. Therefore, image resolution restoration is necessary to address this issue.

In this final project, one of the image enhancement methods used is VGAN (Vanilla Generative Adversarial Network), which incorporates downsampling and upsampling in its layer structure. This method has been tested and compared with the SRGAN (Super Resolution Generative Adversarial Network) method. Both VGAN and SRGAN have the capability to enhance low-resolution images into high-resolution images.

The dataset used is CelebA-HQ (Celeb Faces Attributes High Quality), consisting of 1,000 facial images. The final results show that the VGAN modification method achieved a highest PSNR value of 31.82 dB and a SSIM of 0.91. Meanwhile, the SRGAN modification method achieved a highest PSNR value of 33.9 dB and a SSIM of 0.923. Based on tests conducted on the dataset, it can be concluded that the SRGAN method outperforms the VGAN method when tested on the CelebA-HQ dataset. These results indicate that SRGAN is capable of performing image enhancement effectively.

Keywords: Facial Image, Resolution, SRGAN, VGAN