Face Completion Using Generative Adversarial Network with Pretrained Face Landmark Generator

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Abstract:

This paper, present a novel database of coloured and grey, plausible face images and proposes an improvement method for facial completion. The database contains 389 images of 79 Arab celebrities with automatically generated landmarks acquired from the web in wild-life which is a set of 68 landmark points was defined to provide information about the human face. Face detection applied using Caffe-Model with open cv to extract faces from images then store it in 256 × 256 pixels images. A good inpainting algorithm should produce a realistic face image. The current image face completion methods, recover the damaged areas of face images with low texture, there are problems such as low accuracy of face image recognition after inpainting. Therefore, this paper proposes an improvement method in facial inpainting using Generative Adversarial Network (GAN) with predicted landmarks to provide the structural information about damaged face to help the inpaintor in generating plausible face image. Finally, evaluation for proposed model done over the available datasets CelebA, CelebA-HQ and our Novel Landmarked Face Database for Arab Celebrities. From the quantitative results, our proposed method achieves the maximum score of 34.97, 0.989 and 1.82 on PSNR (Peak Signal to Noise Ratio), SSIM (Structure Similarity Index Measure) and FID (Fréchet Inception Distance) metrics, respectively.

Keywords:

Face inpainting, Generative adversarial network, Deep learning, Face database.