Controlling Face's Frame generation in StyleGAN's latent space operations

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Abstract

Some studies suggest that the face frame (the hairline, chin and ears), are more important for face recognition than the inner facial features (eyes, mouth, nose), especially in unfamiliar faces [1]. In this paper, we define a way to measure the difference of face frame between two face images, and use that to implement a better preservation of the face frame in the main StyleGAN [2] latent space operations (moving through latent directions and projection). With the tested images, an additional preservation between 20% and 50% was obtained for the projection. This can be used to make the faces resulting from these operations similar to their input.

Keywords: StyleGAN, Generative adversarial network, Latent space, Image generation, Image Segmentation, Image Processing, Face frame

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