Supplementary Material for RiDDLE: Reversible and Diversified De-identification with Latent Encryptor

1. Additional Details

   **Training Details.** For training the latent encryptor, we use Adam optimizer with a fixed learning rate 0.0005. Images are first aligned and cropped by the face alignment library [1], and resized to a resolution of $256 \times 256$ for inversion. Larger batch size and more password numbers during training may lead to better results.

   **Postprocess.** Some high frequency details in the background can be lost in the GAN inversion process. Thus, the de-identified face is cropped and fused with the background of the original image using the face parsing network in [2].

2. Diversified De-identification Results

   De-identified faces with different passwords are shown below. We show diversified de-identification results on FFHQ, CelebA-HQ and LFW. In the wild results are also demonstrated.

3. Applying RiDDLE to Video

   RiDDLE can be applied to face de-identification in video. For each frame in a video sequence, we first align and extract the face regions, then resize and feed them to our model to generate the de-identified faces, which are pasted back via inverse affine transformations. Videos are splitted to frames and converted back using FFmpeg [3]. It is worth to note that we did not apply motion flow or other rendering strategies to the sequences we generated, which indicates the simplicity and efficiency of our method. Results can be seen in the .mp4 files submitted.

References


Figure 1. Additional de-identification results, CelebA-HQ. Ori: the original image. E1,2: encrypted images with different passwords. D: Correctly decrypted image. WD1,2: Decrypted image with wrong passwords.

Figure 2. Additional de-identification results, FFHQ. Ori: the original image. E1,2: encrypted images with different passwords. D: Correctly decrypted image. WD1,2: Decrypted image with wrong passwords.
Figure 3. Additional de-identification results, LFW.

Figure 4. De-identification results in the wild. Left: "Game of Thrones". Right: "Gotham"
Figure 5. De-identification results in the wild, Obama, "Key and Pill".

Figure 6. De-identification results in the wild, Trump and Parnell.