

How GAN Generators can Invert Networks in Real-Time Supplemental

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Editors: Berrin Yanıkoglu and Wray Buntine

1. Reconstruction time reconstructing image by image

In the paper we computed the reconstructions with a batch size of 50, which is faster compared to running it 50 times with a batch size of 1, therefore we chose to report the time for all 500 images. Table 1 shows the average reconstruction time in seconds per image, when computing the reconstructions with a batch size of 1 (one image at a time). There we have an average speedup of 223x compared to gradient descent.

Table 1: Average time per image in seconds for the 500 images of the AFHQ wild data.

LAYER	AFHQ			
	BIGGAN	STYLEGAN2	GD WITH REG	GD NO REG
LAYER1	0.027	0.030	3.74	3.32
LAYER2	0.031	0.033	7.37	6.89
LAYER3	0.038	0.033	11.6	11.2

2. Layer3 Lowest Cosine Similarity Samples

Figure 1 shows the 8 images out of the 500 validation images where our GAN-based method (using StyleGAN2) reconstructing the activations from Layer3 had the lowest cosine similarity. It seems to have problems with sharp backgrounds (backgrounds that are in focus), and it also has problems keeping the white color of the tiger in the first and third images from the right.

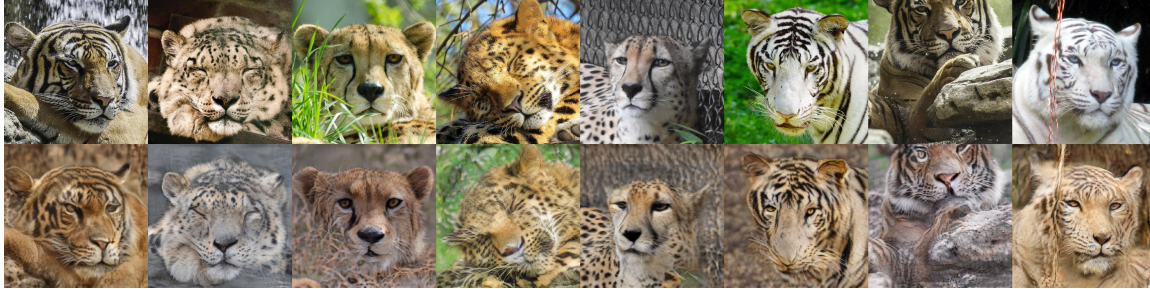


Figure 1: Shows the 8 images out of the 500 validation images where our GAN-based method (using StyleGAN2) reconstructing the activations from Layer3 had lowest cosine similarity. Top line shows the original dataset images, bottom line our reconstructions.