CoachGAN Supplementary Materials

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1. MNIST

On pages 2-5, we provide additional MNIST basin of attraction experiments. We found that using smaller learning rates, η , and random noise values, ϵ , with CoachGAN yielded less noticeable differences in the output images. However, we still note small difference in the CoachGAN results of the qualitative samples. The quantitative measures which we compare in the included graphs also demonstrate differences in the CoachGAN outputs of slightly different *z* inputs.

2. CelebA

On pages 6-14, We include numerous sample images for CoachGAN using $\eta = 0.002$. The left to right images show the gradual Coaching over 80 iterations.

3. CelebA-HQ

On pages 15-16, we show additional samples from experiments using the Progressive Growing of GANs model mentioned in our paper. We display CoachGAN results using different κ values. Smaller κ tend to remove artifacts and blurs from images, while larger κ tend to yield more noticeable changes in image content.

4. BigGAN

We show a variety of pre- and post-CoachGAN images in video format for easy comparison (anonymous Dropbox link: https://www.dropbox.com/s/fx64gq7f1coujyv/BigGAN.mp4?dl=0). We generate these outputs using the same parameters as our FID experiments ($\kappa = 1$ and $\eta = 0.01$).



Figure 1. MNIST basin of attraction distance measures computed using $\kappa = 10$, $\eta = 0.01$, and $\epsilon = 0.0001$



Figure 2. Samples from MNIST basin of attraction experiments computed using $\kappa = 10, \eta = 0.01$, and $\epsilon = 0.0001$



Figure 3. MNIST basin of attraction distance measures computed using $\kappa = 50$, $\eta = 0.001$, and $\epsilon = 0.0001$



Figure 4. Samples from MNIST basin of attraction experiments computed using $\kappa = 50, \eta = 0.001$, and $\epsilon = 0.0001$



Figure 5. CelebA samples using $\eta=0.002$ over 80 CoachGAN iterations (left to right).



Figure 6. CelebA samples using $\eta = 0.002$ over 80 CoachGAN iterations (left to right).



Figure 7. CelebA samples using $\eta=0.002$ over 80 CoachGAN iterations (left to right).



Figure 8. CelebA samples using $\eta = 0.002$ over 80 CoachGAN iterations (left to right).



Figure 9. CelebA samples using $\eta = 0.002$ over 80 CoachGAN iterations (left to right).



Figure 10. CelebA samples using $\eta = 0.002$ over 80 CoachGAN iterations (left to right).



Figure 11. CelebA samples using $\eta = 0.002$ over 80 CoachGAN iterations (left to right).



Figure 12. CelebA samples using $\eta = 0.002$ over 80 CoachGAN iterations (left to right).



Figure 13. CelebA samples using $\eta = 0.002$ over 80 CoachGAN iterations (left to right).



Figure 14. CelebA-HQ samples using $\eta=0.01$ and $\kappa=25$



Figure 15. CelebA-HQ samples using $\eta=0.01$ and $\kappa=50$