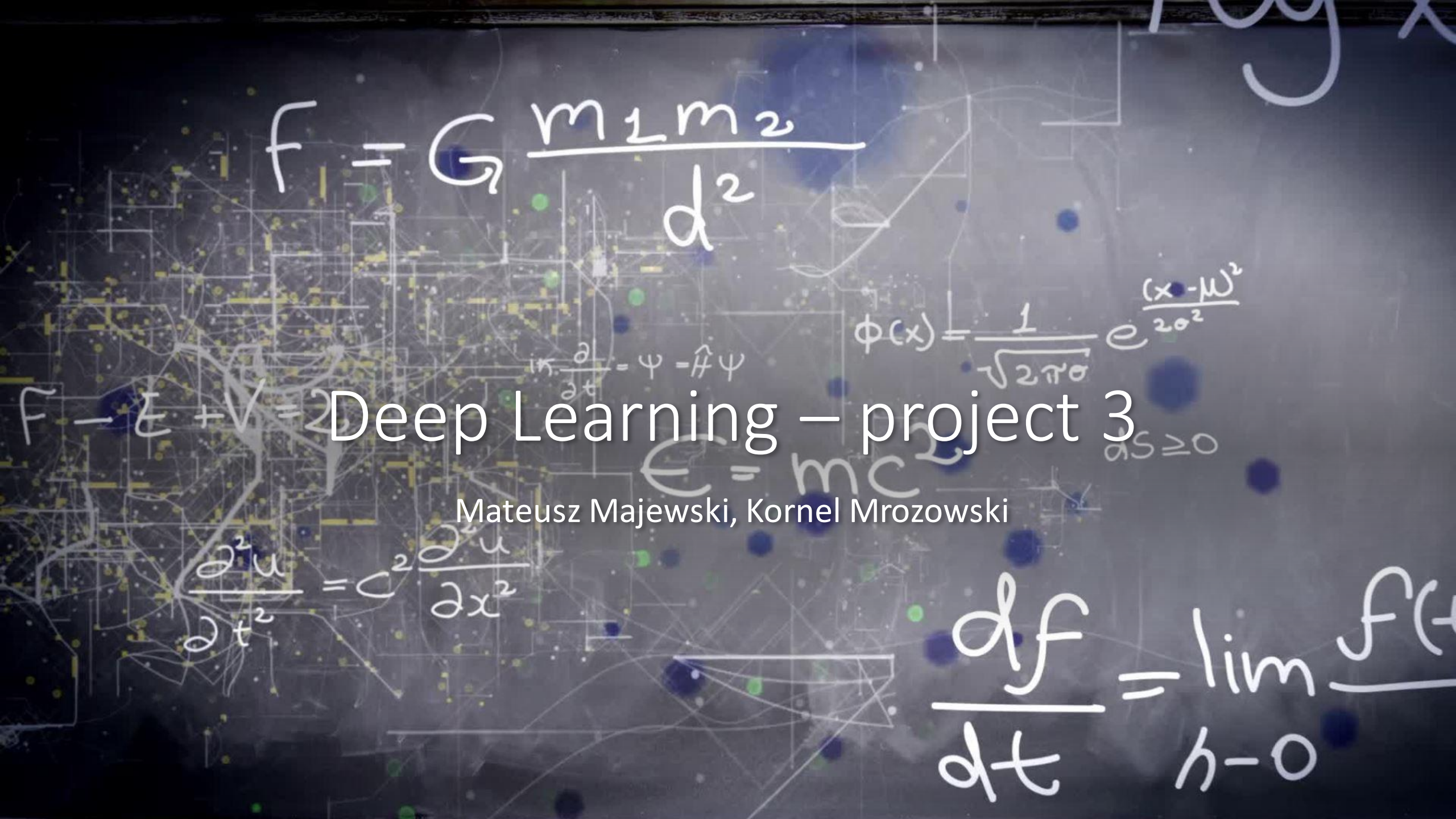


Deep Learning – project 3

Mateusz Majewski, Kornel Mrozowski

Technical matters

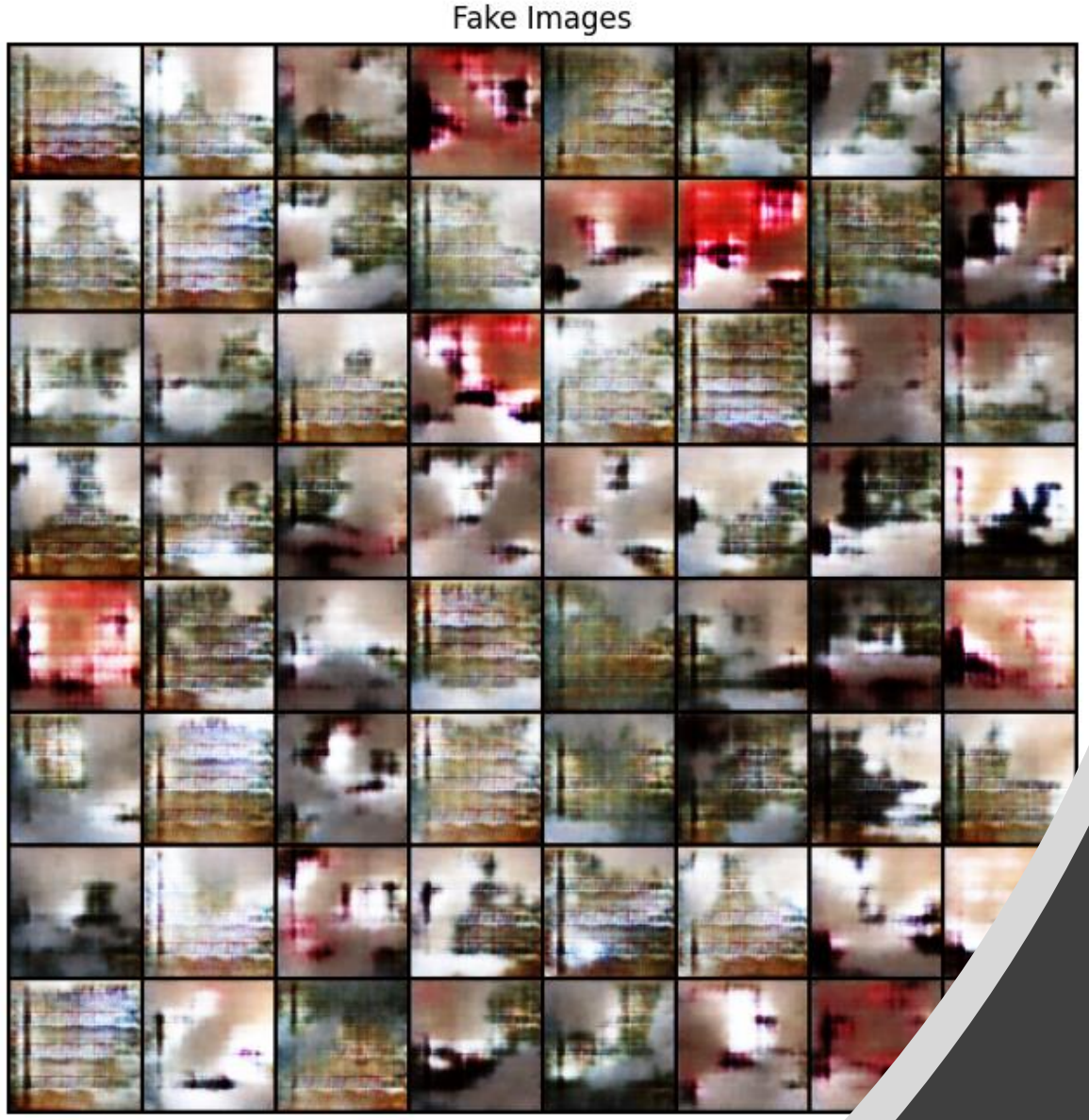
- PyTorch this time
- All images resized into 64×64 (by scaling with aspect ratio kept, and then cropping); no additional data augumentation is performed
- Mostly based on PyTorch official tutorial, though other sources were used
- FID calculated using pytorch-fid

Used networks

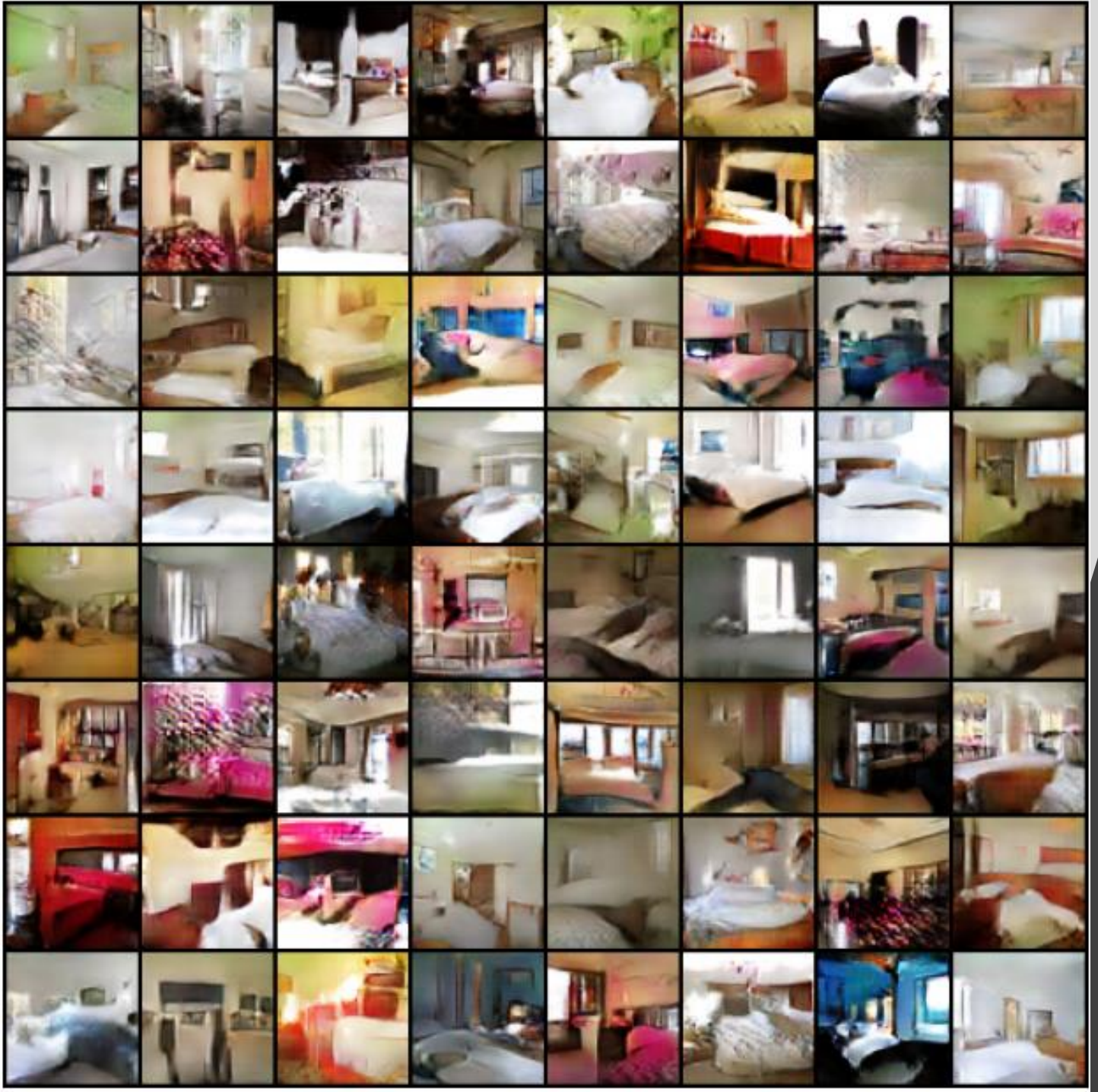
- Basic DCGAN, as implemented by the tutorial
- DCGAN with progressive learning (like ProGAN, but topology close to DCGAN)
- StyleGAN3, adapted from the official implementation
- Basic VAE with topology like DCGAN (with the intention of training first VAE, and then DCGAN afterwards; ultimately, we decided against this idea)

Task

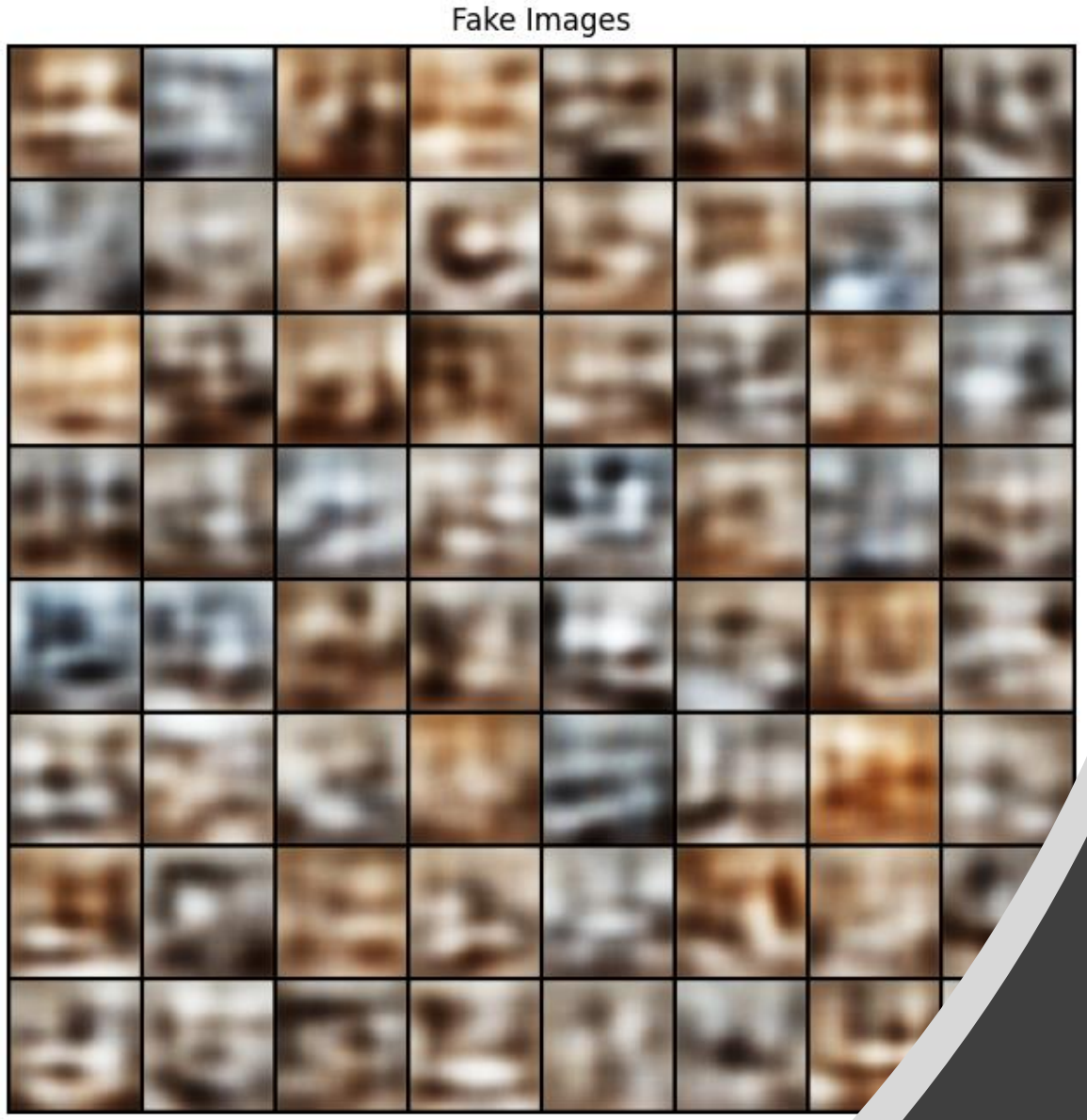
- Dataset is the sampled Bedrooms dataset
- We want to generate new images
- We want to evaluate them subjectively, as well as using FID
- We want to evaluate latent vector interpolation effects
- We should discuss effects of changing various hyperparameters



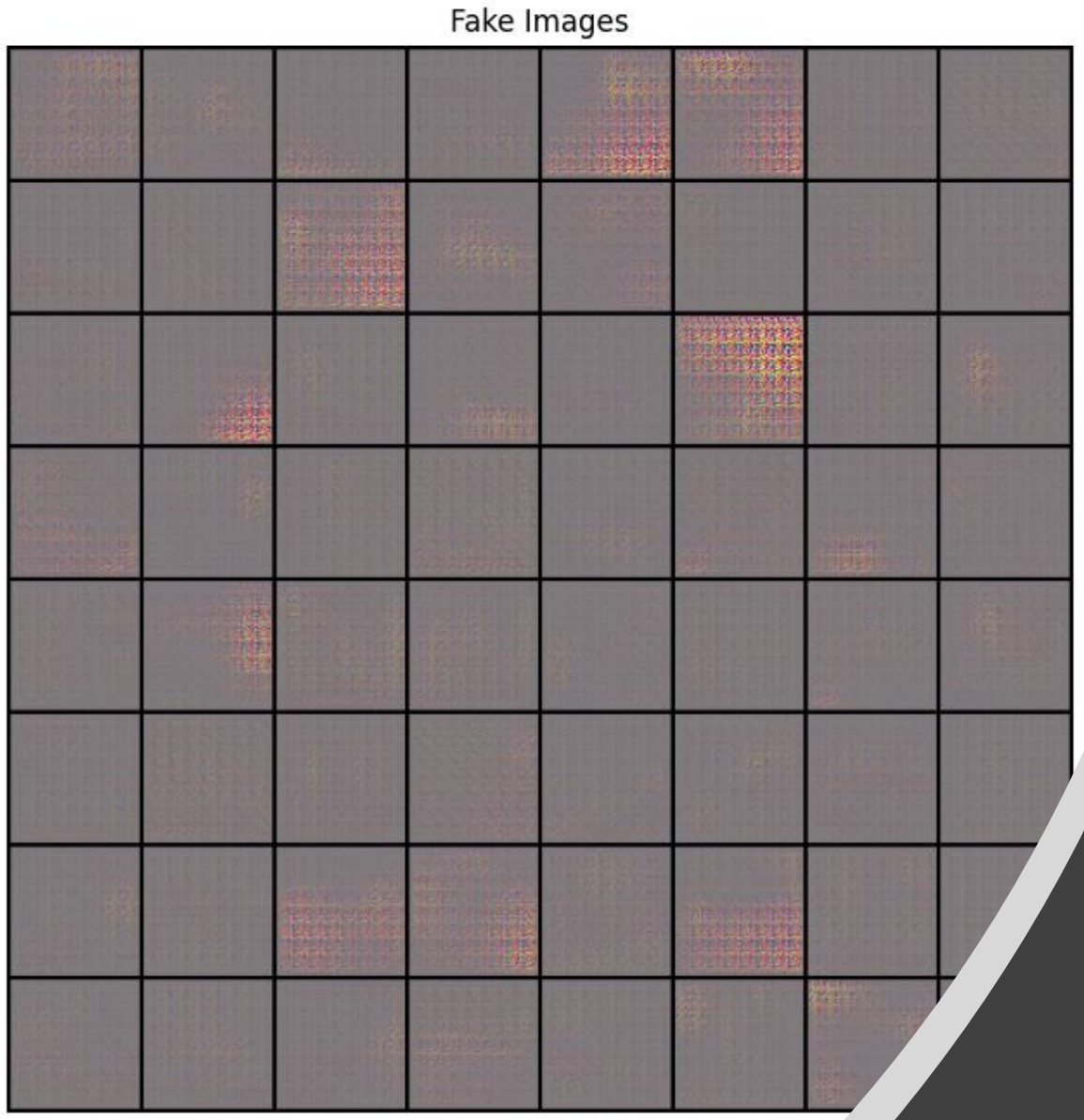
Results – DCGAN after 100 epochs FID ~450



Results – DCGAN after 5 epochs FID ~330



Results – VAE after 5 epochs FID ~370



Results – DCGAN + progressive learning after 5 epochs FID ~450

Results – StyleGAN3 after 0.1 epochs FID ~408

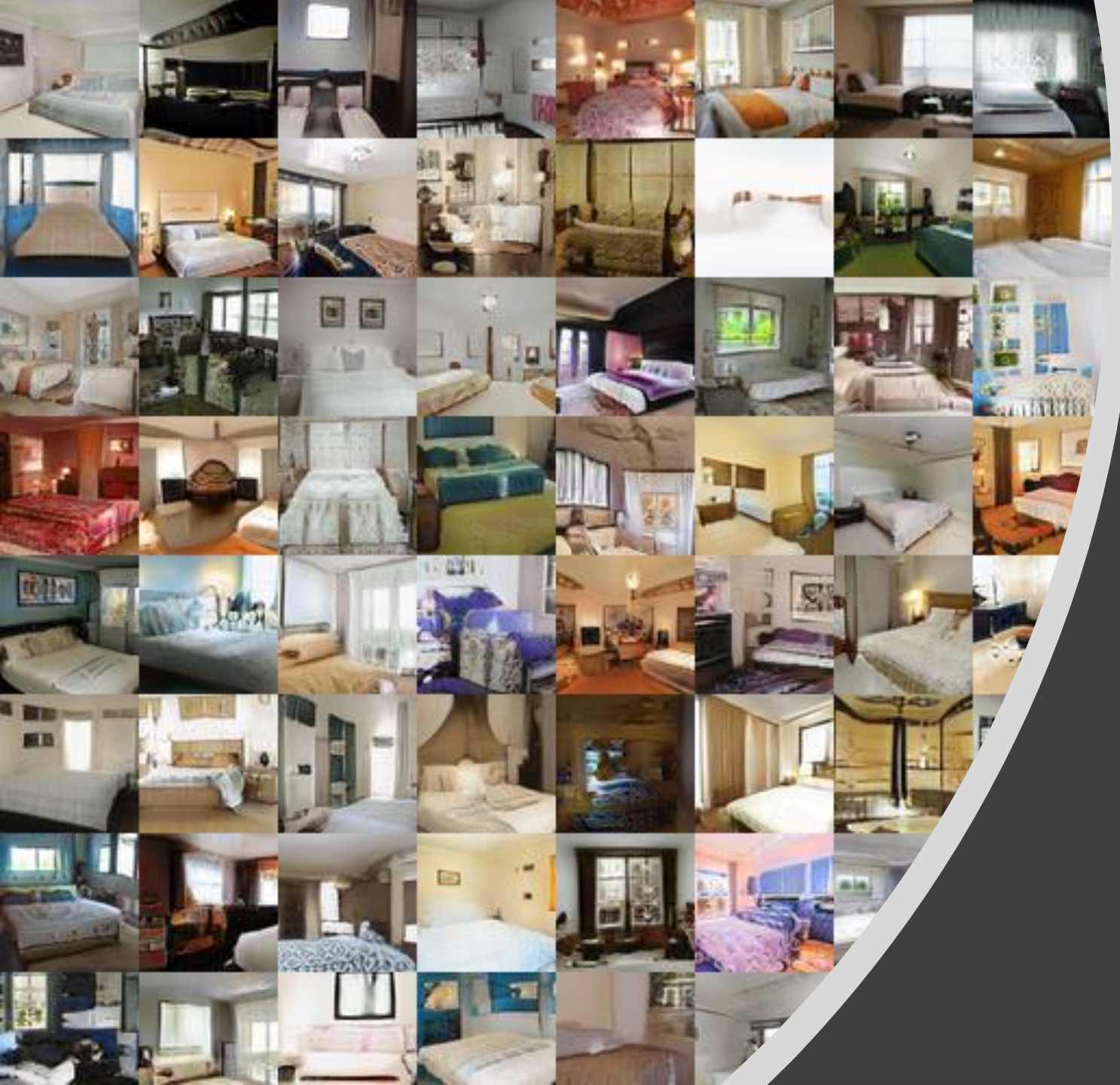
Results – StyleGAN3 after 1 epochs FID ~227

Results – StyleGAN3 after 2 epochs FID ~100

Results – StyleGAN3 after 3 epochs FID ~56

Results – StyleGAN3 after 4 epochs FID ~44

Results – StyleGAN3 after 5 epochs FID ~39



Results – StyleGAN3 after 6 epochs FID ~36

Results – StyleGAN3 after 7 epochs FID ~35

Thank you!