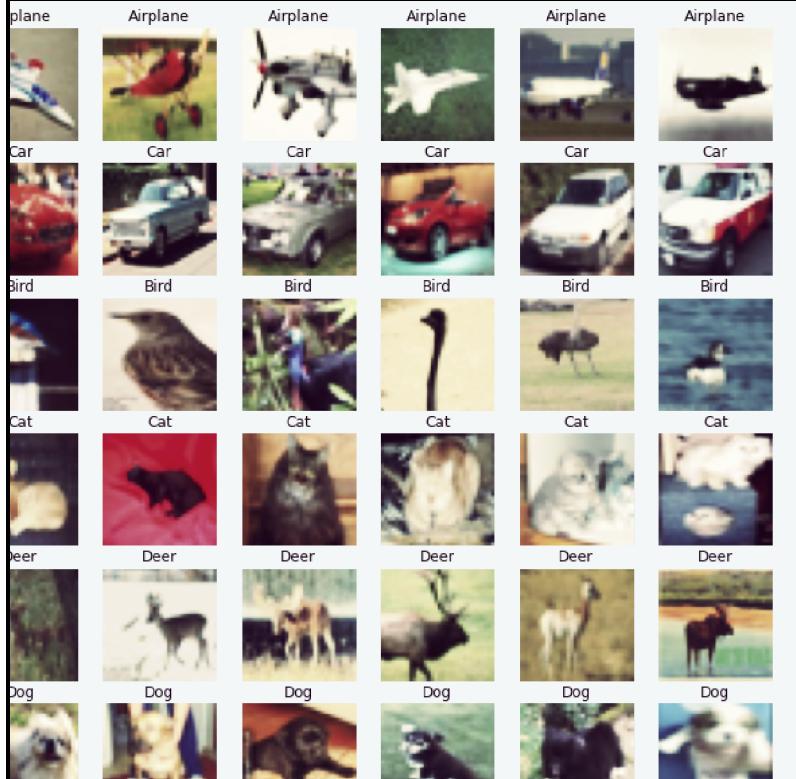


Conditional Generation

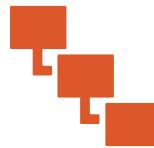


Can AI
Generate
Images
Based On
What I Tell It?

Applications?

- Video Game Art
- Historical Reenactments
- Product Design

Experimental Details



Data Preprocessing

- 50K Training Set Images
- Normalize to $[-1, 1]$



Metrics

- Metrics must measure both the quality and diversity of the output
- Main: Kernel Inception Distance
- Secondary: FID, IS
- Generate 10K images and compare statistics with CIFAR10 validation set (10K)

Summary of Results

Conditional DCGAN

KID: 0.0223

FID: 36.349

IS: 6.877

Spectral Normalization

KID: 0.01856

FID: 30.165

IS: 7.148

Label Smoothing and R1 Regularization

KID: 0.01937

FID: 32.52

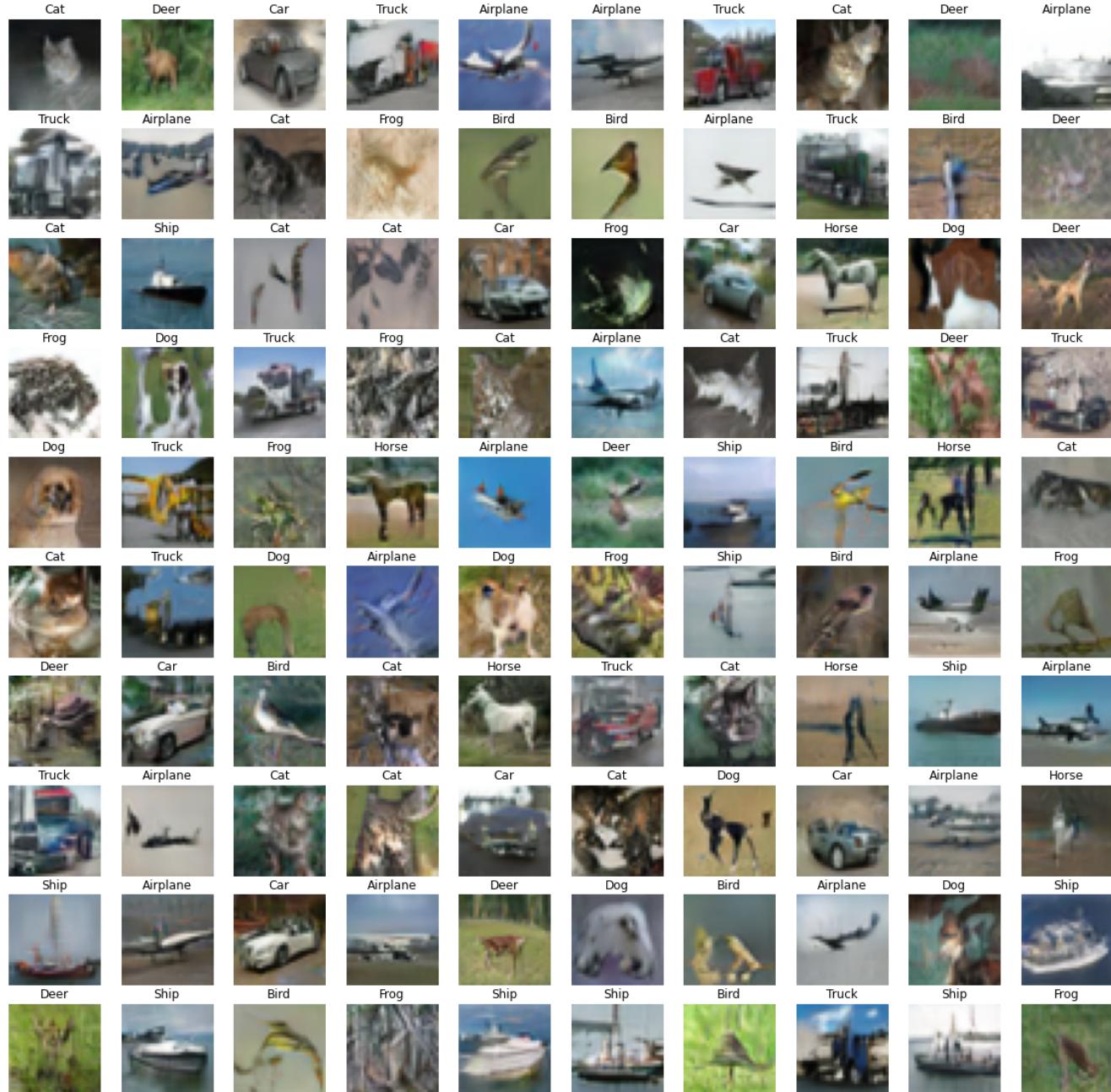
IS: 7.064

SNGAN with Projection

KID: 0.01144

FID: 19.988

IS: 7.988



Truncation Trick

Truncation trick was applied to improve the quality of the final GAN output, at some cost to image diversity

Summary of Results



Animals are Harder to Generate

GAN appears to get the “texture” right, but has trouble getting the correct proportions and location of certain animal features



Does the GAN Suffer From Mode Collapse?

Most images are diverse even with truncation, but GAN can generate similar looking results at times



