

The assignment consists of training a Generative Adversarial Network on the CIFAR10 dataset as well as a few visualization tasks for better understanding how a CNN works.

- Train a baseline model for CIFAR10 classification (~2 hours training time)
- Train a discriminator/generator pair on CIFAR10 dataset utilizing techniques from [ACGAN](#) and [Wasserstein GANs](#) (~40-45 hours training time)
- Use techniques to create synthetic images maximizing class output scores or particular features as a visualization technique to understand how a CNN is working (<1 minute)

You will submit your code along with a pdf document containing a few things.

- Choose 5-6 pictures of generated images to show how training progresses (for example - epoch 0, 100, 200, 300, 400, 500)
- A batch of real images, a batch of the gradients from an alternate class for these images, and the modified images the discriminator incorrectly classifies.
- Synthetic images maximizing the class output. One for the discriminator trained without the generator and one for the discriminator trained with the generator.
- Synthetic images maximizing a particular layer of features. Do this for at least two different layers (for example - layer 4 and layer 8.)
- Report your test accuracy for the two discriminators.