**A Survey on Data Augmentation for Multi-Class Image Classification**

**Submitted By -**

Aastha Agrawal (GT ID: 903323805)

Karthik Nama Anil (GT ID: 903471605)

**Codebase Structure**

main\_directory or project\_root\_directory

\\_ README

\\_ Complex Image Augmentation Techniques

\\_ data

\\_implementations

\\_ aae

\\_ aae.py

\\_ acgan

\\_ acgan.py

\\_ bgan

\\_ bgan.py

\\_ cgan

\\_ cgan.py

\\_ cogan

\\_ cogan.py

\\_ dcgan

\\_ dcgan.py

\\_ drgan

\\_ drgan.py

\\_ ebgan

\\_ ebgan.py

\\_ gan

\\_ gan.py

\\_ infogan

\\_ infogan.py

\\_ lsgan

\\_ lsgan.py

\\_ sgan

\\_ sgan.py

\\_ softmaxgan

\\_ softmaxgan.py

\\_ wgan

\\_ wgan.py

\\_ wgan\_gp

\\_ wgan\_gp.py

\\_ Simple Image Augmentation Techniques

\\_Centre Crop

\\_Color Jitter

\\_Grayscale

\\_Baseline

\\_Padding

\\_Random Crop

\\_Random Erasing

\\_Random Horizontal Flip

\\_Random Perspective

\\_Random Rotation

\\_Random Vertical Flip

\\_RandomAffine

**Complex Image Augmentation Techniques**

To execute the code, please ensure you have Python 3.7 or higher.

1. Please enter the implementations directory

**cd complex\_image\_augmentation\_techniques/implementations**

2. Lets say you wish to execute acgan

**cd acgan**

**python3 acgan.py**

Similarly it can be done for other GANs as well.

**NOTE** -

1. Keep in mind GANs take a long time to execute.

2. At any point if a particular Python package is missing, please install the same.

3. Ensure that the particular user has the highest access level for that particular folder

sudo chmod 777 \*

4. The code automatically downloads the MNIST dataset from the web for each GAN.

**Simple Augmentation Techniques**

All the simple augmentation techniques are individual Google Colab notebook and can be executed online by running each cell. !nvidia-smi command would help to identify the GPU details and it has been added to all the colab files. Each file would take approximately 20-40 minutes to execute.

CIFAR-10 Dataset is directly used from from torchvision.datasets library.

**NOTE -** We have used existing implementations of various augmentation techniques that is available only to do performance testing. The code is curated from multiple sources and modified to support performance testing.