North East University Bangladesh

Project Proposal For Handwritten DigitsGenerator

Department of Computer Science and Technology

Course Title: Deep Learning

Course Code:CSE-460

SUBMITTED BY :

Mashiath Chowdhury

Id: 0562210005101030

SUBMITTED TO :

Razorshi Prozzwal Talukder

Designation : Lecturer

Introduction

This project focuses on developing a *Deep Convolutional Generative Adversarial Network (DCGAN)* to generate realistic handwritten digits similar to the MNIST dataset. By leveraging TensorFlow and Google Colab, the model will learn to create high-quality synthetic digit images through adversarial training.

Objectives

- Implement a DCGAN to generate handwritten digits.

- Train the model using the *MNIST dataset*.

- Evaluate the performance based on image quality and training stability.

Methodology

- Use the MNIST dataset for training.

- Build a Generator to create synthetic digits and a *Discriminator* to distinguish real from fake images.

- Train both networks through an adversarial process using TensorFlow.

- Optimize hyperparameters for improved results.

Tools & Technologies

- Python, TensorFlow, Google Colab

- NumPy, Matplotlib, PIL

Conclusion

This project showcases the power of GANs in image generation and serves as a foundation for AI-driven creativity and handwriting synthesis.