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BU MET CS 767

Assignment 4: GAN

06/05/2024

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MET CS 767 Assignment 4: GAN’s

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At almost every step in the construction of neural nets, there are choices to be made, including the selection of levels and parameters. We have reasons for our selections, but choices must be evaluated empirically.

The remaining instructions are the same as in previous assignments.

# How I modified the code to attempt improvement

Copy the implementation [here](https://colab.research.google.com/drive/129XTL5-89jk93Cr8UwZA1SSbKDB8fLe8?usp=sharing) to your Google drive. Systematically modify (e.g., add to or remove from) this code or data, attempting to improve the output, and report the results. If necessary, you can show changes that make the result worse, with your explanation.

## 1.1 Description of what you did and reason this *could reasonably be* an improvement (up to two paragraphs, excluding figures and tables)

your response replaces this

## 1.2 Comparison of the result with the original output, with explanation

your response replaces this

## 1.3 URL of your Colab code

[Colab Notebook](https://colab.research.google.com/drive/1EC-D9CbVfe6oMPqFNqQ1uDcp2QYHqLZC?usp=sharing)

### >>AI generation for section 1 (or check: I did not use AI generation here \_\_). Please collapse this.

PARAGRAPH DESCRIBING YOUR VALUE ADDED TO AI-GENERATED MATERIAL

Your response replaces this.

YOUR PROMPT SEQUENCE

[1] Your first prompt replaces this.

[2]

# 2. Your GAN Application (3 pg max)

## 2.1 Give 2-4 requirements for an application that you will implement with a GAN

## These describe *what* functionality your application will provide for the user, including the nature of inputs and outputs. This section should not include *how* you will design or code the application.

your response replaces this

## 2.2 Sample I/O

## Give three varied input/outputs pairs for your implemented application.

your response replaces this

## 2.3 The GAN Architecture

## Show your architecture in one or more annotated figures.

your response replaces this

## 2.3 Key code

## Provide snippets of the essential core code of your implementation.

your response replaces this

## 2.4 URL of your Colab code

your response replaces this

### >>AI generation for section 2 (or check: I did not use AI generation here \_\_). Please collapse this.

PARAGRAPH DESCRIBING YOUR VALUE ADDED TO AI-GENERATED MATERIAL

Your response replaces this.

YOUR PROMPT SEQUENCE

[1] Your first prompt replaces this.

[2]

Your response replaces this.

# References

Show that you used a wide variety of resources by listing them below and clearly indicating in the body above where you used. Make sure to use proper referencing in your paper. We suggest using APA format, but other formats are fine as long as they clearly distinguish your work from work of others in your response. In general, observe the stated plagiarism rules.

[1] Geron, Aurelien. *Hands-On Machine Learning with Scikit-learn, Keras, & Tensorflow Third Edition*. “Chapter 17: Autoencoders, GANs, and Diffusion Models”. O’Reilly Media, Inc. October, 2022

[2] *RMSProp*. Keras Docs. https://keras.io/api/optimizers/rmsprop/

[3] *Early Stopping*. Keras Docs. <https://keras.io/api/callbacks/early_stopping/>

# Evaluation



# Appendix 1

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# Appendix 2

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