DSA5202 Project Instructions

Due: Tuesday, 30 April 2024

1 Preface

The goal of the course project is to familiarize yourself with

1. Basic python data manipulation and visualization tools, such as numpy, pandas, matplotlib and seaborn
2. Popular deep learning libraries such as pytorch and tensorflow
3. Deep generative models

课程项目的目标是让你熟悉
1. 基本的 python 数据操作和可视化工具，如 numpy、pandas、matplotlib 和 seaborn
2. 流行的深度学习库，如 pytorch 和 tensorflow
3. 深度生成模型

2 Instructions

2.1 Project Submission Format

In this project, you will run a deep generative model (**only 1 model is needed**) to generate data (e.g., images, text, audio, ...) (**only 1 type of generated data is needed**). Your project should be the form of a **juptyer notebook**, taking note of the following:

在本项目中，您将运行一个深度生成模型（只需一个模型）来生成数据（如图像、文本、音频.....）（只需一种生成数据）。您的项目应采用 juptyer 笔记本的形式，并注意以下几点：

1. Your submitted notebook should be runnable as is. Please attach a saved model or a pre-trained model that can be loaded into the notebook in your submission.
2. Include clear comments (use the markdown capabilities of jupyter!) to explain what you are doing at each step, and also your findings and how they may be interesting. Treat it as an "essay" on the deep generative model that you try!

请在提交时附上保存的模型或预先训练好的模型，以便加载到笔记本中。
请附上清晰的注释（使用 jupyter 的标记功能！），解释您在每个步骤中正在做什么，以及您的发现和它们如何可能有趣。把它当作一篇关于你尝试的深度生成模型的 "论文"！

2.2 Mandatory Components

The following components should be included as graded components:

1. An introduction of your deep generative model.
2. A discussion of the generated results that you obtain including, for example, artifacts in the results, failure cases, and the quality and diversity of the generated results.
3. A discussion of your efforts to improve the generated results.

以下内容应作为评分内容：

介绍您的深度生成模型。
讨论您获得的生成结果，包括（例如）结果中的人工痕迹、失败案例以及生成结果的质量和多样性。
讨论您为改进生成结果所做的努力。

3 Grading Criteria

The grade breakdown is based on the following

1. Completion of the aforementioned tasks
2. Correct use of deep generative models
3. Clear documentation of code and findings
4. Creativity and style

The total number of points is 15 and is distributed as follows:

- 5pt for the introduction of the deep generative model.
- 5pts for discussion of the generated results.

成绩细分基于以下内容 1. 完成上述任务 2. 正确使用深度生成模型
3. 清晰记录代码和研究结果 4. 创造性和风格
总分 15 分，分配如下： - 5 分用于介绍深度生成模型。- 讨论生成结果 5 分。
DSA5202 项目说明
到期：2024 年 4 月 30 日（星期二
本课程项目的目标是让您熟悉
1. 基本的 python 数据操作和可视化工具，如 numpy、pandas、matplotlib 和 seaborn 2
3. 深度生成模型
2 说明
2.1 项目提交格式
在本项目中，您将运行一个深度生成模型（只需 1 个模型）来生成数据（如图像、文本、音

1. 2.
2.2
请在提交的笔记本中附上保存的模型或预先训练好的模型，以便加载到笔记本中。
请附上清晰的注释（使用 jupyter 的标记功能！），解释您在每个步骤中正在做什么，以及
必备组件
1
- 讨论您为改进生成结果所做的努力，5 分。

- 5pts for discussion of your efforts to improve the generated results.

4 Githubs for Pretrained Generative Models

You may browse the following resources (but feel free to use other Githubs if you prefer to):

1. Pretrained VAEs and GANs [`https://github.com/csinva/gan-vae-pretrained-pytorch`]
2. Pretrained Diffusion Models [`https://github.com/huggingface/diffusers`]
3. Pretrained WaveNet [`https://github.com/r9y9/wavenet_vocoder`]