CS 59000 Application of Deep Learning

Homework 3: ChatGPT

Due on **September 18, 2024**, 11:59pm

The goal of this homework assignment is to help you get familiar with ChatGPT and its APIs.

(1) **Video Generation**.

Reuse the code "generate_video.ipynb", which can be downloaded from Brightspace, to generate a new video. Specifically, use your own images (i.e., 3 to 7 images) and your own voiceover texts to generate a video for a topic or a story. The images can be downloaded from the Internet, taken by your own camera, or crated by OpenAI DALL-E 3. If the images are downloaded from the Internet, please pay attention to the **copyright**. Name the code file as "part1.ipynb". Upload the **part1.ipynb**, **all images**, and the **final mp4 video** to be under "**hw3/part1**" folder in your GitHub homework repo. That is, create "**hw3**" folder in the root of your private repository "CS59000_App_Deep_Learning_Assignments" at GitHub, and then create the sub-directory "**part1**" under the "hw3" folder.

(2) **Video Generation with Captions**.

Add captions to the video you generated in Part 1. Please document the procedure how you find the code to add the captions to a video. You can either ask ChatGPT or Internet search for the solution. If you use ChatGPT, please indicate the version of ChatGPT and all questions and answers between you and ChatGPT in a doc file. If you use Internet search, please indicate all search sentences and the resulting useful link(s), as well as the screenshot(s) of the code in the resulting page(s), in a doc file. Name the code file as "part2.ipynb". Upload the **part2.ipynb**, the **doc file**, and the **final mp4 video** to be under "**hw3/part2**" folder in your GitHub homework repo.

(3) **Article Revision**.

Please create an account at OpenAI API: https://platform.openai.com/docs/overview. Add the payment method and then add a small amount to credit balance (e.g., $5 to $10). Generate an API key with "All" for the permissions, and record this API key in your private file. Do not put the information of your API key in the submitted code or doc file. Modify the code

“chatgpt_api_article_summary.ipynb”, which can be downloaded from Brightspace, for article revision. Basically, you need to change the prompt and the description in the Gradio UI interface. Put the screenshots of your testing results into a doc file, and name the code as “part3.ipynb”. Upload the **part3.ipynb** and the **doc file** to be under “**hw3/part3**” folder in your GitHub homework repo. Please include the following test cases:

- “ths is a nic dy!”
- “hw a u?”
- “Ca yo modiy tis sente?”

Please make sure that the ChatGPT API returns the correct sentences.

(4) **ChatBot**.

Modify the code “chatgpt_api_article_summary.ipynb”, which can be downloaded from Brightspace, for a chatbot. To generate a chatbot through the ChatGPT API, the “messages” sent to the ChatGPT API need to include the user question and the historical conversation between the user and chatbot. The following code shows how to load the existing conversation in the “chatbot” array and the new user input to the “messages” that are then sent to the ChatGPT API:

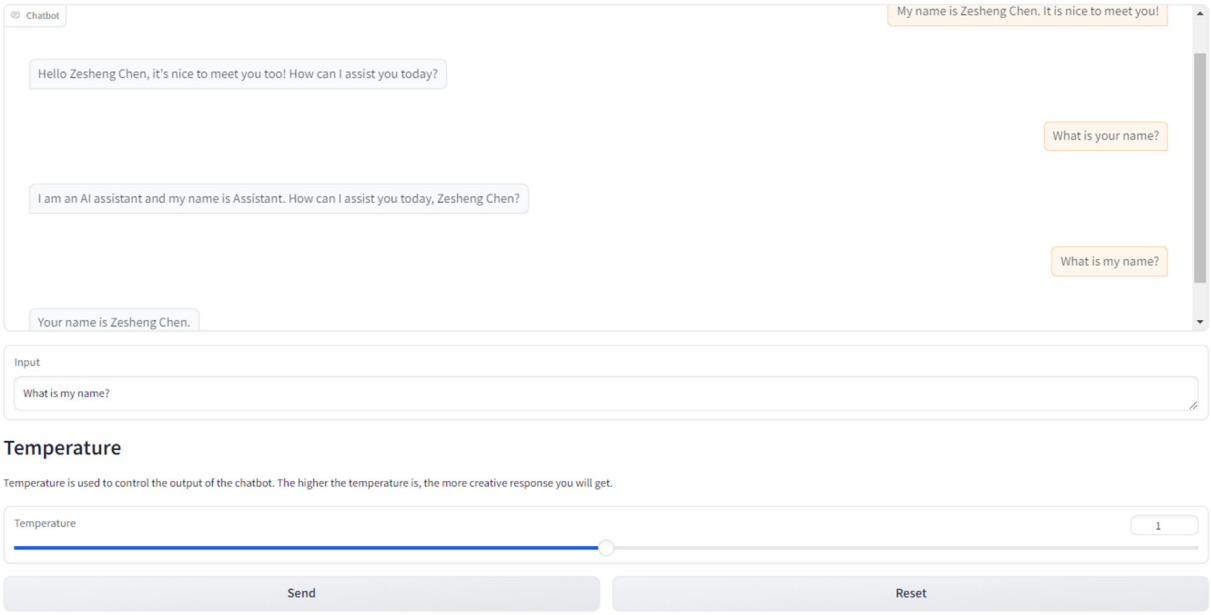
```
messages = []
for input_text, response_text in chatbot:
    messages.append({'role': 'user', 'content': input_text})
    messages.append({'role': 'assistant', 'content': response_text})

messages.append({'role': 'user', 'content': user_input})

response = client.chat.completions.create(
    model="gpt-3.5-turbo",
    messages = messages,
    temperature = temp,
    max_tokens=200,
)
chatbot.append((user_input, response.choices[0].message.content))
```

Please make sure that in Gradio UI interface, it shows all user’s inputs and ChatGPT responses in the chatbot box. Moreover, the chatbot can understand the context of the conversation. The following shows an example:

Part 4: ChatBot!!!



Please take screenshots of your testing results and put them into a doc file, and name the code as "part4.ipynb". Upload the **part4.ipynb** and the **doc file** to be under "**hw3/part4**" folder in your GitHub homework repo.

Grading rubric:

- Part 1: Video Generation – 25 pts
- Part 2: Video Generation with Captions – 25 pts
- Part 3: Article Revision – 25 pts
- Part 4: ChatBot – 25 pts

Total: 100 pts

Note: For parts 1 or 2, if the final mp4 video is not provided, you cannot get any point for that part.

Note: For Parts 2, 3, or 4, if the doc file is not provided, you cannot get any point for that part.