CS 59300 Application of Deep Learning

Homework 3: AI Tools and ChatGPT API

PART 1 : SONG GENERATION

**(1) What is the description of your generated song?**  
The lyrics which the singer sings can be about a cool, sunshine-filled and energetic song about positivity, faith in God, family, happiness, helping others, love, humility, and kindness.

**(2) Does the generated song meet your expectations? Do you think it is a good song?**  
The result was moderate but I liked it overall. It was good, but I noticed a lot of repetitions, and some parts mentioned fear, which I never described. It felt slightly like hallucination in that sense.

**(3) Do you have any suggestions for improving AI MUSIC (**[**https://aimusic.so/**](https://aimusic.so/)**)?**

* Reduce lyrical repetition and allow more natural variation.
* Improve alignment with the prompt to avoid adding unrelated words or themes.
* Provide better control over structure (intro, verse, chorus, bridge).
* Allow users to edit or refine lyrics before finalizing the song.
* Add more genre and vocal style options (e.g., pop, gospel, rap).
* Improve audio mixing so vocals blend more naturally with instruments.

PART 2 : Video Generation with Captions

**1) Does the generated video meet your expectations? Do you think it is a good video?**  
Yes, it actually generated well. The dialogue was pretty good and I liked it overall. However, the lip movement did not sync well with my photos, which made it feel a little unnatural.

**(2) Do you have any suggestions for improving the video?**  
The video quality could have been better, and the transitions between images should have been smoother to make the flow more natural.

**(3) If you have a suggestion for improving the video, what is the code for implementing it?**  
One way to improve the video is by adding smoother transitions using fadein and fadeout effects in the code that ensures that each image smoothly fades into the next instead of switching abruptly.  
  
CODE :

from moviepy.editor import ImageClip, concatenate\_videoclips

clips = []

for img, duration in zip(["img1.jpg", "img2.jpg", "img3.jpg"], [3, 3, 3]):

clip = ImageClip(img).set\_duration(duration).crossfadein(1).crossfadeout(1)

clips.append(clip)

final\_clip = concatenate\_videoclips(clips, method="compose")

final\_clip.write\_videofile("smooth\_video.mp4", fps=24)  
  
PART 3 : NOTEBOOK LM   
  
**1) What is the link to the research paper?**  
https://ceur-ws.org/Vol-3681/T1-13.pdf

**(2) Does the generated video accurately summarize the paper’s content and contributions?**

Yes, the video was very good. The summary was accurate and captured the key contributions clearly, even presenting them in a nice bulletin style. Overall accuracy was strong, and the main ideas were conveyed effectively. However, the inferences and interpretation were not great , it mostly displayed the results without deeper explanation, and the statistics from the results were not presented in a meaningful way.

**(3) Do you have any suggestions for improving the “Video Overview” feature?**

* Provide more detailed explanations of the results and their significance, rather than just displaying raw outcomes.
* Include better visualization of statistics (charts, comparisons) to make the findings clearer.
* Improve the narration so that it not only states contributions but also connects them to broader implications.

PART 4 : ARTICLE REVISION

The revised sentences matched my expectations and the corrections were accurate. The Gradio interface worked smoothly and demonstrated how the ChatGPT API can be adapted for grammar correction tasks.

CASE 1 :   
A screenshot of a computer

AI-generated content may be incorrect.

CASE 2 :  
  
A screenshot of a computer

AI-generated content may be incorrect.

CASE 3 :  
  
A screenshot of a computer

AI-generated content may be incorrect.

PART 5 : CHATBOT

Appended screenshots show that the chatbot displays both user and assistant messages in the conversation box and remembers prior context.

The chatbot worked as expected. It was able to track the conversation history and generate context-aware responses smoothly.

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AI-generated content may be incorrect.  
  
A screenshot of a computer

AI-generated content may be incorrect.