Guidelines for Faculty in Dealing with the Use of Generative AI Tools

Background

Generative Artificial Intelligence (Generative AI) is a computer-based technology that creates a variety of data, such as pictures, videos, music, or words, which look or sound like they were created by a person. It has been predicted that in the future, there will be a greater number of AI systems designed to facilitate creative cooperation between humans and AI. At the University of Alabama, faculty have expressed interests in exploring and applying generative AI tools (such as ChatGPT, DALL.E, Midjourney, Stable Diffusion, and Codex) to collaborative teaching and learning. This document aims at providing UA faculty with understanding the limitations of these tools, offering guidelines to faculty on using these tools in the classroom as they continue to evolve.

1. What are ChatGPT and other GPT-based software and tools?

ChatGPT is a large language model (LLM) based chatbot that was made available to the public on November 30, 2022. GPT is an abbreviation of Generative Pretrained Transformer, derived from a specific architecture of neural networks for natural language processing. It has been gaining a lot of attention and is evolving rapidly. It has already been integrated into Microsoft Office apps and other software. This type of generative AI analyzes language structure by mimicking how humans comprehend text and then uses this knowledge to automatically create text and other content. The abilities of the generative AI have been expanded from text to images, videos, computer codes, and other data formats, such as DALL.E, Midjourney, Stable Diffusion, and Codex.

2. What are the functions of GPT-based software and tools?

The functions of GPT-based software and tools are continuously evolving and spanning from text, vision, music, coding, and mathematics. The recent trends have demonstrated interactions with the world, humans, and other internet AI modules and systems, such as AutoGPT and AgentGPT.

3. What are the limitations?

- Next-word-prediction paradigm. The model operates on a next-word-prediction paradigm, which means it only generates the next word, and currently, it has no mechanism to revise or modify its previous output. Some of these limitations could be solved by providing specific prompts, which are called “prompt engineering.” However, the inherent flaw is not solved yet.

- It generates errors without warning. Erroneous references, content, and statements may be intertwined with correct information and presented in a persuasive and confident
manner, making their identification difficult without close inspection and effortful fact-checking. Therefore, it still requires extensive efforts to search and fact-check the generated content. You cannot rely on ChatGPT-generated content for research, learning, and education.

- **Bias.** All users need to be aware of the inherent bias of these generative AI tools since the GPT models are trained on data from the public internet. Among these data sources, they are riddled with various sources of inherent bias. LLMs may perpetuate or amplify existing bias.

**Guidelines**

1. **Experiment and learn these AI tools**

   - Faculty may experiment with generative AI tools in conjunction with their course materials and assignments. To begin, you can create a free account on Open AI's platform with ChatGPT. Once registered, you can input some of your assignment prompts and evaluate the accuracy of the results. Subsequently, you should consider how you can integrate the tool or develop alternative approaches that do not require it. Additionally, involving students in the reflection process can provide a valuable learning experience, enabling them to comprehend the advantages and limitations of these tools.

2. **Explain these AI tools explicitly in your class**

   - Talk with students about these generative AI tools explicitly. Invite them to collaboratively consider and establish learning goals and criteria for the task, with consideration for the role of AI software. It would help students to evaluate and judge appropriate contexts in which AI can work as a learning tool. This communication will further seize the opportunity to center the importance of critical thinking and digital literacy among students.

   - Discuss academic integrity with students. You should clarify the principles and guidelines for using generative AI tools in your courses. In addition to verbal explanations, we recommend a syllabus statement on using AI.

   - Discuss the ethical issues and limitations of AI with your students. As you experiment with the course materials and assignments using generative AI tools, you may engage in conversations with your students about the effects of inaccurate or biased information generated by these tools, particularly as it pertains to the course materials. Despite the likelihood that students will continue to utilize ChatGPT and similar tools, it is essential that our community shares a common understanding of the associated risks and benefits.
3. **Change your assignments so that they may not be easily completed using AI**

   - Create assignments that are not easily completed using AI. It is highly recommended that you provide clear instructions to students regarding the proper citation of generative AI tools in their assignments and requiring them to provide references for all submissions. Students should be required to explain how they utilized these tools in their work. To enhance students’ oral communication skills, you may provide more opportunities for in-class presentations or incorporating them into discussion sections.

4. **Move to more authentic assessments and include performance elements**

   - You may incorporate a formative assessment practice where students are required to submit drafts of their work for review and feedback. These reviews and feedback could be considered as grading subcomponents of the assignments or tasks. This approach not only helps to detect plagiarism but also guides students in the development of their work, enabling them to improve their performance. Teachers, peers, or self-assessments can provide feedback, which can facilitate the critical evaluation of work in progress. Encouraging peer- and self-feedback can enhance the authenticity of the assessment process.

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