AI Language Generation Tools

Summary of Language Generation Tools

Artificial intelligence language generation tools, also referred to as Generative AI or Large Language Models, are systems that can generate text in response to prompts. Generative language models are "trained" on a vast array of text to understand typical patterns in human speech and writing. The tools then generate their own texts by predicting the word that is most likely to come next in a sequence. For example, if some said, "not all heroes wear…" you may assume that the next word will be "capes." By using this predictive technique, and after being fed a huge amount of data, these language generation tools are able to produce texts that mimic natural human speech patterns.

Although language generators have been around for a while in the form of chatbots and spellcheck, the 2022 release of ChatGPT, developed by OpenAI, has rapidly advanced the capabilities of this technology. ChatGPT, as well as similar tools such as Bard by Google, utilize an adaptive and conversational approach to generate responses. This allows the technology to respond to follow-up questions, edits, and revisions. These tools are now widely and freely available to all.

Capabilities of Language Generation Tools

Adaptability- it is possible to ask an AI language generation tool to generate responses in a particular style. For example, you can ask it to write an essay in the style of William Shakespeare or to make it sound like something a sophomore in college had written. The language generator can be asked to add grammatical errors or mimic the tone and voice of another text.

Critique- due to the conversational approach of the language generation tools, they are capable of editing and critiquing their own work. The tools can also be used to critique text written by another author.

Simplification- AI language generators can be used to explain or simplify concepts or articles. This may make them a valuable tool for studying, although the limitations of the technology, including the frequency with which it misrepresents information, impacts this utility.

Examples of Language Generation and Related AI Tools

Course Materials Generators

- Khanmigo- AI tutoring
- Nolej- add course content, including texts, videos, URLs, etc., and the AI will automatically develop activities and assessments; generates interactive videos, crossword puzzles, flashcards, and more
- SlidesGPT- automatically generated PowerPoint presentations utilizing ChatGPT (not your own content)

- Twee- automatically generate quiz questions, activities, and summaries of YouTube videos and texts

Research Support

- Jenni.ai- research writing support, including citations and summarizations
- Perplexity AI- ChatGPT meets Google; provides more refined answers to questions with cited resources for further research

Writing Support

- ChatGPT- a large language model that is adaptive and conversational
- Compose AI- a Chrome extension writing assistant that can offer suggestions, automatic replies, and other email-writing support

Other

- Fireflies- transcribes meetings and draws out keywords and task lists
- Merlin- a ChatGPT-powered browser extension that can summarize articles and YouTube videos, answer questions, create responses to Twitter and LinkedIn posts, and much more

Limitations and Challenges of Language Generation Tools

1. **They are difficult to detect.** The conversational format and adaptability renders realistic output that is virtually undetectable. A couple of programs have been created to determine the likelihood that text was written by an AI, including GPTZero, but these programs are easily tricked. Even when a detector believes text was generated by AI, it is nearly impossible to prove. It is likely that both the AI language generators and the detection programs will continue to improve with time, but for now, the detectors are unreliable. This means that it is easy for someone to pass off AI generated text as their own. Learn more about AI plagiarism under "Student Uses."
2. **They are prone to bias and exclusionary language.** Because the language generators are simply utilizing predictive text based on what they have been taught, they commonly generate ideas that are biased. For example, when asked to write a poem about chemists, the AI may say that women belong in the kitchen. AI may use discriminatory language, provide controversial opinions, or be explicitly racist, sexist, transphobic, etc.
3. **They are prone to plagiarism.** AI is not trained on academic integrity and is therefore prone to plagiarism without attribution.
4. **They do not process information**. ChatGPT is not connected to the internet, which means that it has a limited database of information to draw from. This is changing, as language generation tools are beginning to be integrated into search engines. They are not, however, substitutes for actual research. As a result, the AI will often make inaccurate claims or make up citations.
5. **They are not libraries.** If you ask a language generation tool to provide quotes or citations, they are likely to make them up. This is because all text generated by the AI is predictive—the AI will create a quote that sounds convincing, but it does not have the ability to look up a quote on its own.
6. **They are often convincing but wrong.** The AI will often generate inaccurate information presented with conviction, making it extremely dangerous for an uninformed user. It is helpful to have prior knowledge

of a subject before assessing the quality of the output generated by the AI, and it is easy to be deceived by the output.

7. **The output is only as good as the input.** The iterative and responsive nature of newer language models, such as ChatGPT, allows the AI to improve its responses over time. If the user knows what information is relevant, it is possible to massage the AI-generated response into something that is well-written, creative, and relevant. However, if the user does not know what information is most important, it is challenging to assess the quality of the output.

8. **They are constantly learning.** As more people utilize tools like ChatGPT, the AI is "learning" more false information. To learn more, check out this article from Fortune: https://fortune.com/2023/07/19/chatgpt-accuracy-stanford-study/

Although language generation tools have a number of significant limitations, they are highly likely to impact student learning and change the ways in which we assess student learning.

Language Generation Tools and Students

1. **Talk to your students:**
   a. Discuss the tools with your students. It is likely that students already know about ChatGPT, so it is worth having a conversation with your students about how to use this new technology responsibly. Ask your students to consider how AI technology may impact their learning and opportunities for it to enhance their writing.
   b. Discuss the importance of academic integrity with your students. Help your students to understand why utilizing a language generator may be inappropriate and how to use the tools responsibly.
   c. Practice transparency and clarity in course assignments. If you offer clarity for your students about the expectations for an assignment and how the assignment is intended to support their learning, they will be less likely to seek unauthorized support.
   d. Offer academic support for your students. Students most often resort to cheating out of fear or desperation. By offering consistent opportunities for support, students are less likely to cheat and more likely to ask for help when they need it. You may want to familiarize yourself with the various campus resources that exist to support students, such as the Writing Commons, tutoring offered by the Academic Success Center, and support for student well-being offered by Kent CARES.

2. **Develop policies about the use of language generators in your course.** Some options may include:
   a. Consider adopting an AI policy in your course syllabus.
   b. Statements of when and how language generation tools should and should not be used for assignments. This will be even more powerful when coupled with an explanation of your rationale.
   c. Guidelines for the extent of AI use for a given assignment, e.g. "no more than X% of the assignment should be generated by ChatGPT."
   d. Guidelines for identifying portions of assignments that have been generated by AI.

3. **Use a Language Generator:**
   a. Students can ask a language generator to provide additional practice problems, questions, examples, and scenarios to aid in their studying.

b. Students may be asked to review a ChatGPT generated response and offer corrections, citations, and additions. This exercise would boost critical thinking, textual analysis, and citations skills.

c. Students may submit their work to a language generator and ask the AI to improve their writing. Students may then compare their original work with the AI-generated response and use this as a starting point to critique their own product.

d. Students may be challenged to write and refine inputs into ChatGPT in order to produce an effective output. Because the output is only as good as the input, this exercise would encourage students to critically engage with the course content and pull out the key information that is necessary to effectively answer a question.

e. Students who are facing writer's block may use a language generator to begin their writing.

4. **Change the assignment:**

a. If possible, give students time to work on writing assignments in-class. This may allow the instructor to monitor students and discourage the use of AI.

b. Try to focus on the process rather than the final product for a writing assignment. Ask students to incorporate specific citations from course material or to explain their approach to a question. You may consider structuring larger writing assignments with periodic checkpoints and opportunities for revision. These types of assignments make the use of AI more tedious.

c. Consider writing prompts that would be challenging for AI to answer. Instead of asking students to explain a key theme, ask them to engage with evaluation, analysis, and idea generation. These higher orders of thinking are more challenging for the AI.

d. Ask students to draw personal connections to the course content or to make connections to recent events. Although the AI is capable of fabricating personal connections, students will be less likely to turn to AI support for such assignments. Similarly, ask students to relate their responses directly to the learning and experiences of your course.

e. Explore different types of assignments, such as concept maps, videos and podcasts, peer instruction, social annotations, and more. When selecting the appropriate assignment for your class, you may consider whether a different format for assessment still aligns with your course goals.

5. **Keep your students in mind.**

a. The emergence of this new technology is likely nerve-wracking for some of your students who may be concerned about how AI will impact their future careers. Be open to engaging in a thoughtful discussion about this potential impact and how they can use the tools responsibly.

b. Language generators may be particularly helpful for students with disabilities who can use the tools for quick research, idea generation, productive repetition and additional examples, social scripting, and more. You can learn more in this Chronicle of Higher Education article titled [How ChatGPT Could Help or Hurt Students with Disabilities](#).

Language Generation Tools and Instructors

1. **Develop course materials**

a. Ask the language generator to develop a lesson plan around a particular topic that scaffolds the learning and challenges students. You can use this as a basis for your own lesson planning.

     b. Ask the tool to write a course description. Although the product may not align with your plans, it can be a helpful starting point if you are dealing with writers block.

     c. Ask the generator for creative activities that you could use to engage your students on a particular topic.

     d. Ask the tool to create a glossary of terms and definitions to support your students.

     e. Ask the tool to develop a rubric for an assignment that aligns with your learning outcomes.

2. **Develop case studies and examples**
   a. Rather than struggling to think of a relevant example to illustrate course content, as the language generator to do it for you.
   b. Ask the tool to generate an example of an "A" grade response to a prompt that students can view.
   c. Ask the tool to create a case study that will challenge students to apply specific concepts and skills.

3. **Generate assessments**
   a. Ask the tool to develop a 10-point multiple choice quiz. This will save you the trouble of needing to think of the "wrong" answer choices.
   b. Ask the tool to generate discussion questions or essay prompts.

Find more ideas in [A Teacher's Prompt Guide to ChatGPT (PDF)](#)

FAQs

Students are likely to use this technology to cheat. How can we catch them?

- Unfortunately, the ChatGPT software is difficult to detect. A couple of programs have been created to determine the likelihood that text was written by an AI, but these programs are easily tricked and difficult to prove. It is likely that both the ChatGPT AI and the detection programs will continue to improve with time. For now, it may be important to realize that it will be challenging to detect the use of ChatGPT in the classroom.

Has the university issued an official syllabus statement about ChatGPT?

- Kent State does not yet have an official syllabus statement for ChatGPT. While this conversation is ongoing, we encourage instructors to have an honest conversation with their students about the importance of academic integrity and the limitations of the ChatGPT technology.

I am worried that my students will not learn how to write.

- The impact on student learning is a serious concern when confronted with new technology. An important strategy may be to focus on the writing process through iterative assignments that encourage students to reflect on their approaches. Such assignments would be difficult to complete using AI. Another strategy is to invite students to revise and critique the writing of others.

ChatGPT gets a lot of facts wrong. How can we help students to navigate this technology?

- Because ChatGPT is often confidently wrong, it may be easy for students to believe what they read and move forward with inaccurate information. It is important to speak with your students about the

importance of checking for references and verifying information. You may consider turning this into a classroom assignment in which students are asked to verify or correct a ChatGPT-generated response.

Resources

Overview of AI tools: https://ctl.utahtech.edu/aitools/

AI Guide for Students: http://ctl.utahtech.edu/wp-content/uploads/sites/72/2023/06/USING-AI-WISELY-INFOGRAPHIC.pdf

AI Guide for Graduate Students: https://www.chronicle.com/article/artificial-intelligence-a-graduate-student-users-guide

AI for Students with Disabilities: https://www.chronicle.com/article/how-chatgpt-could-help-or-hurt-students-with-disabilities

Collaborative document with additional resources: AI Text Generators: Sources to Stimulate Discussion among Teachers

Recording of CTL Session on ChatGPT:
https://video.kent.edu/media/Teaching+Strategies+in+the+Age+of+AI+%28ChatGPT%29+-+CTL+Workshop+1.10.23/1_vvx53m9h