Brief Guide

Student Guidelines for the Use of ChatGPT and other Generative Artificial Intelligence tools and services

This guide will introduce you to Artificial Intelligence (AI) broadly and some current debates about the pros (advantages) and cons (disadvantages) of using artificial intelligence. We specifically focus on Generative Artificial Intelligence (GenAI) tools like ChatGPT, Dall-E, Google Bard and others.

To use any one of these tools effectively, you need to know:

- How it generates outputs/responses
- What is the quality of the outputs/responses
- How it can be used in an ethical and responsible way

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What is AI?

Artificial Intelligence (AI), which has been around since the 1950s, involves intelligent machines that imitate human behaviour and can learn from their experiences. This includes various technologies such as machine learning, natural language processing, data mining, neural networks and algorithms. We encounter AI in everyday software like predictive text and location-based services, on our devices . This article gives a good introduction to what AI is and this article gives some explanation of the key technologies.

What is Generative AI, and what is the fuss?

Generative Artificial intelligence (GenAI) is a type of AI that rapidly generates text, images, audio or video. ChatGPT is an example of GenAI, but there are other AI services too. ChatGPT was released in November 2022 and disrupted the idea that writing was only a human skill. This raised concerns, especially in education, as GenAI could create texts and essays, leading to academic dishonesty.

What is ChatGPT?

- ChatGPT is a Generative Artificial Intelligence (GenAI) tool.
- GPT stands for Generative Pre-trained Transformer, meaning it is pre-trained to answer questions in a particular way based on a database of information (not always to the Internet). It has also been pre-trained on not answering harmful questions - something it does not always do well.
- Because the database is so large, and language processing is used, ChatGPT is considered a Large Language Model (LLM). This makes ChatGPT work like a chatbot where it answers questions and creates and translates text in a conversational style. This article explains this well.
- OpenAI released ChatGPT 3.5 in November 2022 as a free-to-use version. However, an improved ChatGPT Plus, version 4, is now available as a paid service.

Is ChatGPT the only GenAI?

No. ChatGPT is regarded as the best-known GenAI, but other tools like Google Bard and Claude, amongst others, are other open-source options. These are not only limited to creating text; some GenAI create images, audio or video, reading assistants, and literature search services like elicit.org. The technology, as well as ways of using it, are constantly evolving.

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How does ChatGPT and other GenAIs work?

Most GenAI tools work in a similar way to ChatGPT. ChatGPT responds to prompts (questions or statements) using a natural language processing algorithm and the large language model database it is trained on. When ChatGPT is asked a question, the following happens:

1. The algorithm analyses the **prompt** (question or statement) using the LLM database ChatGPT is trained on.
2. The algorithm then generates an **output** (response) using the database to construct a response.
3. The response is generated using **probability logic**. This means it creates a response based on the probability of the next word in a string of words to create a sentence that makes sense for a human reader. For example – if we ask ChatGPT to 'tell me a story about a cat'.

    - ChatGPT notes the word 'story' and will draw on its massive data set to generate a text that follows the most common structure used in texts identifiable as 'stories'.
    - ChatGPT notes the word 'cat' and will draw on its massive data set to generate a text that relates to the most common texts on 'cats'.
    - ChatGPT uses these almost instant searches to present a text that is a 'story' about a 'cat'.
    - This story can be refined with prompts (questions or statements) like "Retell this same story but make it suitable for children under 5 years of age." And the output would be adapted.

4. If ChatGPT does not have any information about a question it is asked:

    - It will produce a response to complete the sentence, which is known as a **'hallucination'.** In other words, it will produce anything, even if it is incorrect**.**
    - ChatGPT is trained to use its large data set to create texts that are meaningful, sound and convincing to humans rather than create texts that are true.
    - The database on which ChatGPT is trained may contain prejudices and inaccurate data used to create its responses
    - For example, if you ask ChatGPT for academic texts it may, in some instances, create fake references which do not exist.

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It is **important to know** the following based on how ChatGPT works:

- ChatGPT is trained on an extensive database (570 Gigabytes of text) collected from the internet and includes websites, articles, social media and any text openly accessible on the internet prior to September 2021.
- ChatGPT is powered by an algorithm and does not understand the words it generates.
- Natural language processing attempts to generate texts that sound human. We can think of it as a game designed to fool humans into thinking that the text is human-generated.
- Many of these limitations could soon be eliminated because the technology is constantly evolving and developing.

Responsible and ethical ways of using GenAI tools

ChatGPT is a useful tool for learning. But you have to know and be aware of the following:

- **Database inaccuracies** - ChatGPT creates convincing outputs/responses that sound convincing, and factually reliable. However, the software does not understand the content and cannot distinguish between correct or incorrect information. ChatGPT has the ability to **'hallucinate'** and sound authoritative on many topics. Therefore, you need to **evaluate and check all responses** from ChatGPT and other AI tools and services to verify the information generated.
- **Bias** - AIs are trained from internet data, which can make them biased. The data favours Western knowledge perspectives, values and beliefs about the world that are dominant in societies in the global north. This means ChatGPT has the potential to replicate these biases, so it is important to be aware and critically assess the information it produces for potential biases. This article explains bias in AI well.
- **Reliance and use of GenAI** - GenAI, like ChatGPT, will, in the future, likely play a significant role in how we learn and practise new skills and assist with some routine tasks. However, it is still important that we develop our thinking skills and build our knowledge in our disciplines so that we can evaluate what information is true and accurate and develop our critical thinking capabilities. Over-relying on ChatGPT and other AI technologies may result in a diminished development of the skills you should be gaining at University. Read more here.
- **Privacy and ethical use** - We are bombarded with terms and conditions for every device, app and service. Most of us simply click 'accept' and move on to use the service. ChatGPT and other GenAI are no different. It is important that we are aware of how the information is used by these platforms. The questions we ask and the outputs produced by these tools are added to the training material and the database.

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Can you use ChatGPT in your learning?

ChatGPT and other GenAI technologies can aid your studies but **should not be used to complete assignments when not permitted**. Overly relying on AI in coursework could influence your learning and examination performance. Most courses at Rhodes University have an examination which is a big component of your mark where AI cannot be used. There are several ways to use these technologies effectively for learning to help you prepare for tests and examinations.

Creative buddy	Use the tool to generate ideas to help you get started. Plan and outline essay or assignment ideas to start your work.
Study buddy	Use the tool to test your knowledge of your coursework. Ask it to create short questions about your topic for you to answer. Or ask it to explain concepts to you and evaluate if the explanation is correct.
Feedback buddy	Use the tool to get feedback on how you are thinking. Use the tool as a tutor to check your understanding.
Language help	Use the tool to translate difficult work in your home language to gain a better understanding. (Note that most GenAIs are better trained in English).

Adapted from the UNESCO guides on Artificial Intelligence

AI Tools and Academic Integrity

The distinction between the use of AI as an assistant or as an authoring tool has an impact on academic integrity. **Not all lecturers and supervisors view AI in the same way**. **It is best to check when, how and if you can use these tools with your course lecturer or supervisor.**

The use of AI tools in inappropriate ways could result in you being accused of plagiarism or academic dishonesty. To ensure this does not happen, always:

- Ensure you know if the course or assignment allows the use of AI or not.
- If the use of AI is permitted in your course, acknowledge the use of AI in the assessment, for example, referencing or submitting the AI-generated output as indicated by your lecturer.
- Be careful when editing your work with AIs like ChatGPT, as this could increase the likelihood of AI detection on Turnitin. If ChatGPT rewrites your work it will be detected like your work was written by ChatGPT instead of edited by it.
- If you use an AI as an assistant for brainstorming or anything else, save a copy of the output/responses in case you need to refer back to it or in case your lecturer wants to see it.
- Carefully read any Plagiarism or AI declaration you sign to understand what is expected of you.

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- The use of Grammarly, which is a simple AI tool, is allowed and supported at Rhodes University.

The table below provides some examples of when it is appropriate to use GenAI, like **ChatGPT** and when it is not.

DO	Uses of generative AI at university likely to be acceptable	DON'T	Uses of generative AI at university likely to be unacceptable
✓	Find out whether or how AI tools can be used for each assignment before starting	X	Use AI tools when they are specifically prohibited
✓	Acknowledge the use of AI - as defined in course outlines per course	X	Use AI tools without acknowledgement
✓	Use AI as a prompt (question or statement) for an outline (unless specifically prohibited)	X	Copy an AI output/response and pass it off as your own work
✓	Brainstorm ideas or request summaries of information	X	Trust AI outputs/responses without doing a critical check for facts and sources
✓	Ask ChatGPT to rephrase a difficult concept into simpler language	X	Share any personal information or upload copyrighted materials as this will become part of the database and could leak out elsewhere
✓	Save your prompts (questions or statements) and the outputs/responses in case you are challenged about your use of AI	X	Use AI tools when original content is being expected

Adapted from the UNESCO guides on Artificial Intelligence

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What should I do if I am accused of using AI, and I have not used it?

It is important to note GenAI tools like ChatGPT produce similar structures in their outputs and these patterns are recognisable as being AI generated. Your lecturers are most often able to distinguish work written by a student from that of AI generated text based on the language use and format.

AI detectors have the possibility to falsely identify human writing as GenAI output and vice versa. What should you do when this happens to you?

1. Start with a calm conversation with your lecturer - be prepared to have a conversation and not a confrontation.
2. Try to prove your work is original - expect to talk about your work with your lecturer. Share your prompts (questions or statements) and outputs (responses) and how you have used these in your writing.
3. This article refers to some considerations for discussing AI.

What are some of the useful GenAI tools to use?

There are many GenAI tools and services on the internet with various purposes. Each has its own advantages and disadvantages and has different outcomes. What will be important is finding the right tool for the job. The table below gives you some examples of tools you can explore.

Tool	Purpose	Additional considerations
Elicit.org	Search and find academic literature	This tool will search Semantic Scholar a database with limited academic texts but is not linked to the library
SciSpace	Search and find literature and get an AI to help understand difficult concepts with a reading co-pilot that helps you read and understand concepts in an article.	This tool will search Semantic Scholar's database but is not linked to the library
DALL E2	Create images from text prompts (questions or statements)	The better and more detailed your prompt (question or statement) the better the result.
Research Rabbit	Create maps showing the connections between research papers.	This tool will search Semantic Scholar's database but is not linked to the library

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