

Description

AI Tools for Plagiarism-Free Undergraduate Learning Experience

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Introduction

Artificial intelligence (AI) is rapidly becoming an integral part of our lives, including education. But educators and students alike may be wondering how this will impact education. This blog serves as an introduction to AI, it will describe AI tools and platforms, many of which you are already using, most probably without recognising they are AI powered. I'll briefly touch on ethical issues and importantly, following this, identify the considerations and practical ways in which educators and students can use AI to support their students/studies and avoid issues relating to plagiarism.

It's important to acknowledge AI technology is here to stay, advancements in technology occur daily, so I highly recommend developing understanding and approaching it with a positive attitude.

What is AI?

AI stands for Artificial Intelligence. It refers to the development of computer systems or machines that can perform tasks that typically require human intelligence. AI enables machines to perceive, reason, learn and make decisions in a way that imitates or replicates human intelligence.[1] It involves various techniques such as machine learning, natural language processing and problem-solving algorithms. The ultimate goal of AI is to create intelligent machines that can think, learn and adapt to new situations, thereby enhancing human efficiency and solving complex problems across different fields.[2]

What are AI tools?

AI tools are software applications that leverage AI techniques to perform specific tasks. There are many different types of AI tools, each designed to help solve a particular problem or improve a specific process. Here are some examples of AI tools:

1. Chatbots and virtual assistants – These are AI tools that use natural language processing (NLP) to understand and respond to user queries or requests, generating responses which simulate human-like conversation. Examples include Chat GPT, Amazon Alexa and Google Assistant.
2. Writing tools – These are AI-powered tools that help writers with tasks such as grammar checking, spelling correction and language style analysis. Examples include Grammarly, ProWritingAid and Hemingway Editor.
3. Accessibility tools – These are AI tools that help people access technology and information. Examples include speech recognition software, screen readers and voice-controlled interfaces.
4. Recommendation engines – These are AI tools that analyse user behaviour and preferences to make

personalised recommendations. Examples include Netflix's recommendation engine and Amazon's 'Customers who bought this also bought' feature.

5. Image and video recognition – These are AI tools that use what's known as 'computer vision' to identify and classify objects, people and events in images and videos. Examples include Google's Cloud Vision API and Amazon's Rekognition.
6. Predictive analytics – These are AI tools that use machine-learning algorithms to analyse data and make predictions about future events or outcomes. Examples include customer churn prediction models and fraud detection systems.
7. Algorithms – These are type of AI tool that use machine learning techniques to personalise the content and advertising that users see on the platform. The News Feed algorithm on Facebook selects and prioritises posts based on factors such as the user's past interactions with content, popularity and recency of the post. The ad delivery algorithm selects ads based on the user's demographic data, interests and behaviour on the platform. The algorithms are constantly evolving and play a significant role in determining what content users see on the platform, influencing their interactions and contributing to the overall success and profitability of the platform.



Practical benefits of AI in academia

AI, such as advanced language model text generation tools, can assist students and educators with mental load by providing support, thereby offloading cognitive burden and freeing up mental space. AI, including advanced language models like ChatGPT, can process and analyse vast amounts of data, perform complex calculations, provide insights and retrieve information, thereby freeing up human cognitive resources and enhance efficiency and human decision-making.

Considerations for educators and students

Relying excessively on AI such as ChatGPT can create dependency, diminishing human-to-human interactions and eroding essential social skills. For example, AI language models like ChatGPT can generate text that mimics human speech patterns and styles. While this can be useful in certain applications, it also raises questions about the originality and uniqueness of human expression. If AI becomes the dominant source of communication or if individuals rely excessively on AI-generated responses, there is a risk of losing personal authenticity and distinctiveness in language.[3] Over-reliance on AI for tasks that require human judgment and creativity could potentially lead to a diminishing of certain problem solving, research and cognitive skills.[4] It is essential to take personal responsibility to strike a thoughtful balance between the two.

Ethical issues

Although there are various ethical concerns associated with AI, this discussion concentrates on text generation tools, such as ChatGPT. Authors of the paper 'Ethical implications of text generation in the age of artificial intelligence'[5] identify several potential ethical concerns of AI text generation tools, including the possibility of creating fake news and misinformation. You might be wondering how this can happen? Humans play a critical role in contributing to the development and evolution of AI. The accuracy and performance of AI systems are heavily dependent on the quality of the data used to train them, which is also selected and curated by humans. Additionally, the ChatGPT open-source platform is used by millions of people around the world, each time a person interacts with the AI system they shape the way in which it is used and evolves the technology as a result. Of course, this means there is the potential for these technologies to be used for malicious purposes, and the potential for AI-generated text to perpetuate and amplify existing biases and stereotypes within society.

Illia, et al., (2022) also examine the responsibility of individuals and organisations to ensure that the use of AI technologies is ethical and discusses the need for regulation and oversight in this area, taking steps to mitigate potential

harms.[5] You may have noticed universities taking action to address this within their institutions.

While text generation technologies offer many potential benefits, it is important to carefully consider the potential profound implications for society: What happens if we end up silencing the human voice? Who benefits from this technology and who loses out? Furthermore, the use of AI-powered tools for plagiarism detection raises some ethical concerns related to privacy and ownership of intellectual property.

This is a brief overview, and I suggest further reading to develop knowledge about the ethical issues. Educators and students might find the following resources useful:

Critical ai: adapting college writing for the age of large language models such as chatgpt: some next steps for educators

ChatGPT: students could use AI to cheat, but it's a chance to rethink assessment altogether



Harnessing possibility and cautionary considerations

In this section, I'll suggest potentially positive ways in which AI can be used, with example links to specific tools and resources, including cautionary considerations highlighted in the boxes below.

Personalised learning

AI-powered personalised learning can help students learn at their own pace and in their preferred style. AI algorithms utilised in various software can track students' progress, identify their weaknesses and adapt learning interfaces to their specific needs.[6] AI can provide personalised recommendations for additional resources, or activities to improve student understanding.

Considerations

Given the ethical discussion above, when using AI platforms students must ensure that they are not blindly relying on the recommendations provided by AI. It's important to critically evaluate the recommendations and seek additional resources and support from their lecturers or peers as necessary.[7]

Writing assistance

AI-powered writing assistance tools can help students improve writing skills, including grammar, sentence structure and word choice.[8] These tools can save students time and effort, allowing them to focus on their ideas and arguments. Some examples of AI writing assistants are Grammarly and Hemingway Editor.

Considerations

Do not rely solely on these tools, use them as a supplement to develop writing skills, seek support from university library services to help you with referencing skills ensuring proper attribution to any sources used.

Research

AI-powered research tools can help students quickly and efficiently find relevant information for their assignments or projects. These tools use natural language processing to understand the user's query and provide relevant results.

Some examples of AI-powered research tools are Google Scholar, Semantic Scholar, Jenni and Consensus.

Considerations

Remember to critically examine the sources found by AI tools to ensure they are credible and reliable, for example ChatGPT does not have the ability to independently research or verify the accuracy of information or citations. If prompted to cite, ChatGPT will generate false references. Remember, as a student you have an ethical responsibility to the translation of your knowledge and understanding, to ensure accurate citation of sources and avoid plagiarism.

Study support

AI-powered study support tools can help students review and memorise course material. These tools can provide flashcards, quizzes and other interactive activities to help students learn and retain information. Some examples of AI-powered study support tools are Quizlet and SnapStudy.

Considerations

While study support tools can help enhance learning, use them carefully, check the questions and answers for accuracy before using them for revision. Be mindful that these tools are not a substitute for active learning and critical thinking, it's incredibly important to actively engage with programme course material.

Accessibility

AI-powered accessibility tools can help students with disabilities or learning differences. These tools can provide text-to-speech or speech-to-text capabilities, visual aids and other accommodations to make learning more accessible. Some examples of AI-powered accessibility tools are Microsoft Accessibility Technology and Tools, Read&Write and Learning Ally.

Considerations

It's important for anyone requiring academic adjustments to seek additional support and accommodations when necessary.

It is evident that AI-powered tools have the potential to greatly benefit students in various aspects of their academic lives. However, students must also be mindful of the ethical implications surrounding the use of these tools, particularly plagiarism that is associated with advanced language models like ChatGPT.

Plagiarism



Plagiarism is an act of misappropriation of others' intellectual property, including but not limited to scholarly texts,

research methods, graphics, and ideas.[9] As mentioned earlier, students must ensure that they properly attribute any sources used, paraphrase writing to avoid plagiarism. AI tools can help students avoid plagiarism by detecting similarities in their work with existing sources and provide them with immediate feedback to improve the quality of their writing, examples such as Grammarly and Scribbr or university tools such as Turnitin.

Research has shown that plagiarism is more prevalent among undergraduates particularly in non-English speaking areas due to the lack of appropriate education in writing and inadequate comprehension about what constitutes plagiarism.[9] So, the utilisation of AI tools in higher education could serve as an educational aid that not only benefits undergraduate students but also contributes to addressing challenges of inequity within society.

Considerations

It is important for students to keep abreast of the advancements in AI technology that are helping to detect instances of plagiarism. This is a rapidly growing area, with new smarter tools emerging weekly. If you are struggling with your academic work, speak to a link tutor or module leader, ask for help and support rather than breaching university regulations and entering academic misconduct proceedings.

As a side note, it is possible that very soon written academic assessments will be graded by AI bots rather than lecturer assessors.[10] Similarly, this has significant implications for early-career researchers, as advanced AI solutions are being developed to combat the proliferation of plagiarism in academic publishing.[11]

Conclusion

AI can be a powerful tool to support educators and students' learning experience. However, they must use them ethically and responsibly. AI should not be solely relied upon, critical evaluation of the information provided by AI tools is still required. Students should also ensure that they are not plagiarising, they must cite sources appropriately and actively engage with programme course material. Taking consideration, students can use AI to enhance their learning experience, elevate knowledge and assist achievement of their academic goals.

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Date Created
12th July 2023