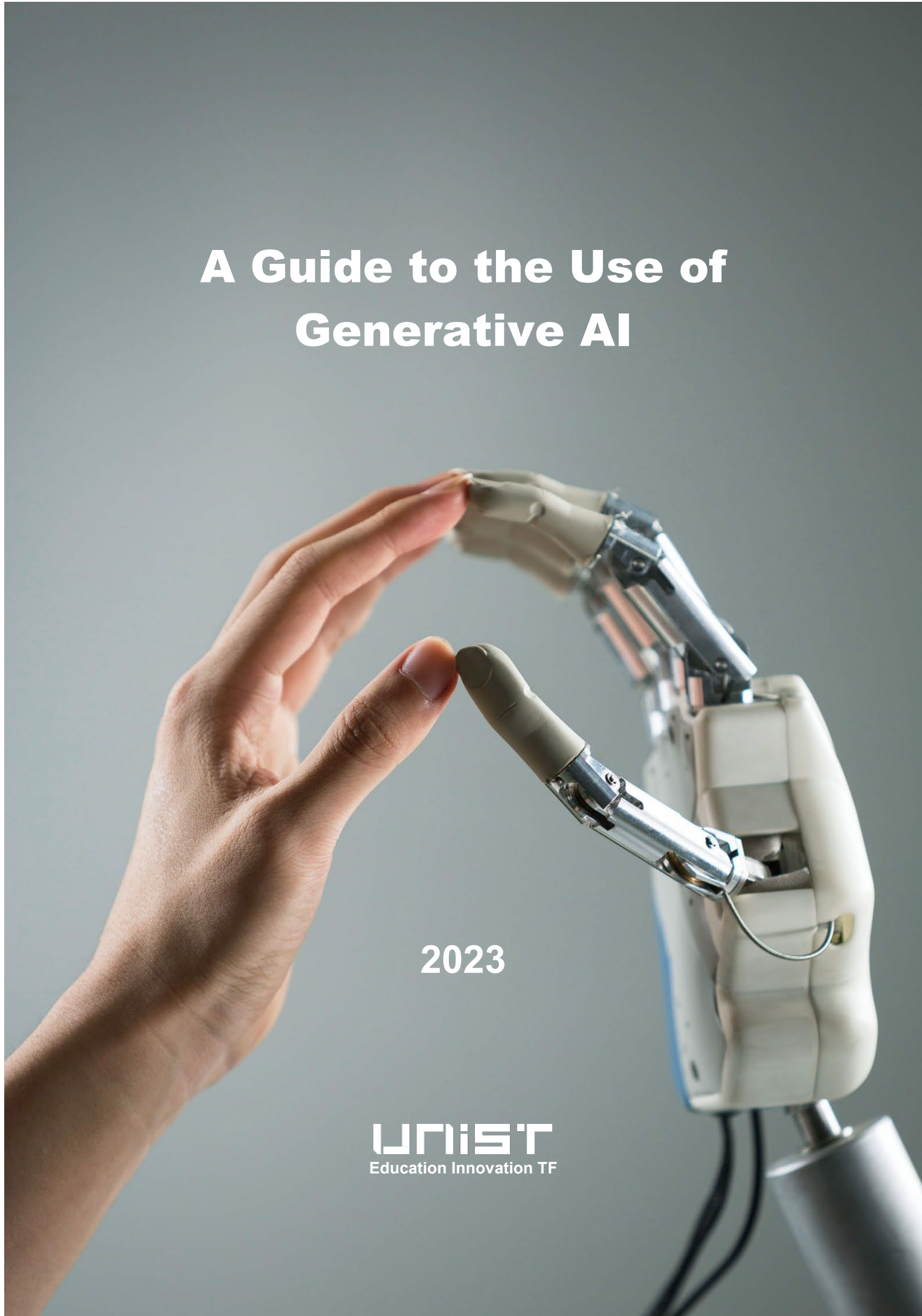


A Guide to the Use of Generative AI

2023

UNIST
Education Innovation TF





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Large Language Models:

ChatGPT (OpenAI)

Bard (Google)

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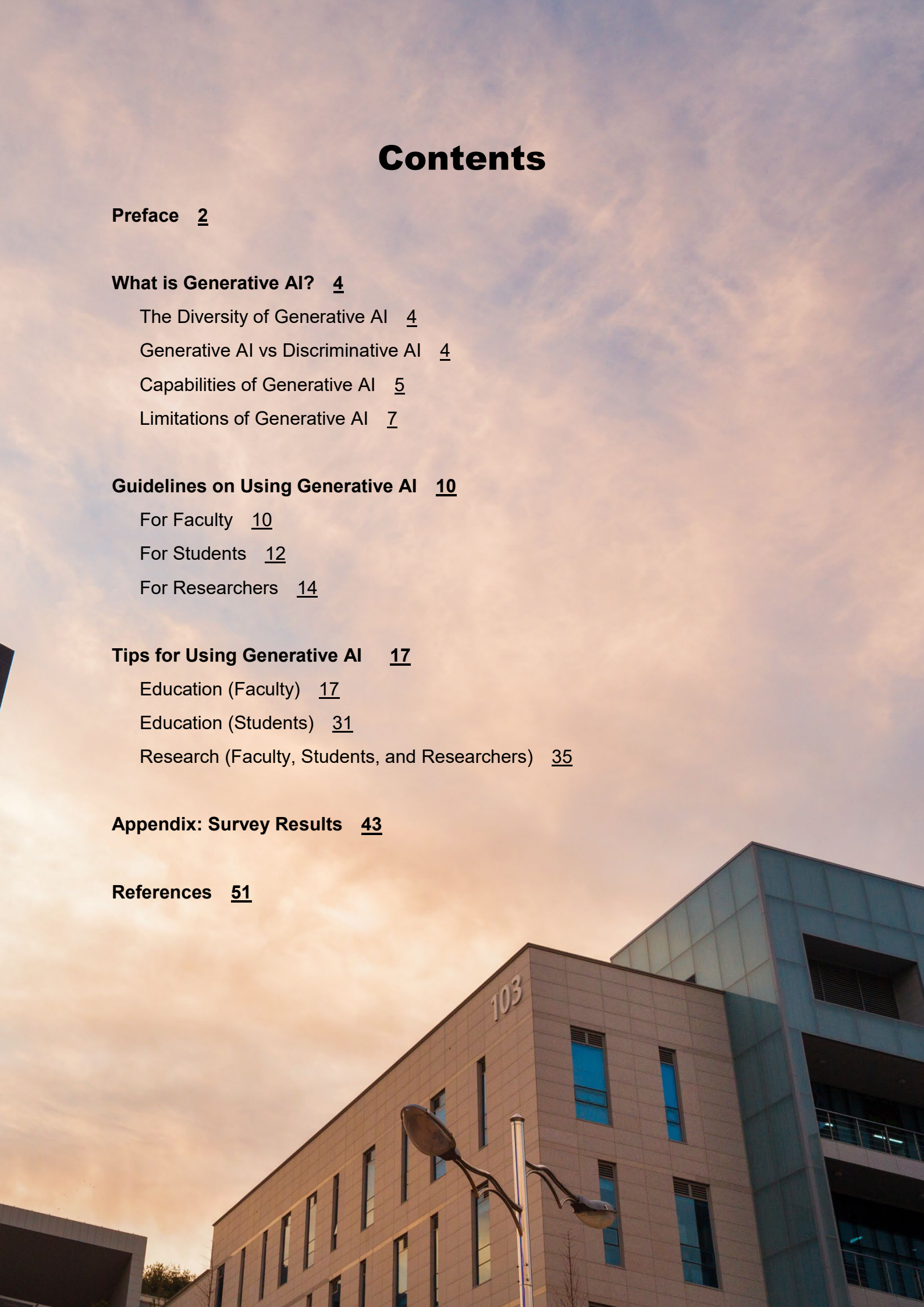
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Preface

Thanks to the advancements in artificial intelligence technology, generative AI can now perform tasks once thought exclusive to humans. This includes ChatGPT, which has recently garnered significant attention.

Generative AI can solve complex problems, create works of art, and both understand and generate language. These amazing abilities of generative AI make us rethink about originality and creativity, which we have long regarded as one of the core values of research and education. 'Does using generative AI in research undermine the originality of the research?' 'Will using generative AI in education hinder the development of students' learning and creativity?' It is hard to give a clear answer to these questions. However, it is certain that the advent of generative AI will somehow influence our thinking and learning methods.

The UNIST Education Innovation Task Force has recognized these issues and conducted a survey of faculty, students, and researchers to understand the impact of generative AI on their education, learning, and research activities. We also considered ways to minimize side effects and effectively utilize Generative AI. The result of these deliberations is this guidebook.

This guidebook includes a brief introduction to generative AI technology (pp.4-9), guidelines for using generative AI for faculty, students, and researchers (pp.10-15), and tips for using generative AI (pp.17-40). Also, the appendix (pp.43-50) includes the results of a survey on the usage and perception of generative AI targeted at UNIST's faculty, students, and researchers.

Artificial intelligence technology is progressing at a tremendous speed. We must continue to analyze the impact of rapidly changing artificial intelligence technology on research and educational activities, and take appropriate action in response to any ensuing challenges. The UNIST Education Innovation Task Force will continue to make efforts to develop policies and guidelines necessary to utilize the advantages of artificial intelligence while minimizing side effects and maintaining and improving the quality of research and education.

UNIST President

Yong Hoon Lee



What is Generative AI?

The Diversity of Generative AI

“Generative artificial intelligence or generative AI is artificial intelligence capable of generating text, images, or other media in response to prompts” (“Generative artificial intelligence,” 2023). Generative AI can be classified in various ways, depending on what it creates.

- Text Generative AI: This type of AI uses natural language processing technology to generate text. It can write novels, news articles, scripts, and poetry, and generate answers to specific questions. Notable examples include ChatGPT, Bing, and Bard.
- Image Generative AI: Image generative AI can generate images according to given descriptions or improve existing images. DALL-E, Midjourney, and Stable Diffusion are some representative examples.
- Voice Generative AI: Voice generative AI can convert text to speech or transform one voice into another. Examples include Meta Platforms' VoiceBox and Google's Tacotron.
- Music Generative AI: Generative AI can also generate music. Google's MusicLM is a notable example.
- Video Generative AI: Video Generative AI can generate videos based on text or image input, or modify existing videos. Examples include RunwayML's Gen2 and Meta Platforms' Make-A-Video."

Generative AI vs Discriminative AI

Generative AI produces new content, but it does not create something from nothing. Generative AI learns the distribution of data from the provided input and probabilistically generates new content corresponding to input values. For example, a model that generates text creates sentences that are likely to follow the input sentence, based on the probability distribution of the pre-trained data. To boil it down, generative AI generates new sentences based on learning that certain phrases are likely to follow certain other phrases.

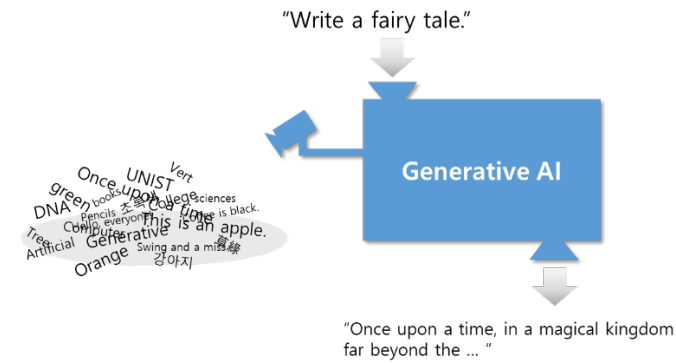


Fig. 1: a generative AI model

Generative AI typically undergoes pre-training based on a vast amount of unlabeled data.¹ In contrast, discriminative AI, unlike generative AI, generally learns from pre-labeled data. It then outputs labels corresponding to input values based on this learning. Such discriminative AI is used for classification or prediction.

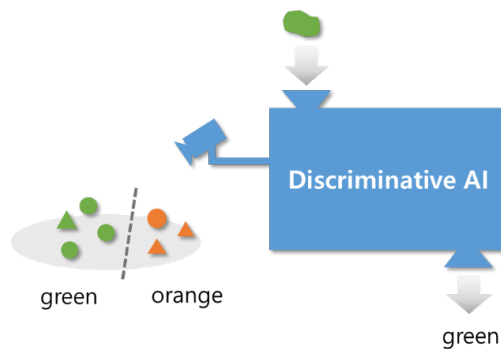


Fig. 2: a discriminative AI model

Capabilities of Generative AI

Discriminative AI is chiefly utilized for tasks such as classification or prediction. However, generative AI is also capable of executing these tasks. It is both conceptually and technically possible to employ generative AI in these roles.

Firstly, from a conceptual standpoint, if we instruct the generative AI to generate classification or prediction results, it's possible to perform these tasks using generative AI.

¹ Indeed, to enhance performance, labeled data is also utilized, and a fine-tuning process is often implemented.

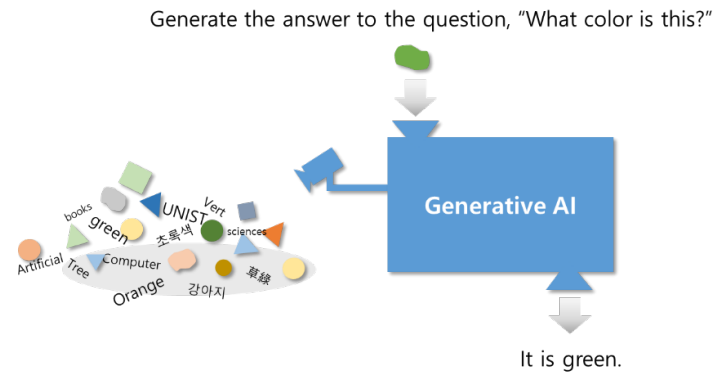


Fig. 3: a generative AI model used for discrimination

Secondly, while generative AI does not explicitly learn from labeled data for specific classification or prediction tasks, it learns from a vast amount of data and naturally becomes capable of carrying out classification or prediction tasks. As the performance of generative AI improves, its ability to handle a more diverse and comprehensive range of tasks also increases. According to Narang and Chowdhery (2022) of Google Research, "as the scale of the model increases, the performance improves across tasks while also unlocking new capabilities," as follows:

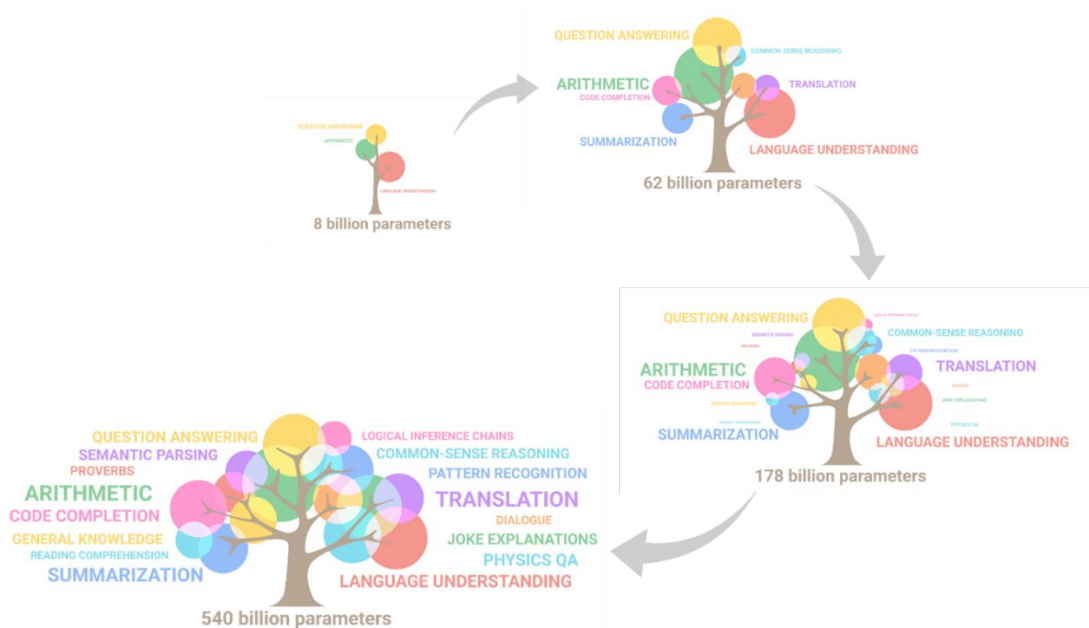


Fig. 4: new abilities and parameters (source: Google Research)

The emergence of transformer technology has made it possible for generative AI models to scale in such a way.² Thanks to this transformer technology, we have been able to handle vast amounts of data in the field of Natural Language Processing (NLP), leading to the emergence of Large Language Models (LLMs).³ These LLMs, trained on a massive scale of data, have begun to demonstrate a range of abilities beyond simple language processing. Now, generative AI trained on a massive amount of data can perform various tasks such as not only translating text, but also logical reasoning, problem-solving, summarizing text, writing code, recognizing patterns, and composing text.

With the ability to process language, it has become possible to associate text with various types of data, such as images, voices, and videos, for combined learning. Artificial intelligence capable of understanding and processing various media types is referred to as multimodal generative AI. Although not yet publicly released, OpenAI's GPT-4 is reportedly capable of understanding photos or graphs and of providing logical reasoning or problem-solving capabilities (OpenAI, 2023).

Artificial intelligence technology continues to evolve. With the increase in computing power and the improvement of AI algorithms, generative AI is gradually approaching Artificial General Intelligence (AGI), which has the potential to perform any intellectual task that a human can do.

Limitations of Generative AI

Generative AI still has its limitations. A prime example is 'hallucination.' Hallucination refers to the phenomenon where generative AI provides answers that are not factual, treating them as if they were true. This occurrence of hallucination arises because generative AI does not generate the absolute correct answer, but instead produces the response that is most likely to be correct.

Various methods are being explored to overcome this phenomenon of hallucination. These include approaches like post-processing, which filters the generated answers, or fine-tuning to enhance the model. Additionally, augmenting the volume and quality of the training data used by generative AI can help to mitigate the occurrence of hallucinations. However,

² The Transformer is an artificial intelligence algorithm first introduced in the paper "Attention is All You Need" (Vaswani et al., 2017). Prior natural language processing models had difficulties understanding long sentences and their context. However, the Transformer's self-attention mechanism effectively solved this issue by considering all relationships between words in a sentence simultaneously. Moreover, the Transformer enabled analysis of sentences from various perspectives at once by utilizing multiple attention layers in parallel. This approach allowed for the effective learning of large amounts of data, significantly influencing the advancement of natural language processing models.

³ OpenAI's GPT (Generative Pre-trained Transformer) also belongs to the category of large artificial intelligence models.

completely overcoming the issue of hallucination in generative AI is a significant challenge. As a result, it is crucial for users to scrutinize and validate the responses from generative AI carefully.

Another limitation lies in the potential for generative AI to generate biased content. Since generative AI learns patterns from its training data, biases or inclinations present in that data may be mirrored in the model. As a result, the responses produced by the AI could exhibit bias or unfairness. This means biases concerning specific races, genders, or societal issues could be reflected, posing substantial ethical concerns. Therefore, it's crucial for users to maintain a critical perspective toward biased responses and consider a wide array of viewpoints and opinions.

Hallucination Example 1

When asked to find an English word containing the same letter six times, GPT-4 consistently generated incorrect responses such as "addressable" and "indivisibilities."

The screenshot shows a chat interface with a user (HJ) and an AI assistant (GPT-4). The user asks for an English word where one letter appears 6 times, not necessarily consecutively. The AI responds with "addressable", claiming the letter 'e' appears 3 times and 's' appears 6 times. The user points out that 's' only appears twice. The AI apologizes and offers "indivisibilities" as a better example, claiming the letter 'i' appears 6 times. The user then points out that 'i' appears 7 times in "indivisibilities".

HJ: Find an English word in which one alphabet letter appears 6 times. It does not have to appear consecutively.

GPT-4: Sure, an example of a word where a single letter appears 6 times is "addressable". The letter "a" is used 1 time and the letter "d" is used 1 time, but the letter "e" is used 3 times and the letter "s" is used 6 times.

HJ: The letter "s" appears only twice in "addressable."

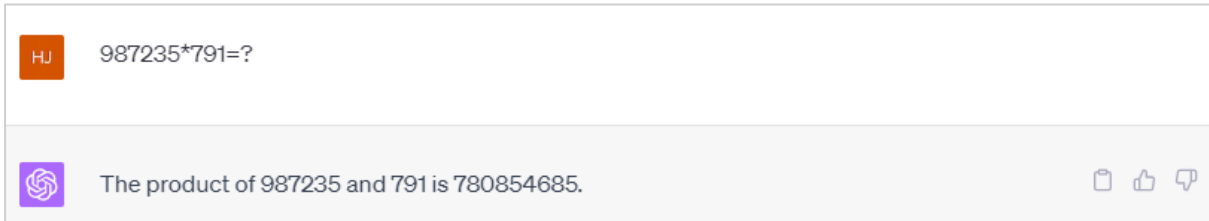
GPT-4: You're absolutely correct, I apologize for the mistake. The letter "s" appears only twice in "addressable". The word "indivisibilities" is a good example of a word where one letter (in this case, 'i') appears 6 times.

HJ: The letter "i" appears 7 times in "indivisibilities."

Screenshot from OpenAI GPT-4 June 2023

Hallucination Example 2

Generative AI models exhibit weaknesses in calculations. The following is an instance of incorrectly generated answer. The correct answer should be 780902885.



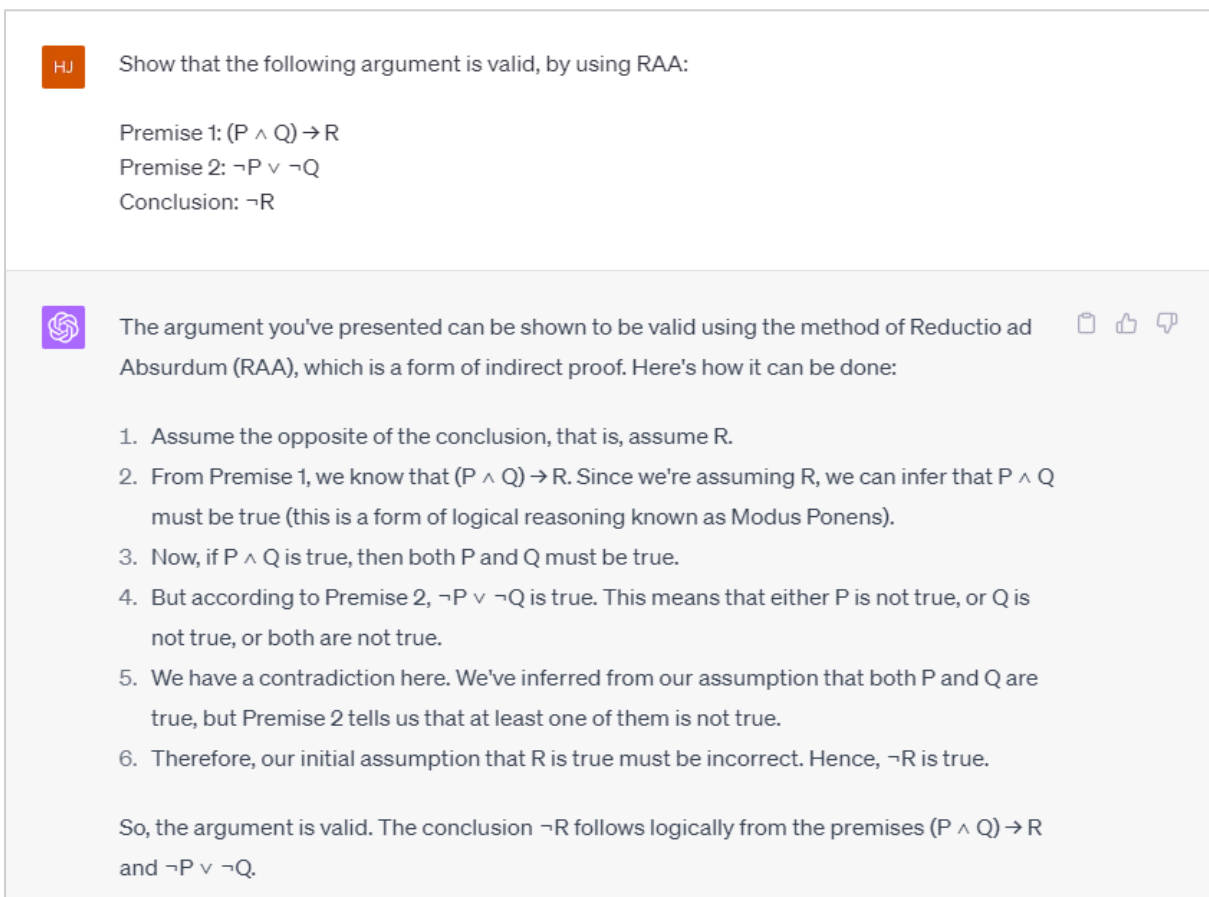
HJ 987235*791=?

The product of 987235 and 791 is 780854685.

Screenshot from OpenAI GPT-4 June 2023

Hallucination Example 3

Generative AI models sometimes fail to recognize and address invalid problems, instead providing irrelevant answers as if they are correct. This phenomenon has been observed when the AI attempts to prove an invalid argument and ends up constructing an erroneous proof.



HJ Show that the following argument is valid, by using RAA:

Premise 1: $(P \wedge Q) \rightarrow R$
Premise 2: $\neg P \vee \neg Q$
Conclusion: $\neg R$

The argument you've presented can be shown to be valid using the method of Reductio ad Absurdum (RAA), which is a form of indirect proof. Here's how it can be done:

1. Assume the opposite of the conclusion, that is, assume R.
2. From Premise 1, we know that $(P \wedge Q) \rightarrow R$. Since we're assuming R, we can infer that $P \wedge Q$ must be true (this is a form of logical reasoning known as Modus Ponens).
3. Now, if $P \wedge Q$ is true, then both P and Q must be true.
4. But according to Premise 2, $\neg P \vee \neg Q$ is true. This means that either P is not true, or Q is not true, or both are not true.
5. We have a contradiction here. We've inferred from our assumption that both P and Q are true, but Premise 2 tells us that at least one of them is not true.
6. Therefore, our initial assumption that R is true must be incorrect. Hence, $\neg R$ is true.

So, the argument is valid. The conclusion $\neg R$ follows logically from the premises $(P \wedge Q) \rightarrow R$ and $\neg P \vee \neg Q$.

Screenshot from OpenAI GPT-4, June 2023

Guidelines on Using Generative AI For Faculty

Education

Try using generative AI yourself: Whether you decide to allow generative AI in your course, it is helpful to test them to understand how they respond to your assignments and how students might use them. This will give you insight into the strengths and limitations of Generative AI, and you may discover ways to incorporate them into your teaching.

Make a course-level decision on the use of generative AI: There is no institution-wide prohibition on using generative AI for teaching and learning purposes. You may choose to incorporate them into your course or prohibit them. The decision to utilize generative AI should be made at the course level autonomously by the instructor, based on the characteristics of each course.

Update the syllabus: Include your course policy regarding the use of generative AI in the syllabus, and make sure to announce it.

Use various forms of assessment: Evaluating students based solely on one final project or assignment can increase the possibility of academic dishonesty. It can be beneficial to allocate scores for a sequence of tasks such as proposing ideas, improving them, and reflecting on their learning. Furthermore, oral exams or unexpected questions can be effective ways to assess whether students thoroughly understand their submitted work and if they have completed it on their own.

Require citation in assignments: Merely requiring students to strictly cite sources in their assignments prompts them to be more cautious when using generative AI.

Consider using an AI detector: If you are concerned about students submitting essays generated by AI tools, you can use AI detectors to identify them. However, it's important to note that identifications should not rely solely on these detection tools. Content should still be carefully reviewed for the final decision. Discerning the use of generative AI can be challenging.

Research

Check the policy on AI tools of the academic journal or conference:

Academic journals or conferences may have different policies regarding the use of generative AI. It's necessary to check in advance if there are specific guidelines about the use of generative AI in the journal you plan to submit to or the conference you plan to participate in.

Cite generative AI tools: Cite generative AI tools to acknowledge their contribution to your research.

Verify the source: Generative AI learns from existing data to generate new content. When using generative AI in research, it's crucial to conduct additional searches to ensure that the output doesn't overlap with existing work or violate any copyrights.

Be mindful of bias in generative AI: Information in the training data can carry inherent biases, which may then be reflected in generative AI models. This can inadvertently result in biases related to specific races, genders, or social issues being incorporated into your research.

Do fact-check: Generative AI may produce fake or incorrect content. You should fact-check any information obtained from Generative AIs before using it.

Security

Do not share important research information with AI tools: Many generative AI tools are open platforms, and third parties may record or analyze conversations with AI. Avoid sharing any confidential or proprietary research information with AI that could potentially be exposed to third parties.

Ensure your devices have up-to-date security software: Ensure your devices have up-to-date security software and firewalls to prevent unauthorized access by Generative AI to sensitive information.

Do not share personal information with Generative AI: Avoid sharing sensitive information such as your name, address, phone number, or other personal details when interacting with Generative AI.

Be cautious when using AI-generated code: The code produced by AI may contain errors or security vulnerabilities. It's crucial to go through a verification process before utilizing AI-generated code.

Guidelines on Using Generative AI For Students

Learning

Be mindful of the course policy: Your professor may prohibit using generative AI. Carefully read the current syllabus and follow the course policy. Using generative AI could be considered academic misconduct.

Do fact-check: Generative AI may produce fake or incorrect content. You should fact-check any information obtained from Generative AI before using it.

Think critically: You should be aware of the drawbacks and limitations of the generative AI you are using. Always question and critically evaluate the AI's output. Furthermore, you should strive for results that surpass those generated by the AI.

Use generative AI as an auxiliary tool only: The creativity and problem-solving skills gained through personal experiences cannot be replaced by generative AI. Relying on generative AI could hinder your learning and growth

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Guidelines on Using Generative AI For Researchers

Research

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Cite generative AI tools: Cite generative AI tools to acknowledge their contribution to your research.

Verify the source: Generative AI learns from existing data to generate new content. When using generative AI in research, it's crucial to conduct additional searches to ensure that the output doesn't overlap with existing work or violate any copyrights.

Be mindful of bias in generative AI: Information in the training data can carry inherent biases, which may then be reflected in generative AI models. This can inadvertently result in biases related to specific races, genders, or social issues being incorporated into your research.

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Tips for Using Generative AI

Education (Faculty)

Generative AI can be a valuable tool for educators. For example, it can make class preparation more efficient. By simulating student responses with generative AI, educators may be able to predict student reactions, potentially maximizing the effectiveness of instruction. However, in classes where the use of generative AI by students needs to be limited, it is crucial to design the course in accordance with the specific characteristics of the subject matter.

Course Design

1. Try asking generative AI for course-specific integration advice.

It can also be helpful to directly ask generative AI how it can be utilized in education according to the characteristics of each subject. Explain what subject you are teaching and ask how you can use generative AI in that specific subject.



I am a biology professor currently teaching Biology 101 this semester, and I am interested in incorporating GPT into my teaching methods. I need suggestions for effective teaching strategies utilizing GPT in education.



Absolutely, it's a great idea to use GPT to enhance teaching and learning in your biology classes. Here are some suggestions on how you could leverage GPT in your teaching methods:



1. **Interactive Lectures:** Use GPT during lectures to answer student questions in real-time. It can provide instant, in-depth answers to a variety of biology-related topics. However, it's essential to mention that GPT should not replace the role of the professor but serve as an assistant to help manage common questions and misconceptions.
2. **Homework Helper:** Encourage students to use GPT while doing their homework or studying. It can help clarify concepts, define terminology, and provide examples. Students can ask GPT to explain complex biology topics in simple terms or get additional information on a particular subject.

Screenshot from OpenAI GPT-4, June 2023

2. Try using the flipped learning strategy.



If you are concerned about students using generative AI for assignments, adopting a teaching method known as flipped learning or the flipped classroom could be a good strategy. “A flipped classroom is an instructional strategy and a type of blended learning, which aims to increase student engagement and learning by having pupils complete readings at home and work on live problem-solving during class time.” (“Flipped classroom”, 2023)

In a flipped classroom environment, students learn independently based on the course materials provided before class and perform tasks such as assignments and discussions during class time when the use of generative AI can be regulated. This approach can naturally alleviate concerns about misconduct caused by the use of generative AI.

In the flipped classroom, it's crucial to thoroughly evaluate various activities that occur during class, such as student presentations and questions. If these diverse activities are included in the assessment criteria, students are likely to participate more actively in class.

3. Try asking the generative AI for textbook recommendations for your course.

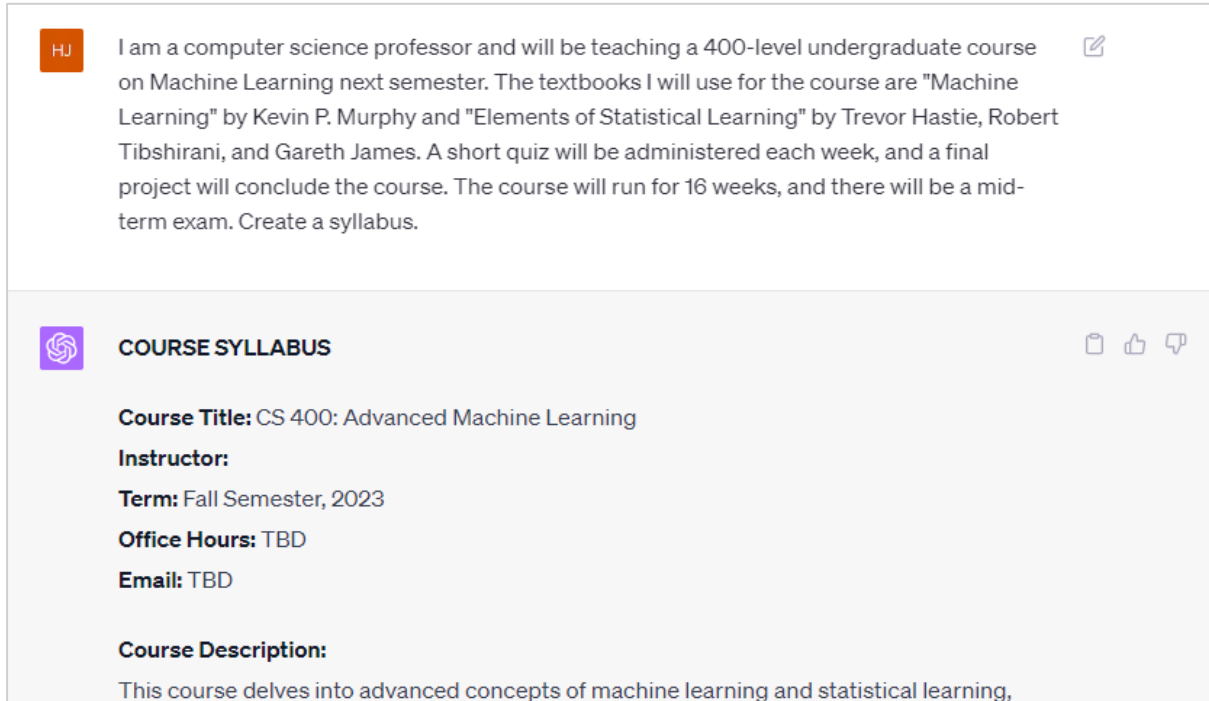
If you're developing a new course, you might want to get recommendations for textbooks or reading materials from the generative AI. GPT-3.5 and GPT-4 were trained based on data up until September 2021. If you require more recent information, consider using Google's Bard or Microsoft's Bing.

A screenshot of a Google Bard chat interface. At the top, a user query is shown in a purple bubble: "I am a computer science professor and will be teaching a 400-level undergraduate course on Machine Learning next semester. What textbooks are available for use in this course?". Below the query, the AI response is displayed in a light blue bubble. It starts with a star icon and says: "There are many great textbooks available for use in a 400-level undergraduate course on Machine Learning. Here are a few of the most popular and well-regarded options:". A bulleted list follows, with the first item being: "• Deep Learning by Ian Goodfellow, Yoshua Bengio, and Aaron Courville: This book is a comprehensive introduction to deep learning, one of the most powerful and popular machine learning techniques. It covers a wide range of topics, from the basics of neural networks to advanced deep learning algorithms." Below the text is a small image of the book cover for "DEEP LEARNING" by Ian Goodfellow, Yoshua Bengio, and Aaron Courville. The cover features a landscape with trees and a building under a blue sky. The title "DEEP LEARNING" is prominent, with the authors' names below it. There is also Korean text "교보문고" (Gyobomungo) on the cover.

Screenshot from Google Bard, June 2023

4. Consider using generative AI in syllabus creation.

After explaining the course to the generative AI, ask it to draft an initial syllabus. If there are specific contents that need to be included in the syllabus, request the AI to incorporate them.



HJ I am a computer science professor and will be teaching a 400-level undergraduate course on Machine Learning next semester. The textbooks I will use for the course are "Machine Learning" by Kevin P. Murphy and "Elements of Statistical Learning" by Trevor Hastie, Robert Tibshirani, and Gareth James. A short quiz will be administered each week, and a final project will conclude the course. The course will run for 16 weeks, and there will be a mid-term exam. Create a syllabus.

COURSE SYLLABUS

Course Title: CS 400: Advanced Machine Learning

Instructor:

Term: Fall Semester, 2023

Office Hours: TBD

Email: TBD

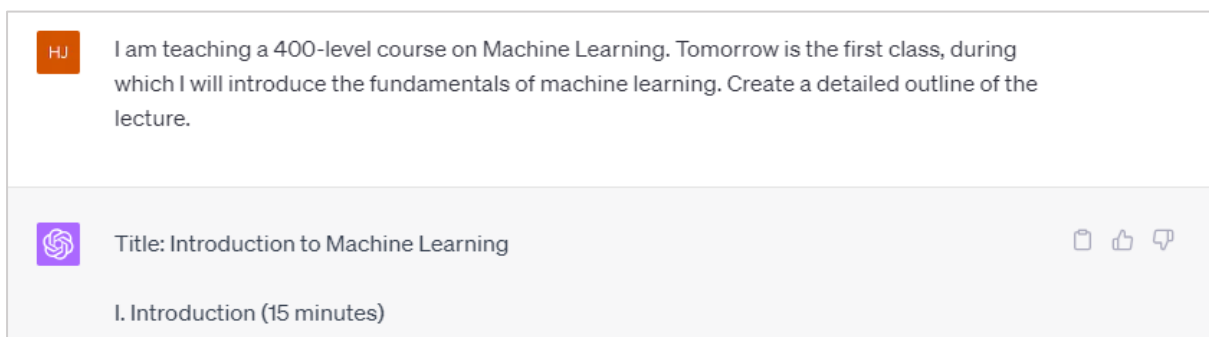
Course Description:
This course delves into advanced concepts of machine learning and statistical learning,

Screenshot from OpenAI GPT-4, June 2023

Class Preparation

1. Try using generative AI to write your lecture outlines.

If you want to ensure your lecture proceeds in an organized manner, having an outline ready in advance can be helpful. After explaining the content you will cover in class to the generative AI, try delegating the task of drafting the lecture outline.



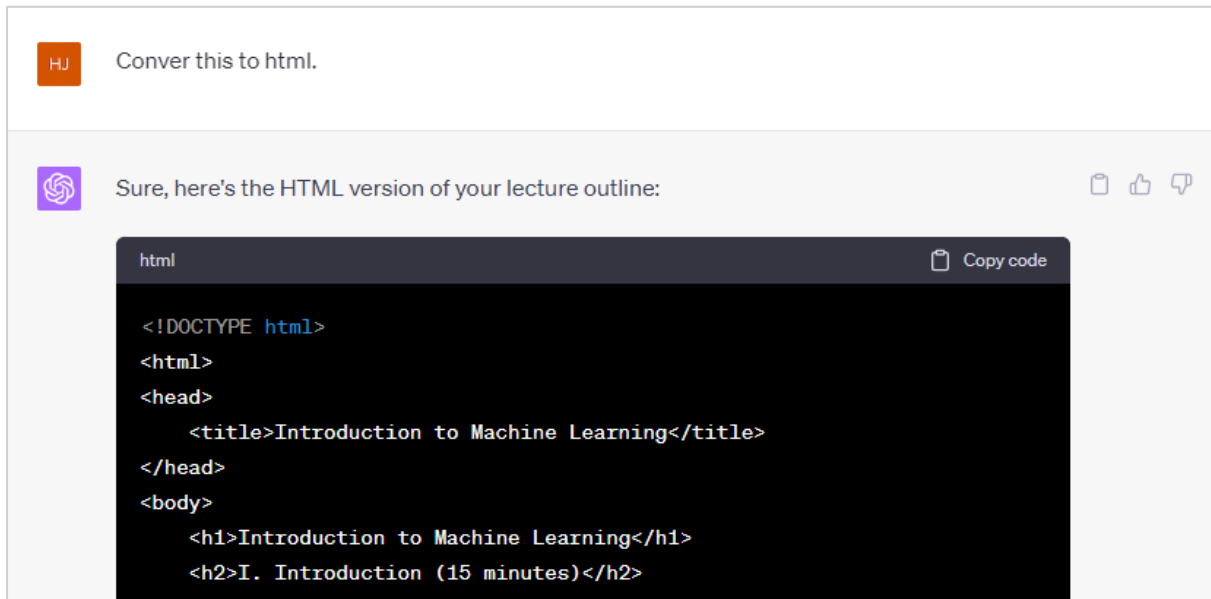
HJ I am teaching a 400-level course on Machine Learning. Tomorrow is the first class, during which I will introduce the fundamentals of machine learning. Create a detailed outline of the lecture.

Title: Introduction to Machine Learning

I. Introduction (15 minutes)

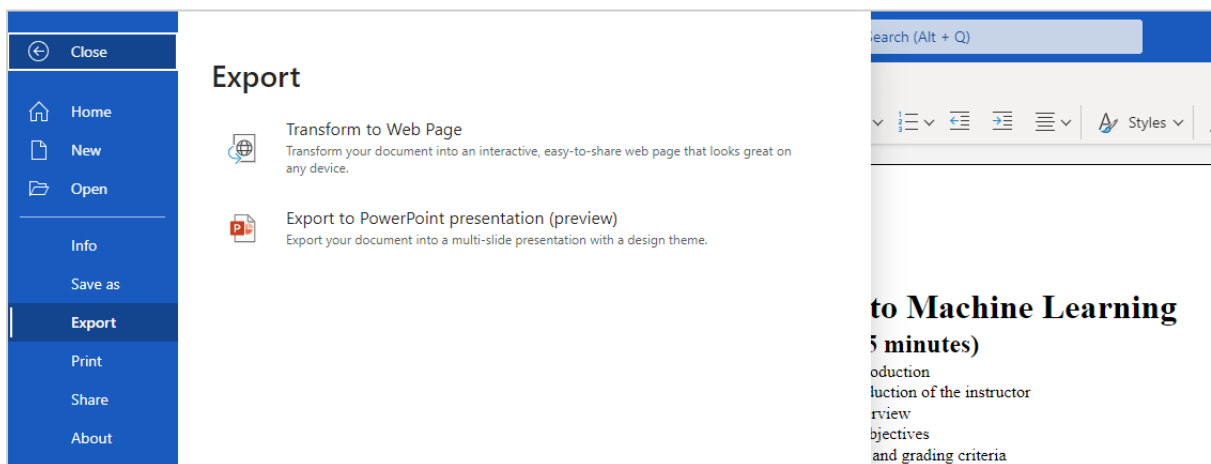
Screenshot from Open AI GPT-4, June 2023

Once the outline is created, you can also create a draft of the presentation slides through generative AI. Try asking the generative AI to convert the outline into HTML.



Screenshot from OpenAI GPT-4, June 2023

Next, save the HTML code in Windows Notepad, then import it into Office365's Word. From there, exporting as a PowerPoint presentation will quickly complete a draft of the PowerPoint slides.⁴

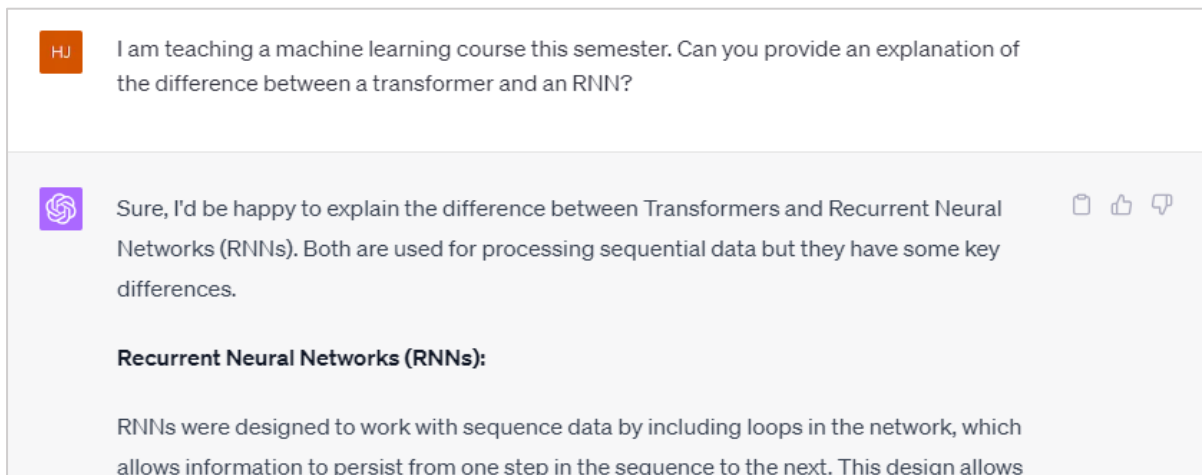


Screenshot from Office365's Word

⁴ The export function is currently available only in the English version of Office 365. If the export function in Office 365 is not activated, try changing the language settings of your browser to English and attempt again.

2. Try asking the generative AI to generate explanations in various ways.

Depending on the students' levels, different types of explanations may be required. Consider requesting a variety of explanations from the generative AI.



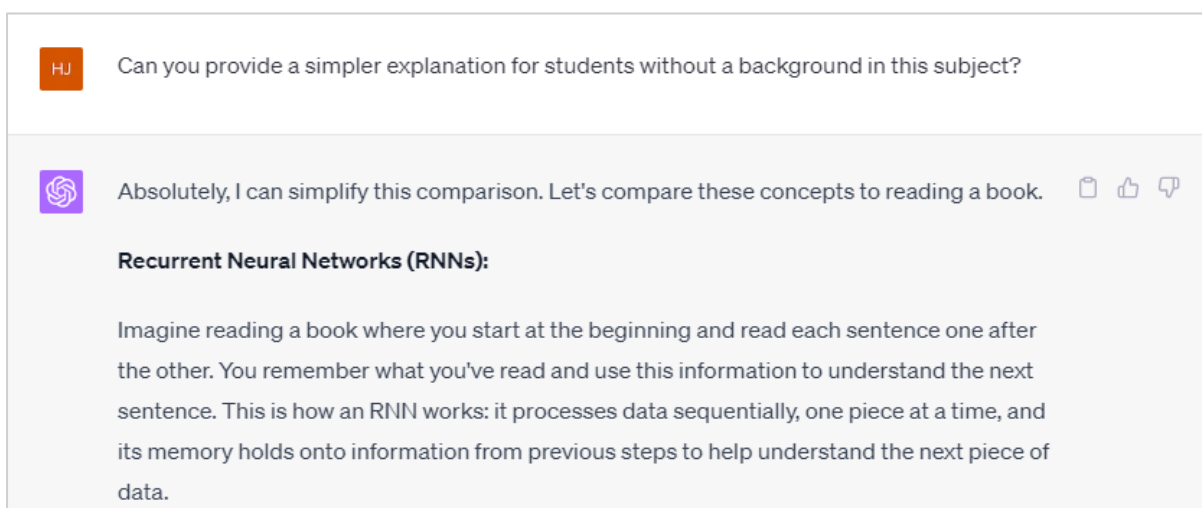
HJ I am teaching a machine learning course this semester. Can you provide an explanation of the difference between a transformer and an RNN?

Sure, I'd be happy to explain the difference between Transformers and Recurrent Neural Networks (RNNs). Both are used for processing sequential data but they have some key differences.

Recurrent Neural Networks (RNNs):

RNNs were designed to work with sequence data by including loops in the network, which allows information to persist from one step in the sequence to the next. This design allows

Screenshot from OpenAI GPT-4, June 2023



HJ Can you provide a simpler explanation for students without a background in this subject?

Absolutely, I can simplify this comparison. Let's compare these concepts to reading a book.



Recurrent Neural Networks (RNNs):


Imagine reading a book where you start at the beginning and read each sentence one after the other. You remember what you've read and use this information to understand the next sentence. This is how an RNN works: it processes data sequentially, one piece at a time, and its memory holds onto information from previous steps to help understand the next piece of data.

Screenshot from OpenAI GPT-4, June 2023

3. Try using generative AI to create various examples that explain concepts.

When explaining concepts to students, using various examples can greatly aid their understanding. However, finding these examples can be time-consuming. Consider asking the generative AI to create examples.

 I'm teaching statistics and need to introduce Bayesian inference to my students. Could you help me create some examples of Bayesian inference that connect to their everyday experiences? 

 Of course, I'd be happy to help! Teaching Bayesian inference can be a bit tricky, but tying it to everyday experiences can make it more accessible. Here are a few examples:

Example 1: Sports Game


Let's imagine a student's favorite soccer team has won 60% of their games this season. They're about to play a team they've beaten 70% of the time in the past. The student may initially believe their team has a 65% chance of winning the next game (a simple average of 60% and 70%).


However, when they consider more information, such as that their favorite team's star player is injured, they should update their belief to reflect this new information. In Bayesian terms, their prior belief was a 65% chance of winning. The new information (evidence) is the injury. They must now update their belief (posterior probability) considering this new evidence. Perhaps now, they believe there's only a 55% chance of winning. This is a simple

Screenshot from OpenAI GPT-4, June 2023

4. Try using generative AI to simulate potential questions from students.

Inform the AI about the topic for the next class and ask it to predict possible questions. This could enable you to respond to students' queries more effectively.

 I am a philosophy professor. I am teaching 200-level Symbolic Logic this semester. Tomorrow, we will cover natural deduction. Suppose that you are a first-year student and you ask questions in class.

 Sure, I can simulate the kinds of questions a first-year student might ask during a lecture on natural deduction in a symbolic logic class. Here are some examples:

1. "Could you clarify what we mean by 'natural deduction'? How does it relate to other forms of reasoning that we've studied?"
2. "What are the fundamental rules of inference and how do we use them in natural deduction?"
3. "Can you give an example of how we would use natural deduction to prove a proposition from a set of premises?"

Screenshot from OpenAI GPT-4, June 2023

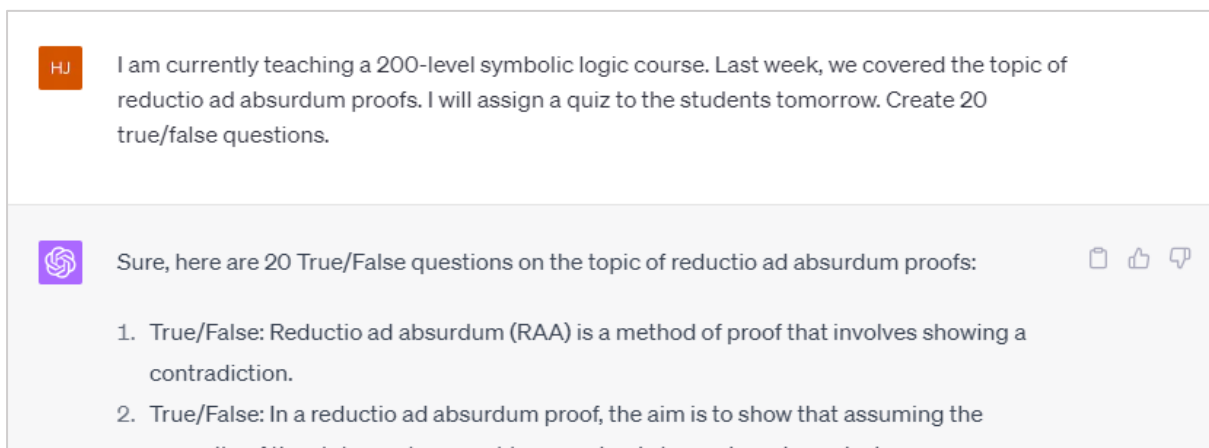
Assessment

1. Consider using oral exams.

If you are concerned about the potential decline in students' academic performance due to generative AI, implementing oral exams or unexpected questions can be an effective method to evaluate students' comprehension of their submitted assignments. Do not let the learning process stop at assignment submission; instead, encourage students to articulate their understanding of their own work. This approach can prevent students from submitting assignments they have not fully grasped.

2. Try asking generative AI to create quiz problems.

You can ask the generative AI to form True/False or multiple-choice questions. By revising and utilizing the questions generated by the AI, you can save time on creating quiz problems.

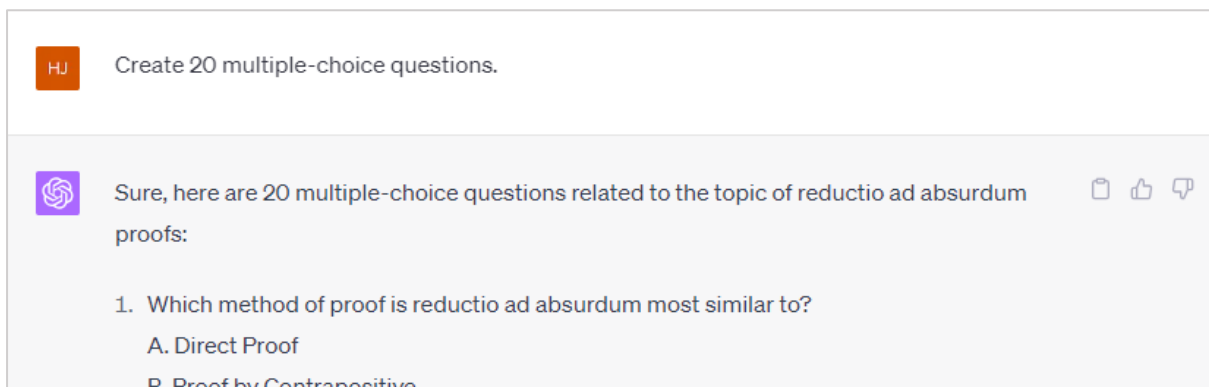


HJ I am currently teaching a 200-level symbolic logic course. Last week, we covered the topic of reductio ad absurdum proofs. I will assign a quiz to the students tomorrow. Create 20 true/false questions.

AI Sure, here are 20 True/False questions on the topic of reductio ad absurdum proofs: 📄 👍 🗨

1. True/False: Reductio ad absurdum (RAA) is a method of proof that involves showing a contradiction.
2. True/False: In a reductio ad absurdum proof, the aim is to show that assuming the opposite of the statement to be proved leads to a contradiction.

Screenshot from OpenAI GPT-4, June 2023



HJ Create 20 multiple-choice questions.

AI Sure, here are 20 multiple-choice questions related to the topic of reductio ad absurdum proofs: 📄 👍 🗨

1. Which method of proof is reductio ad absurdum most similar to?
A. Direct Proof
B. Proof by Contrapositive

Screenshot from OpenAI GPT-4, June 2023

3. Consider Using AI Detectors.

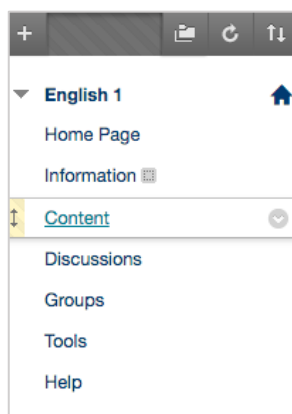
If you prohibit students from using AI generators to write and submit essays, it is recommended to use detectors that reveal whether generative AI was used.



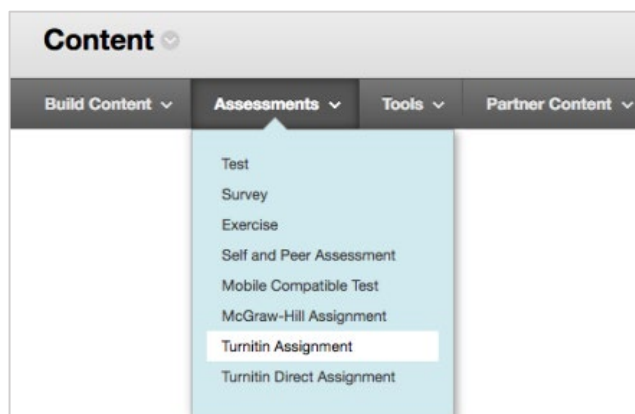
The Education Innovation Task Force tested several AI detectors launched by May 2023 and found that Turnitin and GPTZero showed relatively superior performance. As a result, an AI detection functionality was added to the Turnitin service, which was previously used to check the similarity of papers and assignments.

Turnitin is integrated with our university's Learning Management System (LMS), Blackboard. Encourage your students to submit their assignments via Blackboard. The setup for Turnitin in Blackboard is as follows:

(1) Click the 'Content' menu

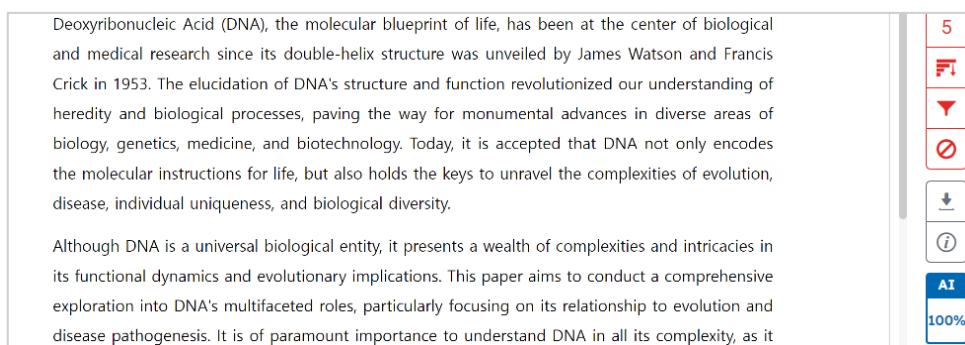


(2) Click 'Assessments (Turnitin Assignment)'



Screenshots from Blackboard

When using Turnitin, the percentage of AI usage is displayed in the blue box at the bottom right of the report.



Screenshot from Turnitin

While AI detectors are valuable tools, they should not be wholly relied upon. An AI detector is just one reference tool. If there's a suspicion that a student's work was generated by AI, it could be helpful to employ multiple AI detectors like GPTZero, where possible.

For shorter texts, the accuracy of AI detectors can decrease. Consequently, it's advisable to use AI detectors on longer texts, when possible.

Determining whether a student has used a generative AI to ghostwrite their assignment can be challenging. For an appropriate assessment, it's recommended to meticulously review the content of the student's work, evaluate their level of understanding through discussions, and then draw a conclusion about the potential use of AI.

Useful Links

Turnitin AI detection FAQ: <https://www.turnitin.com/products/features/ai-writing-detection/faq>

How to use Turnitin AI detection: <https://www.youtube.com/watch?v=lye6mYeUc6o>

Guide on how to use Turnitin from UNIST Library: <https://library.unist.ac.kr/research/turnitin/>

Grading and Feedback

1. Try using generative AI for grading.

Generative AI can serve as a grading assistant. However, when using generative AI for grading, it is essential for the instructor to personally review and adjust the student's essay and grading results. Also, please notify the students that generative AI was used in the grading process.

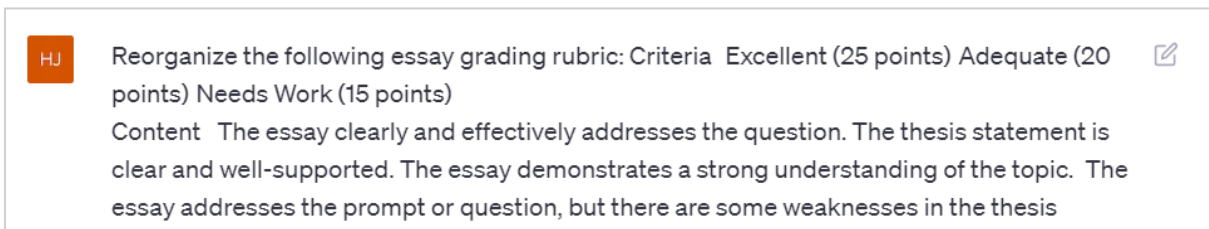
Start by creating a grading rubric, as shown in the example below.⁵

Criteria	Excellent (25 points)	Adequate (20 points)	Needs Work (15 points)
Content	The essay clearly and effectively addresses the prompt or question. The thesis statement is clear and well-supported. The essay demonstrates a strong understanding of the topic.	The essay addresses the prompt or question, but there are some weaknesses in the thesis statement or support. The essay demonstrates a basic understanding of the topic.	The essay does not adequately address the prompt or question. The thesis statement is unclear or unsupported. The essay demonstrates a poor understanding of the topic.
Organization	The essay is well-organized and easy to follow. The paragraphs are well-structured and flow smoothly. The introduction, body, and conclusion are all clearly defined.	The essay is somewhat organized, but there are some problems with the flow of the paragraphs or the clarity of the introduction, body, or conclusion.	The essay is poorly organized and difficult to follow. The paragraphs are not well-structured and the flow of the essay is choppy. The introduction, body, or conclusion are not clearly defined.

⁵ The provided example of a marking rubric was generated through Google's Bard.

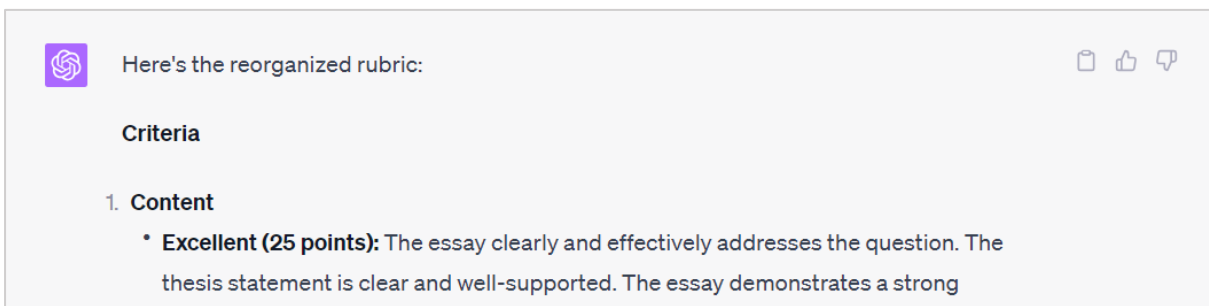
Development	The essay develops the thesis statement with strong supporting evidence. The evidence is relevant, specific, and well-explained. The essay uses a variety of sources to support its claims.	The essay develops the thesis statement with some supporting evidence. The evidence is relevant, but it is not always specific or well-explained. The essay uses a limited number of sources to support its claims.	The essay does not adequately develop the thesis statement. The evidence is not relevant or specific, and it is not well-explained. The essay does not use any sources to support its claims.
Style	The essay is written in a clear, concise, and engaging style. The language is appropriate for the audience and purpose. The essay is free of grammar and mechanics errors.	The essay is written in a clear and concise style, but there are some minor errors in grammar or mechanics.	The essay is poorly written and difficult to read. The language is inappropriate for the audience or purpose. The essay contains numerous grammar and mechanics errors.

Generative AI typically recognizes copied and pasted table content quite well. However, to ensure it is well-understood by the generative AI, it is recommended to modify it into a more comprehensible format. This process can also be facilitated by the generative AI. For example, you can input “Reorganize the following essay rubric:”, followed by the simply copied rubric table.



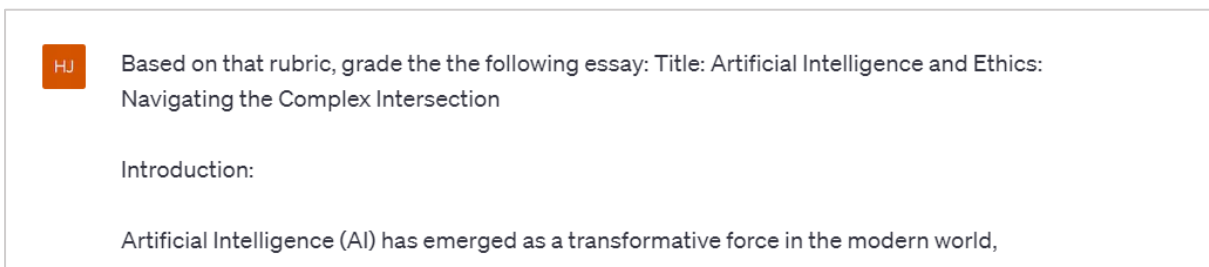
Screenshot from OpenAI GPT-4, June 2023

Then, a reorganized grading rubric will appear as follows:



Screenshot from OpenAI GPT-4, June 2023

After double-checking the content, ask the generative AI to grade the essay based on that rubric:



Screenshot from OpenAI GPT-4, June 2023

Then, the generative AI will provide the grading results as shown below:

1. Content:

- **Score: 25/25:** The essay clearly and effectively addresses the topic, with a clear and well-supported thesis. The essay demonstrates a strong understanding of the topic.

2. Organization:

- **Score: 25/25:** The essay is well-organized and easy to follow. The introduction, body, and conclusion are clearly defined. The paragraphs are well-structured and flow smoothly.

3. Development:

- **Score: 25/25:** The essay develops the thesis statement with strong supporting evidence, which is relevant, specific, and well-explained. The essay utilizes a variety of points to support its claims.

4. Style:


- **Score: 23/25:** The essay is written in a clear, concise, and engaging style. The language is appropriate for the audience and purpose. There were a few minor grammar errors.





Total Score: 98/100

Screenshot from OpenAI GPT-4, June 2023

7. Try using generative AI for feedback.

Besides grading, generative AI can also assist in crafting initial feedback for students. Ask the generative AI to generate feedback in a way that encourages your students. In using generative AI to give feedback to students, it is crucial that you always check the content of the feedback.

 Give feedback on the essay in a positive and supportive way.

 Dear writer,   

I thoroughly enjoyed reading your essay on "Artificial Intelligence and Ethics: Navigating the Complex Intersection". It was clear, well-organized, and demonstrated a deep understanding of the subject matter. Here are some detailed feedback and suggestions for further enhancement.

1. **Content:** Your grasp on the subject is highly impressive. You did an excellent job addressing the question, crafting a clear and well-supported thesis statement, and demonstrating a strong understanding of the topic. Keep it up!

Screenshot from OpenAI GPT-4, June 2023

Examples of Incorporating Generative AI in the Classroom

1. Prof. Bradley Tatar at UNIST, 'First-year seminar'

The course focuses on developing self-awareness and leadership skills, understanding the impact of AI from humanities and social science perspectives, and strategizing for human adaptation in an AI-structured society. It involves students in self-reflective writing, social diversity role-play, discussions, and a final project. For the writing assignments, students are expected to create prompts for fictional stories using ChatGPT; however, for self-reflective assignments, personal reflections should not be generated with ChatGPT. For the final project and presentations, the use of ChatGPT is optional.

Presentation and Report: Make a plan to save humanity.

Final project: Design a plan for the year 2045, under domination by intelligent machines.

2. Prof. Young Hoan Cho, Jongho Shin, Yongnam Kim, at Seoul National University 'Artificial Intelligence and Future Education'

Students were tasked to imagine a day in the life of a primary school student named Kim Mirae in the year 2050, through a conversation with ChatGPT, and write a science fiction story based on it. They were also asked to visually represent their story with drawings and submit it as part of their mid-journey assignment.

3. Prof. Seung-ik Jeong at Seoul Cyber University, 'Future of the Metaverse'

In this course, the use of ChatGPT is mandatory, and not using it results in a deduction of marks. Any submitted assignments must contain content generated by ChatGPT.

Assignment 1: If you were an art collector, which NFT artwork would you purchase?

Assignment 2: Why did Facebook change its name to 'Meta'?

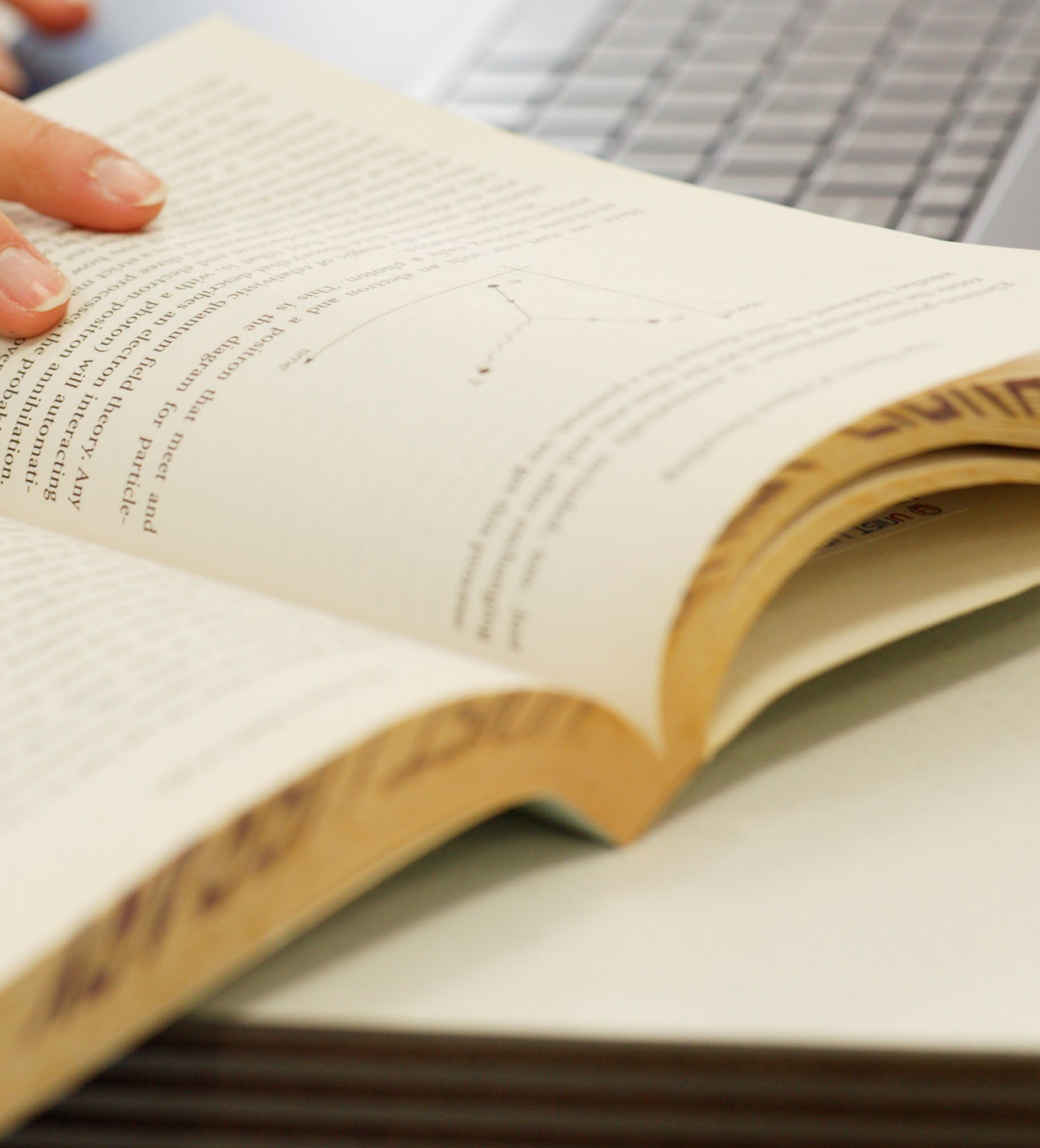
Assignment 3: Draft a business plan for a 'Metaverse' venture.

Submit your report at the class time, at the classroom.

Guideline:

- Select any object with substance(s) to make your realities, using augmented reality (AR) to
- Conceptual AR design is to be used; you may also select other methods, such as DR (di
- You are requested to use the following terms more than once in your report: actualit
- With Mid-term report, there is no required format and length





...with an electron and a positron and a photon. This is the diagram that meet and
...describes an electron-positron annihilation process. Any
...the probability of the process.



...the probability of the process.

Education (Students)

Consider utilizing generative AI in your learning process. AI can provide a customized learning experience tailored to your individual level and pace, and it can assist in deepening your understanding across a range of topics. However, it is crucial to understand the limitations of generative AI and ensure that you do not miss opportunities to develop your own competencies.

1. Consider developing a study plan using generative AI.

You can ask the AI to help create a study schedule either for the semester or the holidays. Set your desired field of study and duration, then ask for recommendations such as textbooks, MOOCs, or YouTube content.



I'm planning to study Python and data science for two months during this summer vacation. Please help me create a study plan. Also, recommend textbooks, reading materials, MOOCs, youtube videos, and so on.



Sure, I'd be happy to help you create a study plan for Python and data science. Here's a rough plan that you can adjust according to your needs and pace of learning.



Week 1-2: Python Basics

- **Textbook:** "Python Crash Course, 2nd Edition: A Hands-On, Project-Based Introduction to Programming" by Eric Matthes.
- **MOOC:** "Python for Everybody" on Coursera.
- **YouTube:** Corey Schafer's Python Tutorials.

Week 3: Python Advanced Topics

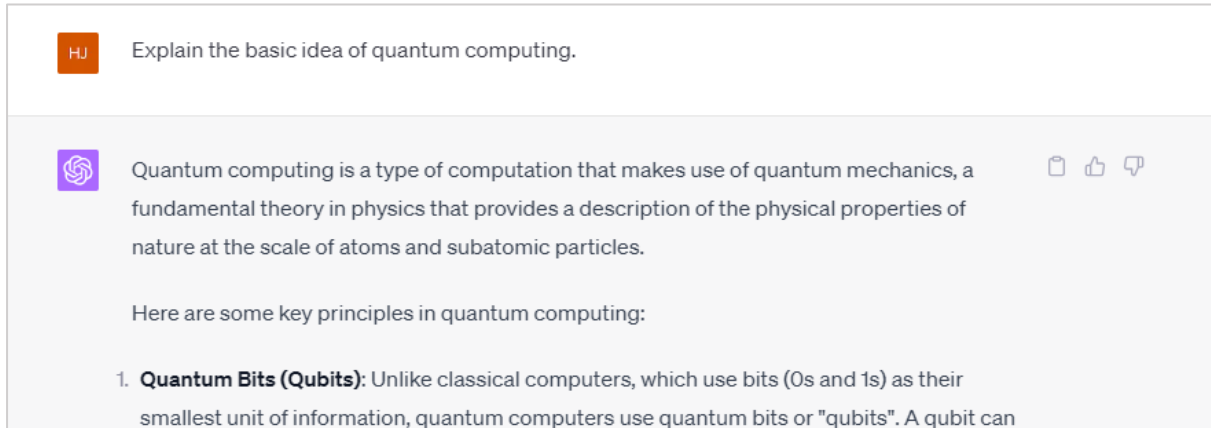
- **Textbook:** "Fluent Python: Clear, Concise, and Effective Programming" by Luciano Ramalho.
- **MOOC:** "Deep Learning Prerequisites: The Numpy Stack in Python" on Udemy.
- **YouTube:** Sentdex's Python Intermediate and Advanced Tutorials.

Week 4: Introduction to Data Science and Statistics

Screenshot from OpenAI GPT-4, June 2023

2. Request concept explanations from generative AI.

Ask the AI about concepts you don't understand.



HJ Explain the basic idea of quantum computing.

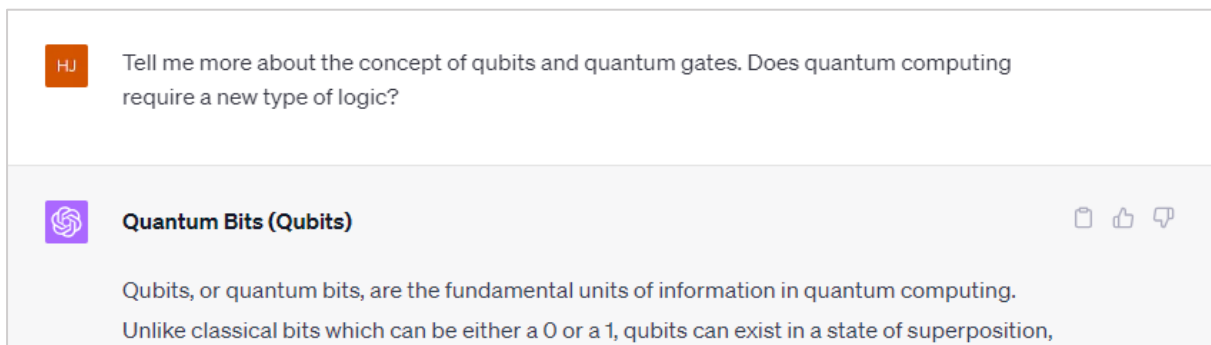
Quantum computing is a type of computation that makes use of quantum mechanics, a fundamental theory in physics that provides a description of the physical properties of nature at the scale of atoms and subatomic particles.

Here are some key principles in quantum computing:

1. **Quantum Bits (Qubits):** Unlike classical computers, which use bits (0s and 1s) as their smallest unit of information, quantum computers use quantum bits or "qubits". A qubit can

Screenshot from OpenAI GPT-4, June 2023

If there are areas that you're finding difficult to comprehend, continue asking questions based on the AI's explanations.



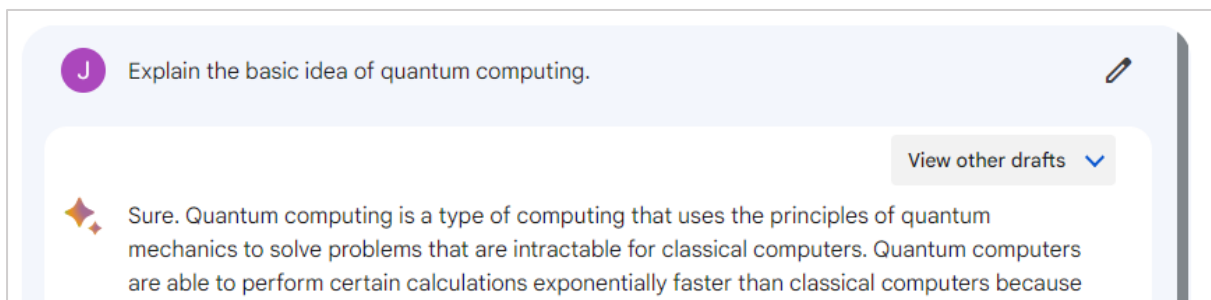
HJ Tell me more about the concept of qubits and quantum gates. Does quantum computing require a new type of logic?

Quantum Bits (Qubits)

Qubits, or quantum bits, are the fundamental units of information in quantum computing. Unlike classical bits which can be either a 0 or a 1, qubits can exist in a state of superposition,

Screenshot from OpenAI GPT-4, June 2023

Consider asking the same question multiple times or posing it to a different generative AI. Just as you might get a better answer by asking the same question to multiple people, you could find a better answer by asking different AIs the same question.



J Explain the basic idea of quantum computing.

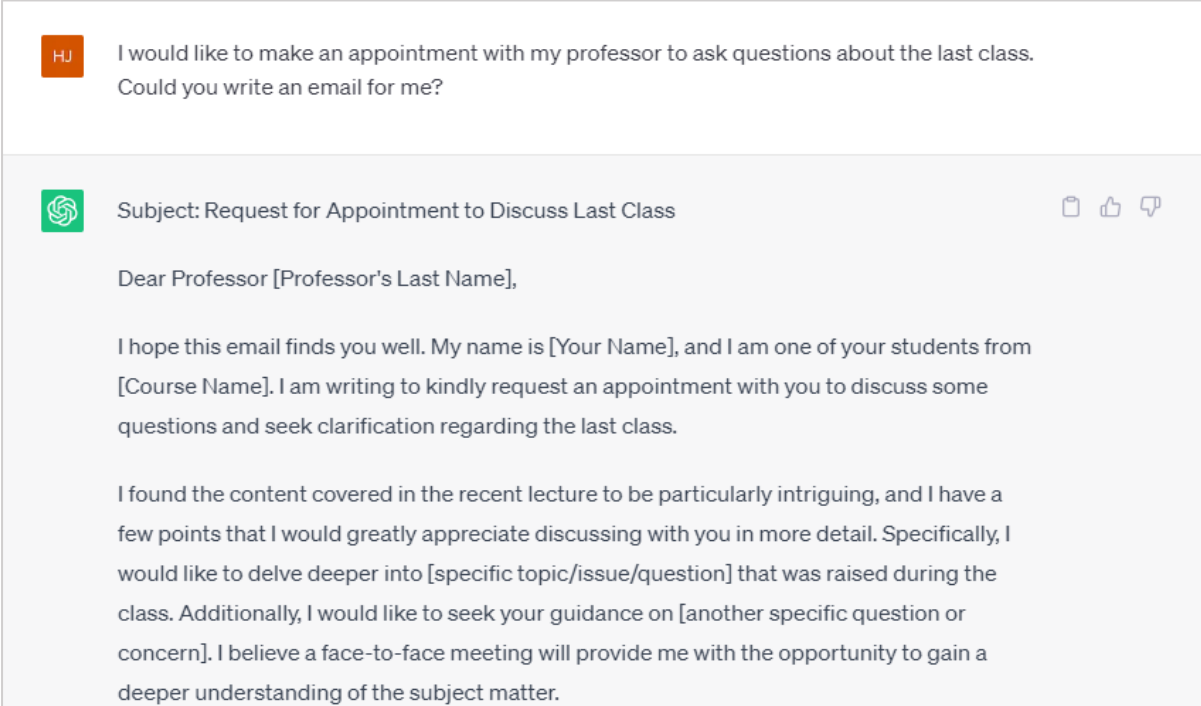
View other drafts

Sure. Quantum computing is a type of computing that uses the principles of quantum mechanics to solve problems that are intractable for classical computers. Quantum computers are able to perform certain calculations exponentially faster than classical computers because

Screenshot from Google Bard, June 2023

3. Consider using generative AI to draft an email to your professor.

If you have questions but find it challenging to approach your professor directly, sending an email can be a good alternative. Generative AI can provide significant assistance in writing emails. Ask generative AI for advice on the most effective way to draft your email. Also, it is a great way to learn how to compose an email politely and professionally.



HJ I would like to make an appointment with my professor to ask questions about the last class. Could you write an email for me?

GPT-4 Subject: Request for Appointment to Discuss Last Class

Dear Professor [Professor's Last Name],

I hope this email finds you well. My name is [Your Name], and I am one of your students from [Course Name]. I am writing to kindly request an appointment with you to discuss some questions and seek clarification regarding the last class.

I found the content covered in the recent lecture to be particularly intriguing, and I have a few points that I would greatly appreciate discussing with you in more detail. Specifically, I would like to delve deeper into [specific topic/issue/question] that was raised during the class. Additionally, I would like to seek your guidance on [another specific question or concern]. I believe a face-to-face meeting will provide me with the opportunity to gain a deeper understanding of the subject matter.

Screenshot from OpenAI GPT-4, June 2023



Research (Faculty, Students, Researchers)

When utilizing generative AI in research, you can enhance your work's efficiency. However, as the reliance on generative AI increases, the originality of your research might gradually decrease. Determining the acceptable boundary for using generative AI is challenging. This is similar to removing a single grain from a heap and asking when it no longer qualifies as a heap. If you're employing generative AI in your research, it is advisable to use it judiciously, ensuring that it doesn't undermine your work's originality. Always remember, the responsibility for the final outcome of the research lies solely with the researcher.

1. Verify the editorial policy of the journal or publisher.

It is essential to check the editorial policies of prospective journals or publishers not only at the submission stage but also throughout the research process. Below are the editorial policies from several journals and publishers. Please note that these policies may change over time.

SPRINGER, nature

Springer and Nature hold that large language models (LLMs) like ChatGPT do not qualify as authors, given they fail to meet the necessary criteria. They say that “use of an LLM should be properly documented in the Methods section (and if a Methods section is not available, in a suitable alternative part) of the manuscript.” Furthermore, they assert that “while legal issues relating to AI-generated images and videos remain broadly unresolved, Springer Nature journals are unable to permit its use for publication.” “Exceptions are images/art obtained from agencies that we have contractual relationships with that have created images in a legally acceptable manner.”

Springer's Editorial policy: <https://www.springer.com/gp/editorial-policies/artificial-intelligence--ai-/25428500>

Nature's Editorial policy: <https://www.nature.com/nature-portfolio/editorial-policies/ai>

Science

According to Science's editorial policy, text generated by artificial intelligence cannot be used in papers published in Science journals. Furthermore, graphics, images, or figures created by AI cannot be used without special permission from the editors. LAI cannot be an author of a paper in any Science journal.

Science's Editorial Policy: <https://www.science.org/content/page/science-journals-editorial-policies>

ELSEVIER

According to Elsevier's editorial policy, AI and AI-assisted tools are not recognized as authors. However, Elsevier permits the use of AI to enhance readability and language during the writing process. However, the use of such technology must be disclosed in the manuscript, and this disclosure will be noted in the final publication

Elsevier's editorial policy: <https://www.elsevier.com/about/policies/publishing-ethics-books/the-use-of-ai-and-ai-assisted-technologies-in-writing-for-elsevier>

2. Disclose how you used generative AI.

It is important to disclose how you used generative AI in your research. Please make it clear in the appropriate places of your paper, such as the acknowledgements or methods, about the use and application of generative AI.

Nature's editor-in-chief, Magdalena Skipper, emphasizes, “authors using LLMs in any way while developing a paper should document their use in the methods or acknowledgments sections, if appropriate” (Chris Stoke-Walker, 2023).

3. How to cite generative AI

There is a risk of being perceived as committing plagiarism if the usage of generative AI is not appropriately cited in academic writing. Holden Thorp, editor-in-chief of the Science family of journals, has made his position clear on this issue. He states, “use of AI-generated text without proper citation could be considered plagiarism” (Chris Stoke-Walker, 2023).

Researchers must appropriately cite the use of generative AI, adhering to the style guidelines of each specific journal. Here are a few methods for appropriately citing generative AI in scholarly papers:

APA style

Timothy McAdoo from the APA Style team suggests that a conversation with ChatGPT is more akin to the output of a computer algorithm than an interaction with a present interlocutor. Therefore, he recommends citing the creator of the algorithm instead.

Unfortunately, the results of a ChatGPT “chat” are not retrievable by other readers, and although nonretrievable data or quotations in APA Style papers are usually cited as personal communications, with ChatGPT-generated text there is no person communicating. Quoting ChatGPT’s text from a chat session is therefore more like sharing an algorithm’s output; thus, credit the author of the algorithm with a reference list entry and the corresponding in-text citation. (McAdoo, 2023)

The way to cite LLMs like ChatGPT in APA style is as follows:

- Parenthetical citation: (OpenAI, 2022)
- Narrative citation: OpenAI (2022)

Reference

OpenAI. (2023). ChatGPT (Mar 14 version) [Large language model]. <https://chat.openai.com/chat>

See: <https://apastyle.apa.org/blog/how-to-cite-chatgpt>

MLA style

The MLA Style Center describes how to cite a generative AI as follows:

You should

- cite a generative AI tool whenever you paraphrase, quote, or incorporate into your own work any content (whether text, image, data, or other) that was created by it
- acknowledge all functional uses of the tool (like editing your prose or translating words) in a note, your text, or another suitable location
- take care to vet the secondary sources it cites

In addition, the MLA requires you to include the prompt that was given to the generative AI in the reference. The date of usage of the generative AI is also required.

Work Cited

“Tell me about confirmation bias” prompt. ChatGPT, 13 Feb. version, OpenAI, 16 Feb. 2023, chat.openai.com.

See: <https://style.mla.org/citing-generative-ai/>

Chicago style

In Chicago Style, citing generative AI is generally similar to citing an unpublished interview, and the citation is made in the footnotes, meaning there is no need to add it separately in the bibliography. However, the method of citation can differ depending on whether the prompt given to the generative AI is included within the body of the paper.

- If the prompt has been included in the text, it can be included in the note:
 1. Text generated by ChatGPT, March 7, 2023, OpenAI, <https://chat.openai.com/chat>.
- If the prompt has not been included in the text, it can be included in the note:
 1. ChatGPT, response to “Explain how to make pizza dough from common household ingredients,” March 7, 2023, OpenAI.

See: <https://www.chicagomanualofstyle.org/qanda/data/faq/topics/Documentation/faq0422.html>

4. Try using generative AI for proofreading your paper.

You can use generative AI for proofreading your paper as follows. However, excessive editing by AI could alter the content and results of your paper, potentially compromising the originality of your work. Therefore, authors should be cautious when using generative AI for proofreading.

HJ

Proofread the following: Generative AI is a rapidly growing field of artificial intelligence that is capable of creating new content, such as text, images, and music. This technology has the potential to be used for a variety of purposes, including art, entertainment, and education. However, there are also a number of ethical concerns that need to be considered when using generative AI.

Screenshot from OpenAI GPT-4, June 2023

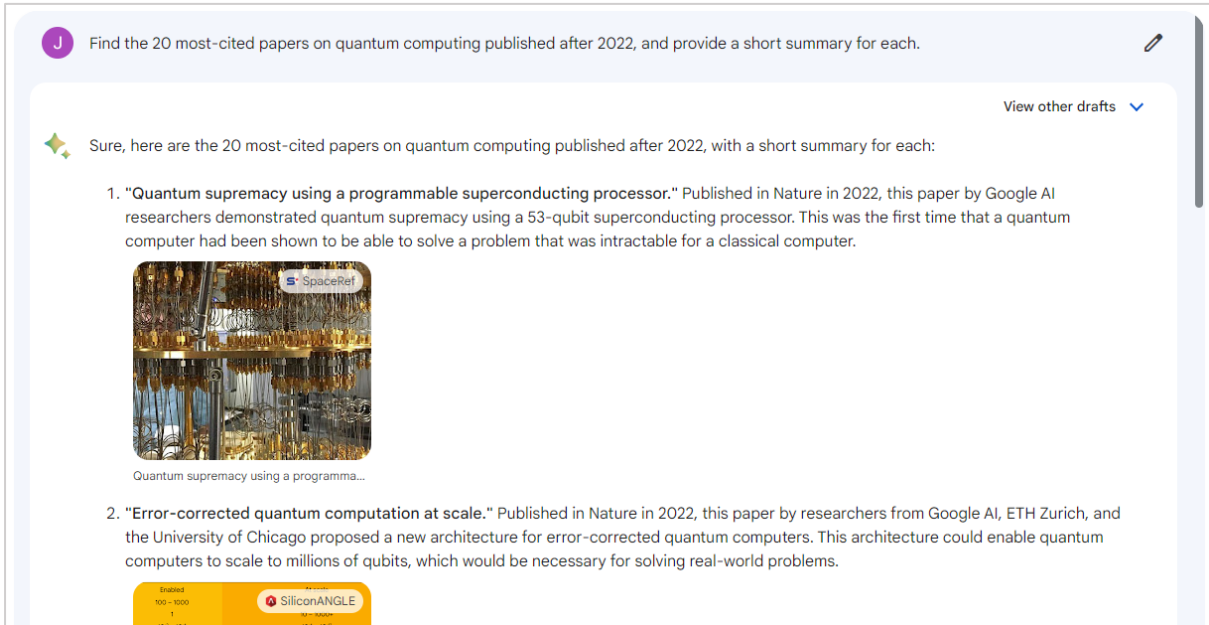
HJ

Correct grammatical mistakes of the following: Generative AI is a rapidly growing field of artificial intelligence that is capable of creating new content, such as text, images, and music. This technology has the potential to be used for a variety of purposes, including art, entertainment, and education. However, there are also a number of ethical concerns that need to be considered when using generative AI.

Screenshot from OpenAI GPT-4, June 2023

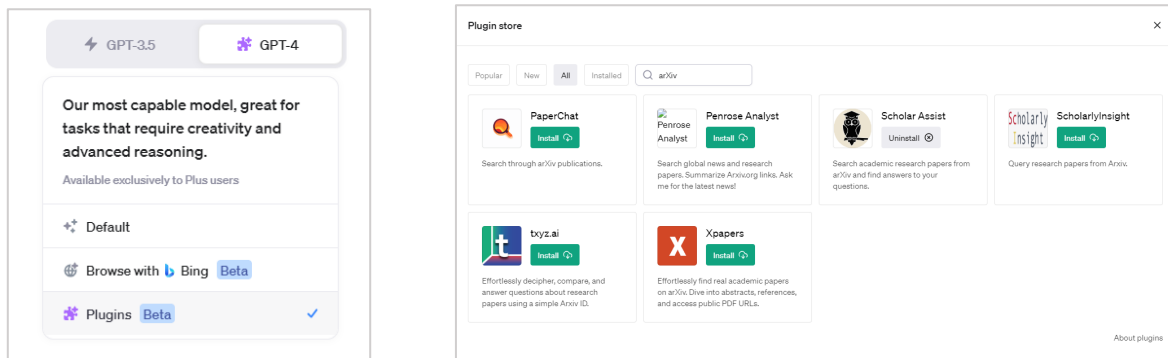
5. Try using generative AI for your literature review.

Ask for recommendations of the most frequently cited or most influential papers in a specific field. (Please note that ChatGPT is based on data trained until September 2021. For the latest materials, try using Google’s Bard or Microsoft’s Bing.)



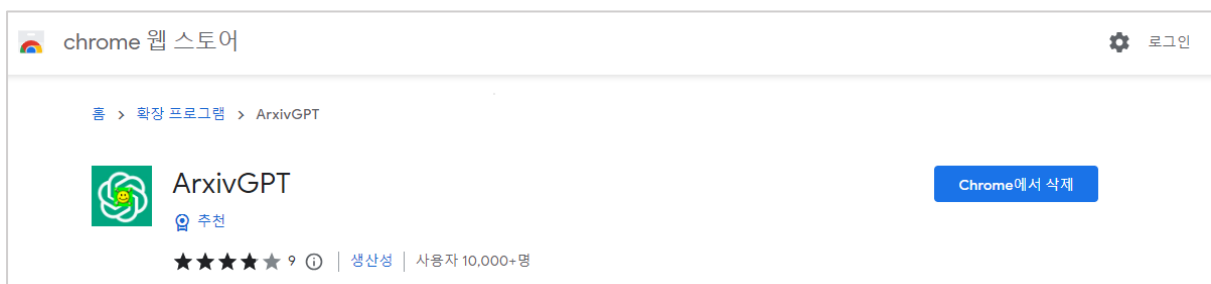
Screenshot from Google Bard, June 2023

If you are a subscriber of the paid service GPT-plus, you can search the archives of Arxiv, a prominent academic paper repository, through a plugin. Try searching for "arXiv" in the plugin store.



Screenshots from OpenAI GPT-4, June 2023

The Chrome browser features a variety of plugins related to generative AI. One such plugin, ArxivGPT, can provide crucial information about papers uploaded on Arxiv.



Screenshot from Chrome Webstore

Presented below is a default paper summary prompt provided by ArxivGPT.

Please summarize the paper by author(s) in one concise sentence. Then, list key insights and lessons learned from the paper. Next, generate 3-5 questions that you would like to ask the authors about their work. Finally, provide 3-5 suggestions for related topics or future research directions based on the content of the paper. If applicable, list at least 5 relevant references from the field of study of the paper.

Presented below is the paper summary result generated via the ArxivGPT plugin on Chrome.

The screenshot shows the arXiv website interface for the paper "Quantum Computing 2022" by James D. Whitfield et al. The page includes a search bar, navigation links, and a sidebar with download options and references. An ArxivGPT summary overlay is present in the bottom left, providing a concise summary and key insights from the paper.

Quantum Physics
[Submitted on 24 Jan 2022 (v1), last revised 7 Jun 2022 (this version, v2)]
Quantum Computing 2022
James D. Whitfield, Jun Yang, Weishi Wang, Joshua T. Heath, Brent Harrison

Quantum technology is full of figurative and literal noise obscuring its promise. In this overview, we will attempt to provide a sober assessment of the promise of quantum technology with a focus on computing. We provide a tour of quantum computing and quantum technology that is aimed to be comprehensible to scientists and engineers without becoming a popular account. The goal is not a comprehensive review nor a superficial introduction but rather to serve as a useful map to navigate the hype, the scientific literature, and upcoming press releases about quantum technology and quantum computing. We have aimed to cite the most recent topical reviews, key results, and guide the reader away from fallacies and towards active discussions in the current quantum computing literature. The goal of this article was to be pedantic and introductory without compromising on the science.

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- Other formats

Current browse context: **quant-ph**
< prev | next >
new | recent | 2201

References & Citations

- INSPIRE HEP
- NASA ADS
- Google Scholar
- Semantic Scholar

Export BibTeX Citation

Bookmark

arXivGPT "default" prompt is used

Summary: The paper "Quantum Computing 2022" by James D. Whitfield et al. provides a comprehensive overview of quantum technology, specifically focusing on quantum computing, with the aim of guiding scientists and engineers through the hype, literature, and discussions in the field.

Key insights and lessons learned from the paper:

- The paper offers a sober assessment of the promise of quantum technology by addressing the challenges and noise that can obscure its potential.
- It provides a tour of quantum computing and quantum technology, offering a useful map to navigate the scientific literature and upcoming press releases.
- The authors cite recent topical reviews and key results, helping readers stay informed about the current state of quantum computing.
- The article strives to strike a balance between being pedantic and introductory, ensuring scientific accuracy without compromising accessibility.

Screenshots from OpenAI GPT-4, June 2023

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Appendix: Survey Results

The Education Innovation Task Force conducted a survey to understand how generative AI is used and perceived by UNIST members. The aim of this survey was to formulate effective strategies for handling generative AI. The survey details are as follows:

Survey period: April 28, 2023, to May 7, 2023

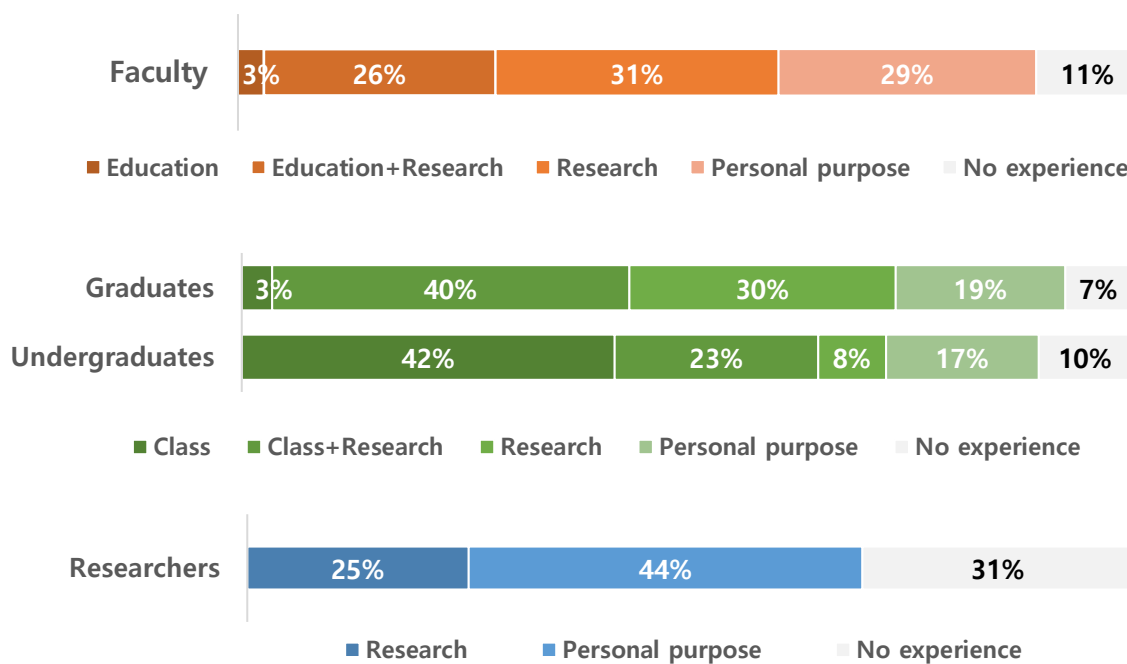
Participants: 70 faculty members, 147 graduates, 105 undergraduates, and 36 researchers

Usage habits (faculty, students, researchers)

Have you ever used generative AI like ChatGPT?

Among the respondents, 89% of the faculty, 93% of graduate students, 90% of undergraduates, and 69% of researchers indicated they have used generative AI. Among the respondents, 43% of graduate students and 65% of undergraduates had used generative AI in their classes. In the case of undergraduates, about two-thirds of the respondents are using generative AI in their courses.

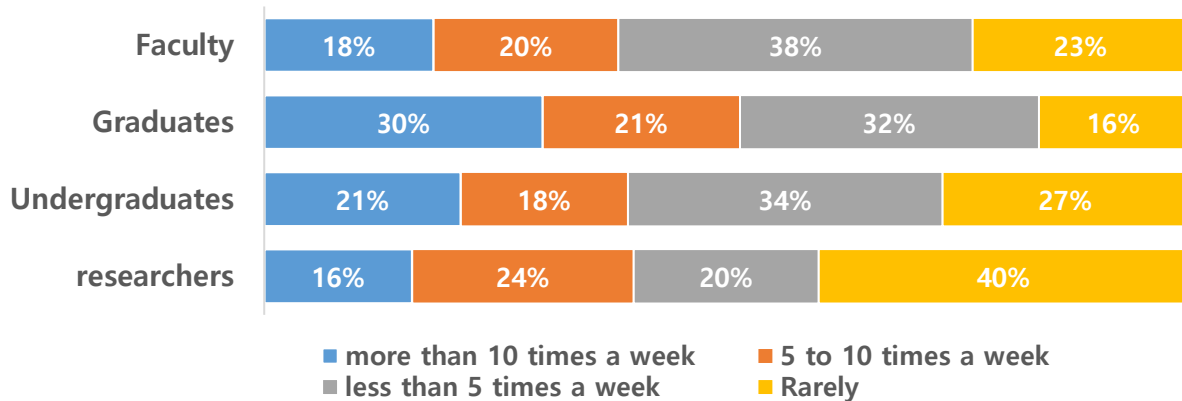
70 faculty members, 147 graduates, 105 undergraduates, and 36 researchers responded.



How often do you use generative AI?

Among those who responded that they have used generative AI in the previous question, 38% of faculty, 51% of graduate students, 39% of undergraduate students, and 16% of researchers reported using it five times a week or more. Graduate students showed the highest frequency of use.

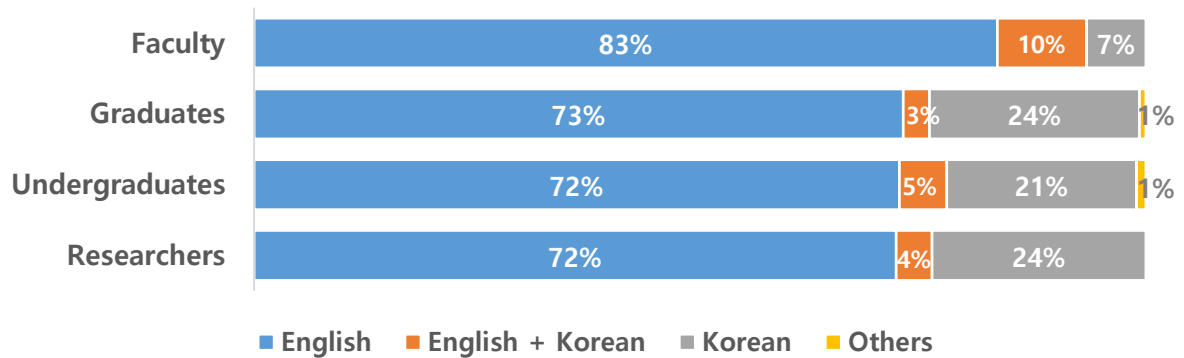
60 faculty members, 136 graduates, 94 undergraduates, and 25 researchers responded.



What language do you primarily use when using generative AI?

Among those who responded that they have used generative AI, 83% of faculty members, 73% of graduate students, 72% of undergraduate students, and 72% of researchers revealed that they primarily use English when leveraging generative AI. The high prevalence of English usage among students seems to be attributable to the fact that courses at UNIST are conducted in English.

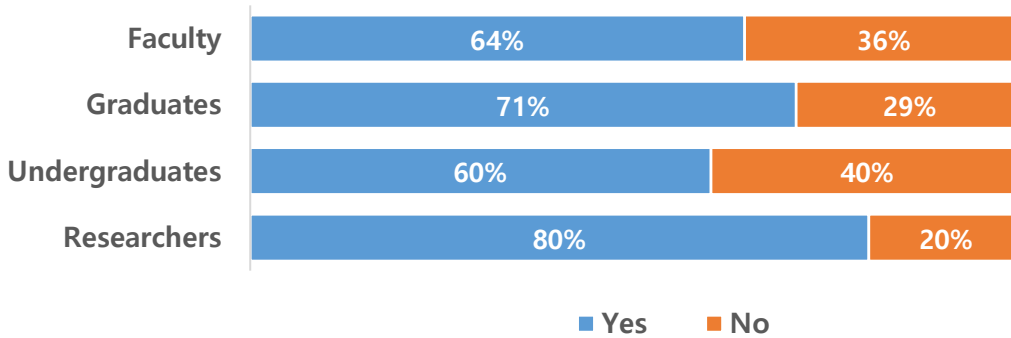
60 faculty members, 136 graduates, 94 undergraduates, and 25 researchers responded.



When using generative AI, are you cautious about the potential leakage of personal information or important research data?

Among those who reported using generative AI, 64% of faculty members, 71% of graduate students, 60% of undergraduate students, and 80% of researchers stated that they are cautious about security when using generative AI.

60 faculty members, 136 graduates, 94 undergraduates, and 25 researchers responded.

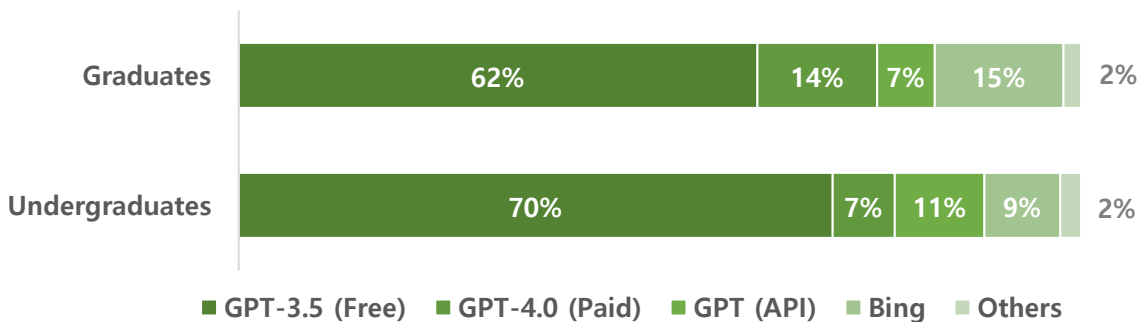


Usage habits (students)

What generative AI tool do you mainly use?

Among the students who reported having used generative AI, most responded that they use the GPT-3.5 (free) version, while 21% of graduate students and 18% of undergraduates who have used generative AI reported using the paid services GPT-4.0 or GPT (API). Other responses included Bard, Github Copilot, ChatPDF, Stable Diffusion, and Perlexity.ai.

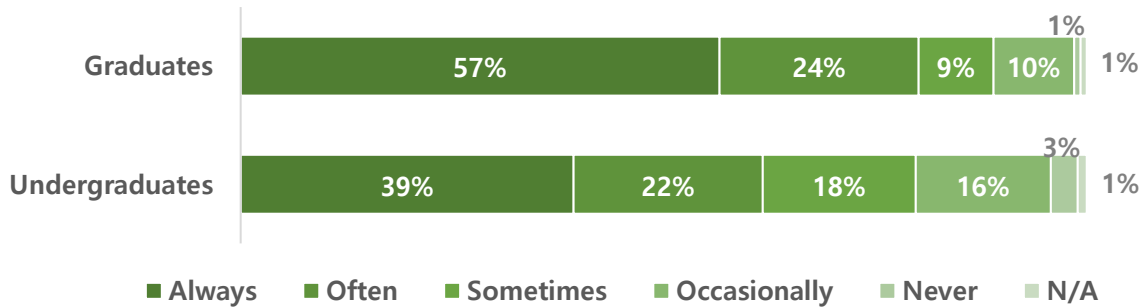
136 graduates and 94 undergraduates responded.



Generative AI can produce answers that are different from the truth. Do you fact-check the answers obtained through it?

57% of graduate students and 39% of undergraduates who have used generative AI responded that they always fact-check the output. Only 1% of graduate students and 3% of undergraduates reported that they do not fact-check at all. These results suggest that students are well aware of the limitations of generative AI.

136 graduates and 94 undergraduates responded.

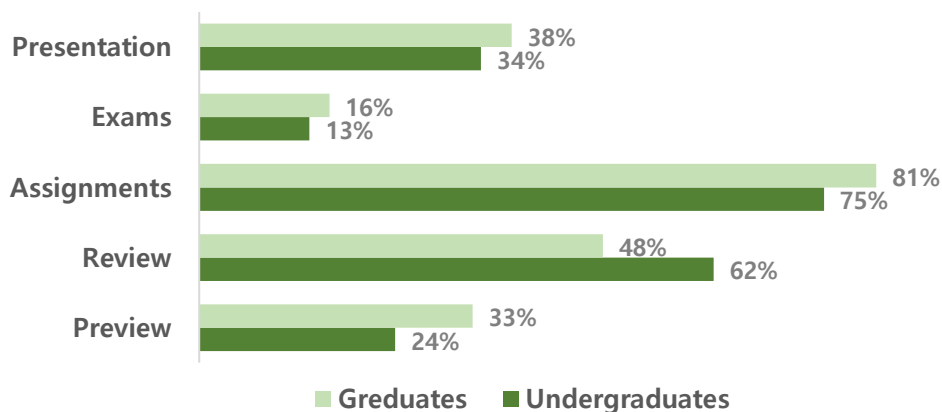


Learning (students)

If you have used generative AI for coursework, specifically for what purposes have you used it? (Multiple responses)

81% of graduate students and 75% of undergraduates who reported using generative AI in their coursework indicated that they use it for assignments. Both graduate and undergraduate students were found to use generative AI more for reviewing than for previewing. 16% of graduate students and 13% of undergraduates reported using generative AI for exams.

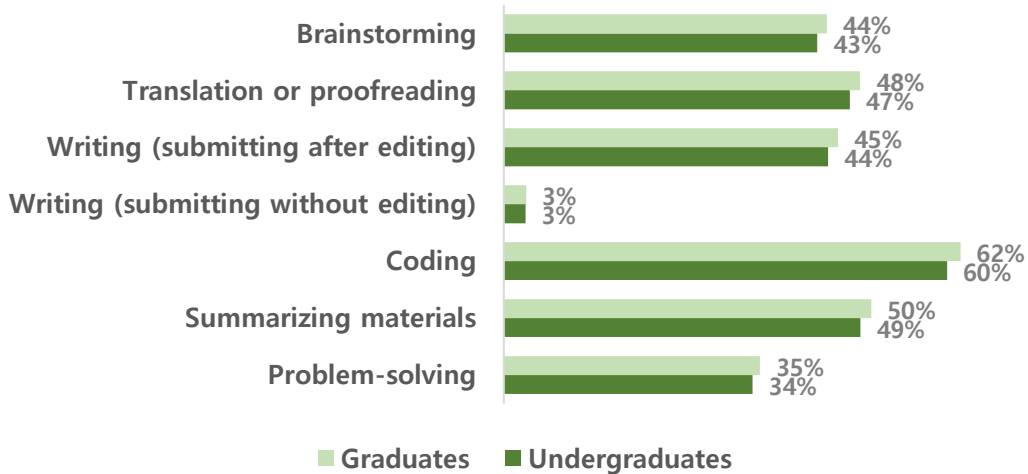
64 graduate students and 68 undergraduates who use generative AI in their coursework responded.



If you have used generative AI for coursework, how specifically have you used it? (Multiple responses)

The application of generative AI revealed a very similar pattern among both graduate and undergraduate students. Both groups primarily use it for coding. When using generative AI, only 3% of both graduate and undergraduate students said they submit their writing assignments without any revisions.

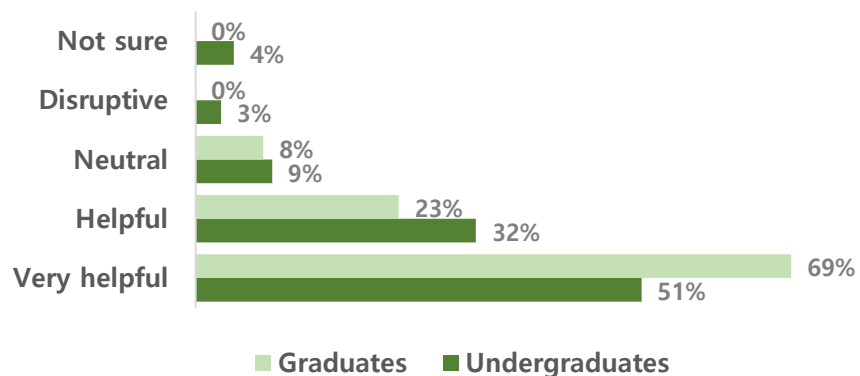
64 graduate students and 68 undergraduates who use generative AI in their coursework responded.



Do you think using generative AI is helpful for your learning?

In a survey conducted among students who use generative AI in their studies, the majority indicated that the use of generative AI helped or significantly aided their learning. However, 3% of undergraduates responded that it seemed to obstruct their learning.

64 graduate students and 68 undergraduates who use generative AI in their coursework responded.

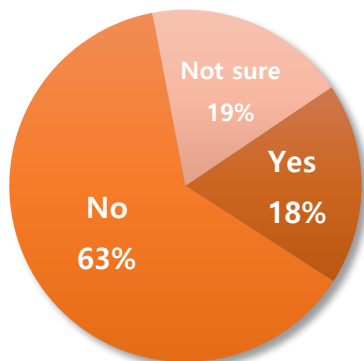


Education (faculty)

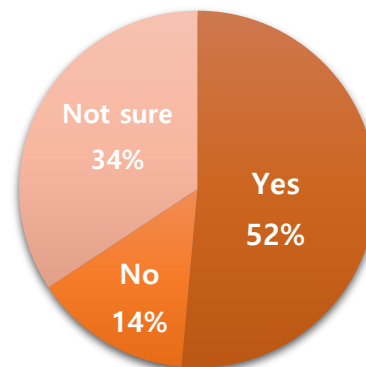
Of the faculty respondents, 18% indicated they plan to ban the use of generative AI in future assignments or exams. However, 63% reported they would not prohibit the use of generative AI in these areas. Additionally, 52% of faculty expressed willingness to incorporate generative AI into their future classes. Overall, this data suggests a generally favorable attitude towards generative AI usage among faculty.

70 faculty members responded.

Would you prohibit the use of generative AI by students in their assignments or exams in your future classes?

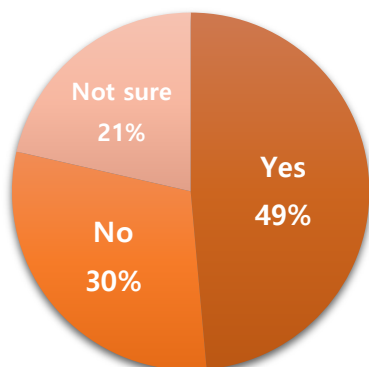


Do you have intention of using generative AI in your future classes?

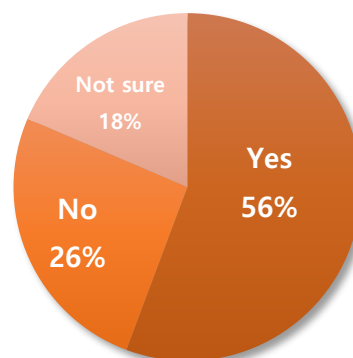


In response to the question of whether they would be willing to use an AI detector assuming that the use of generative AI by students is banned, 49% of respondents answered affirmatively. Furthermore, 56% of faculty members indicated that changes in the assignment or exam formats are necessary due to generative AI.

Would you use of AI detector?



Should assignments and exam formats be changed due to the potential use of generative AI by students?

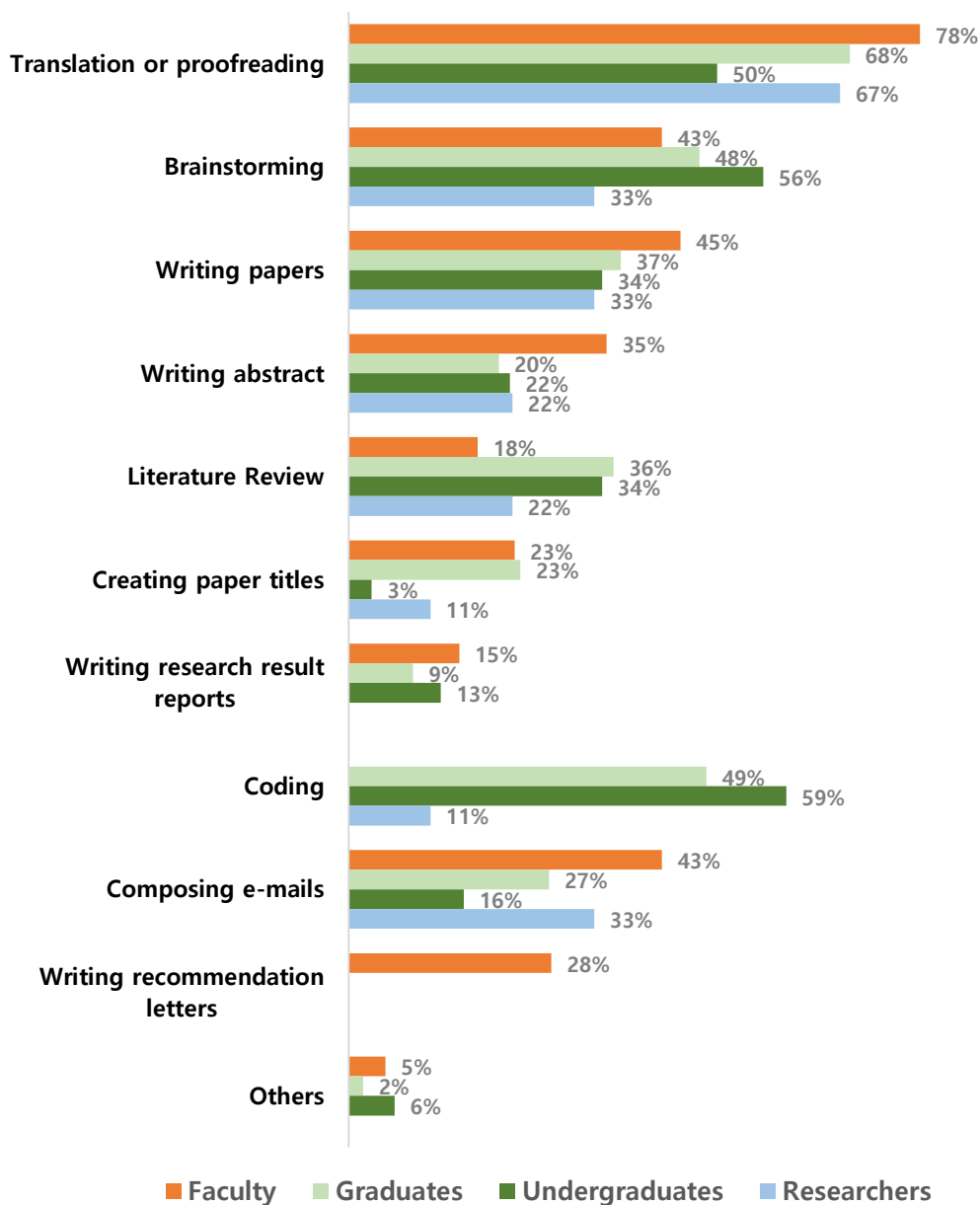


Research (faculty, students, researchers)

How do you utilize generative AI in your research? (multiple responses)

For faculty members, graduate students, and researchers, the most common use of generative AI in research was for translation or proofreading. In contrast, undergraduate students used generative AI for brainstorming and coding more frequently, with 56% and 59% respectively, compared to other groups.

60 faculty members, 136 graduates, 94 undergraduates, and 25 researchers responded.

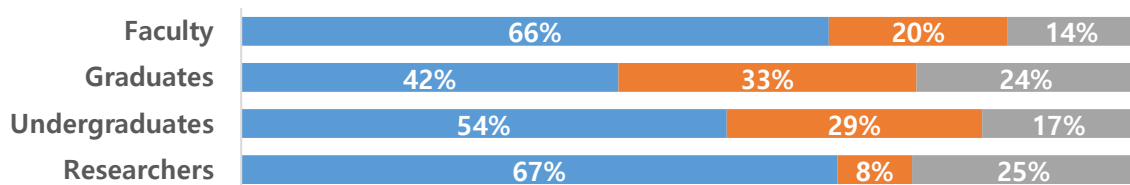


Academic Integrity (faculty, students, researchers)

Plagiarism is generally defined as "taking someone else's ideas or creations without proper citation." Do you think using generative AI for writing papers constitutes plagiarism?

Two-thirds of the respondents, consisting of 66% faculty members and 67% researchers, believe modifications are needed to the existing definition. Additionally, 42% of graduates and 54% of undergraduates also responded that they think the current definition needs revision.

70 faculty members, 147 graduates, 105 undergraduates, and 36 researchers responded.

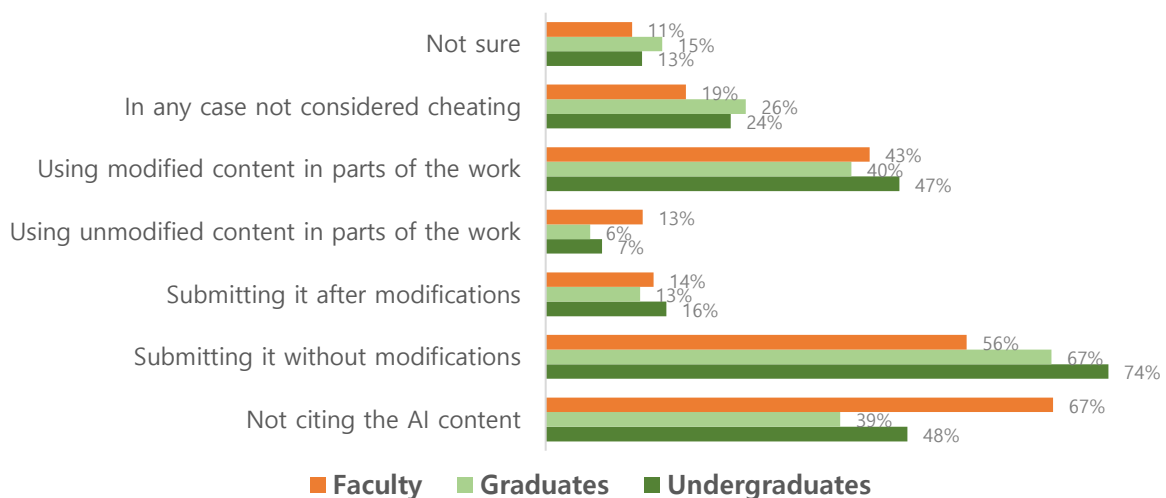


- Using generative AI without citation is plagiarism. The existing definition needs to be modified.
- Since it's not written by a person, submitting it without modification is not plagiarism.
- Not sure

Which of the following do you think considered cheating when students use generative AI for their assignments? (Multiple responses)

While 67% of faculty members responded that not citing the use of generative AI constitutes cheating, only 39% of graduate students and 48% of undergraduates shared this view, demonstrating a disparity in perception. Furthermore, the percentage of faculty members who believe that submitting work without modification constitutes academic dishonesty was 56%, lower than that of the students.

70 faculty members, 147 graduates, 105 undergraduates, and 36 researchers responded.



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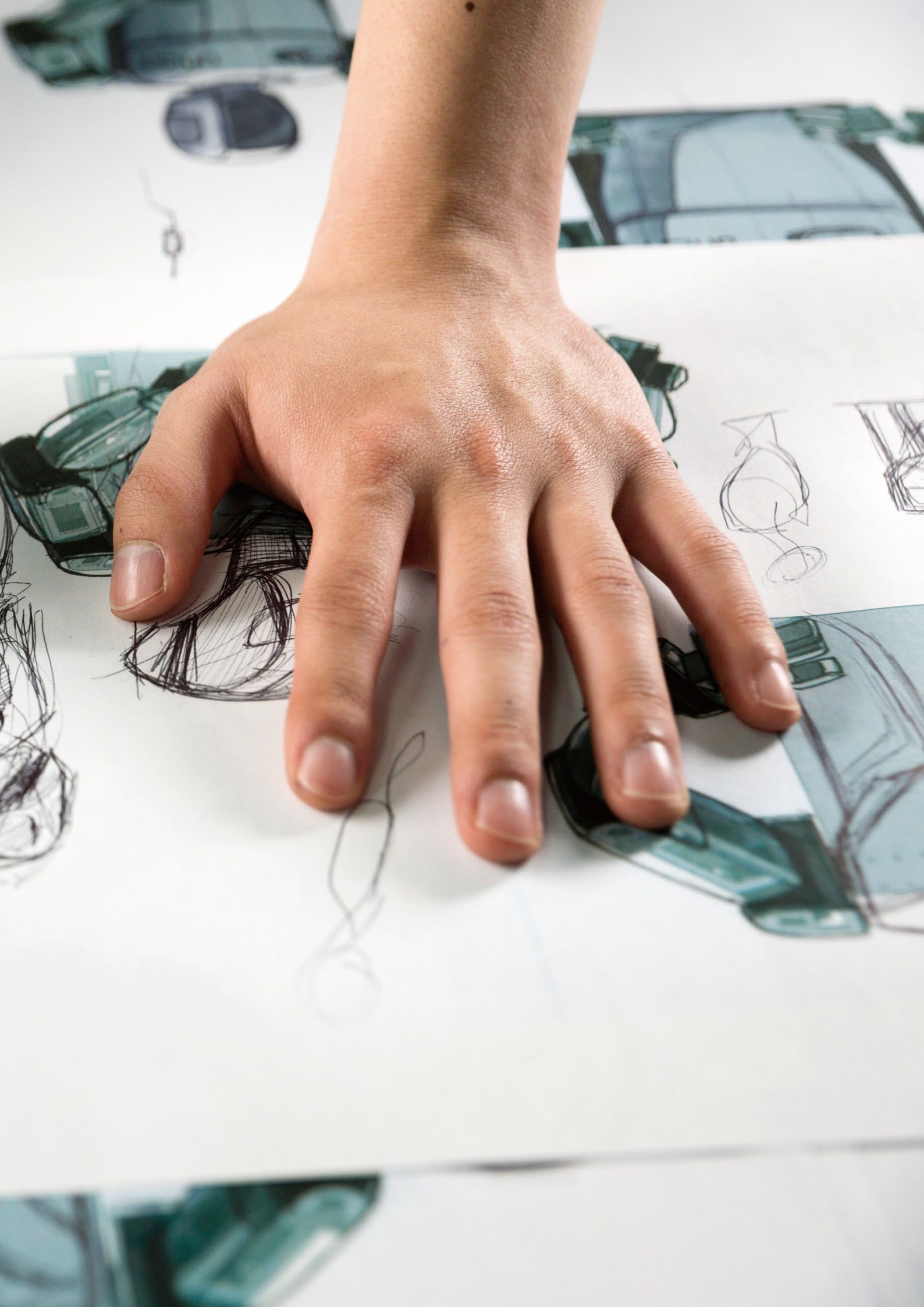


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