

Large language models in higher education

An exploration of the ethical landscape

Jesse van der Zweep



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Introduction



Who am I

Jesse van der Zweep

Machine learning engineer at

NAVINFO 

Radix

SONY

NVISO 

Lecture goal

To explore and critically analyze **the ethical implications** of large language models in higher education.

Lecture outline

01

How to think about LLMs

03

Navigating a moral
dilemma

02

Ethics and morality

04

Debate

01

How to think about LLMs



They predict the next word

They predict the next word

I hope this email finds you well. I am writing to

Given this context

They predict the next word

I hope this email finds you well. I am writing to extend

Given this context

Predict the
next word

They predict the next word

I hope this email finds you well. I am writing to

...

inquire

discuss

extend

share

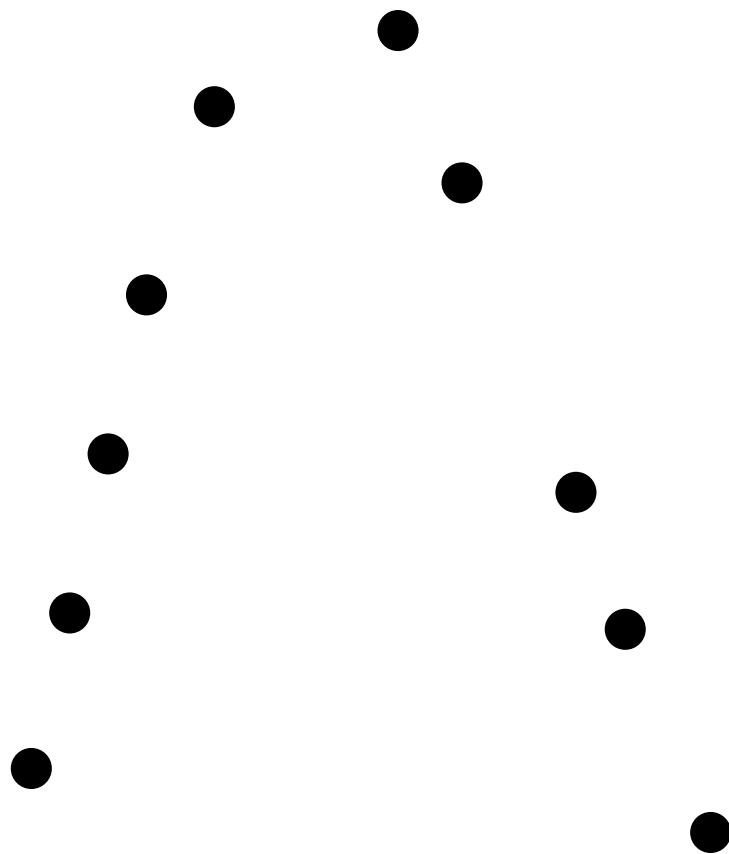
request

express

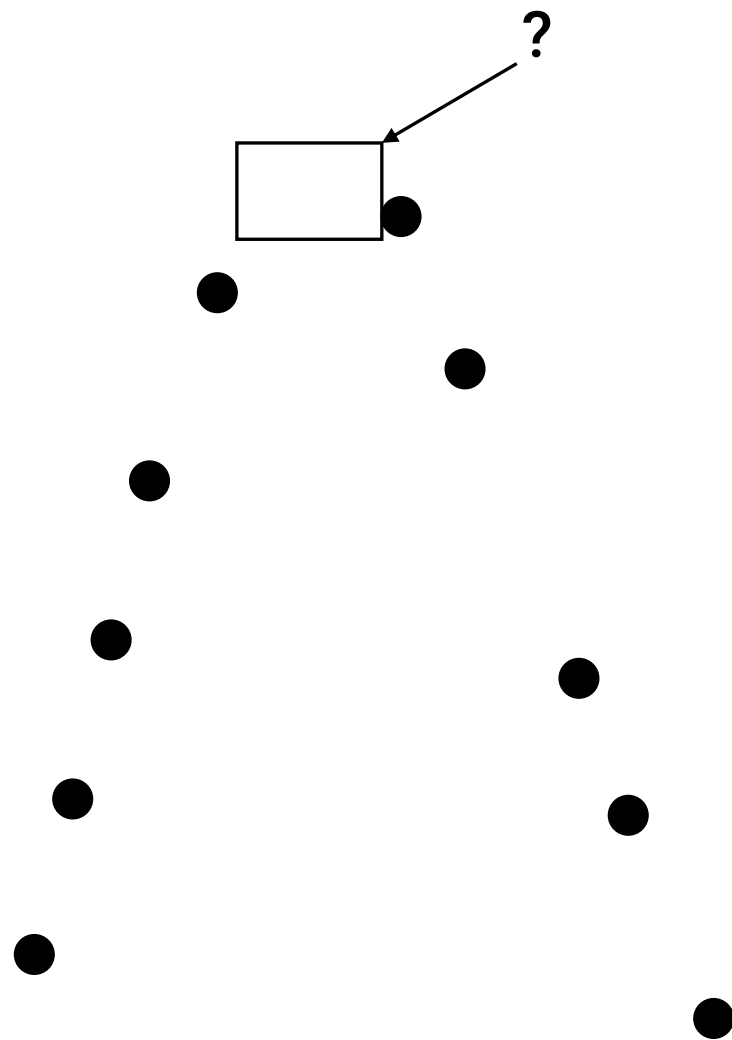
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**They can
interpolate**

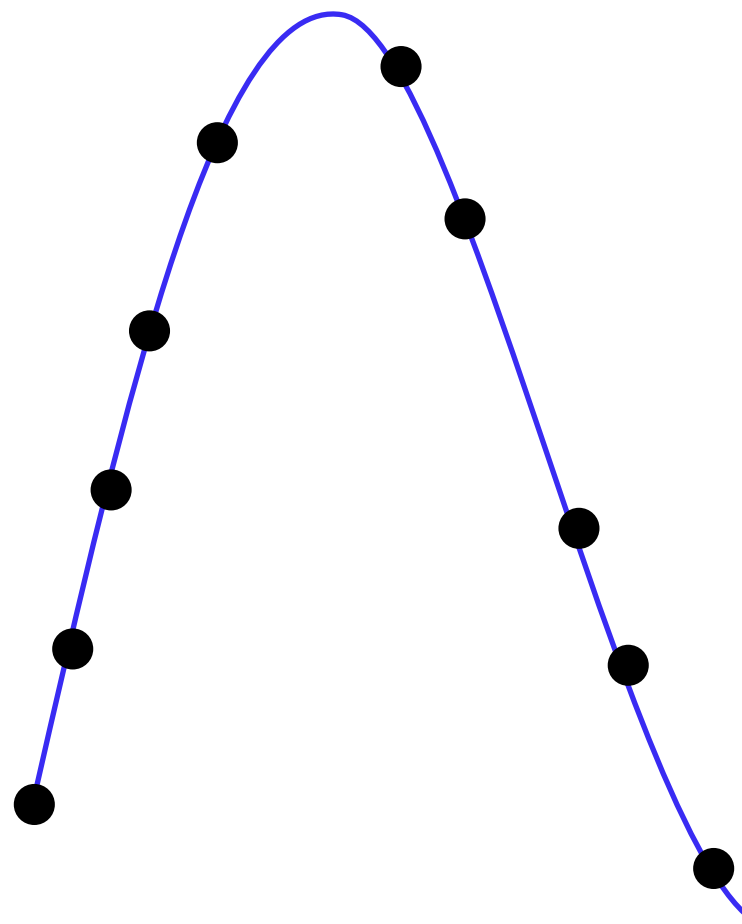
They can
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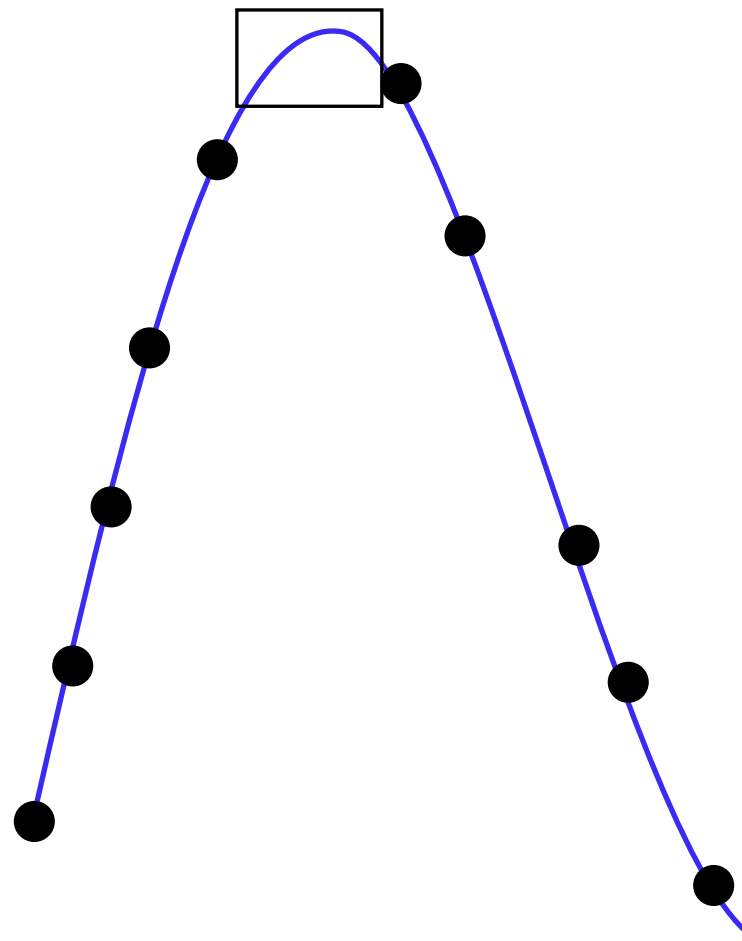
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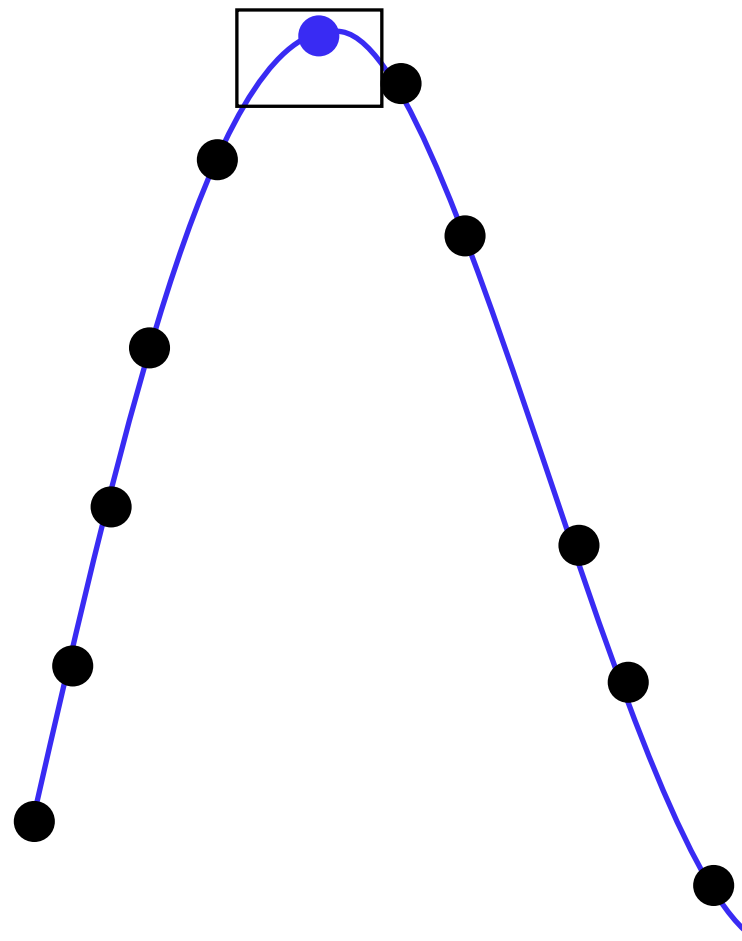
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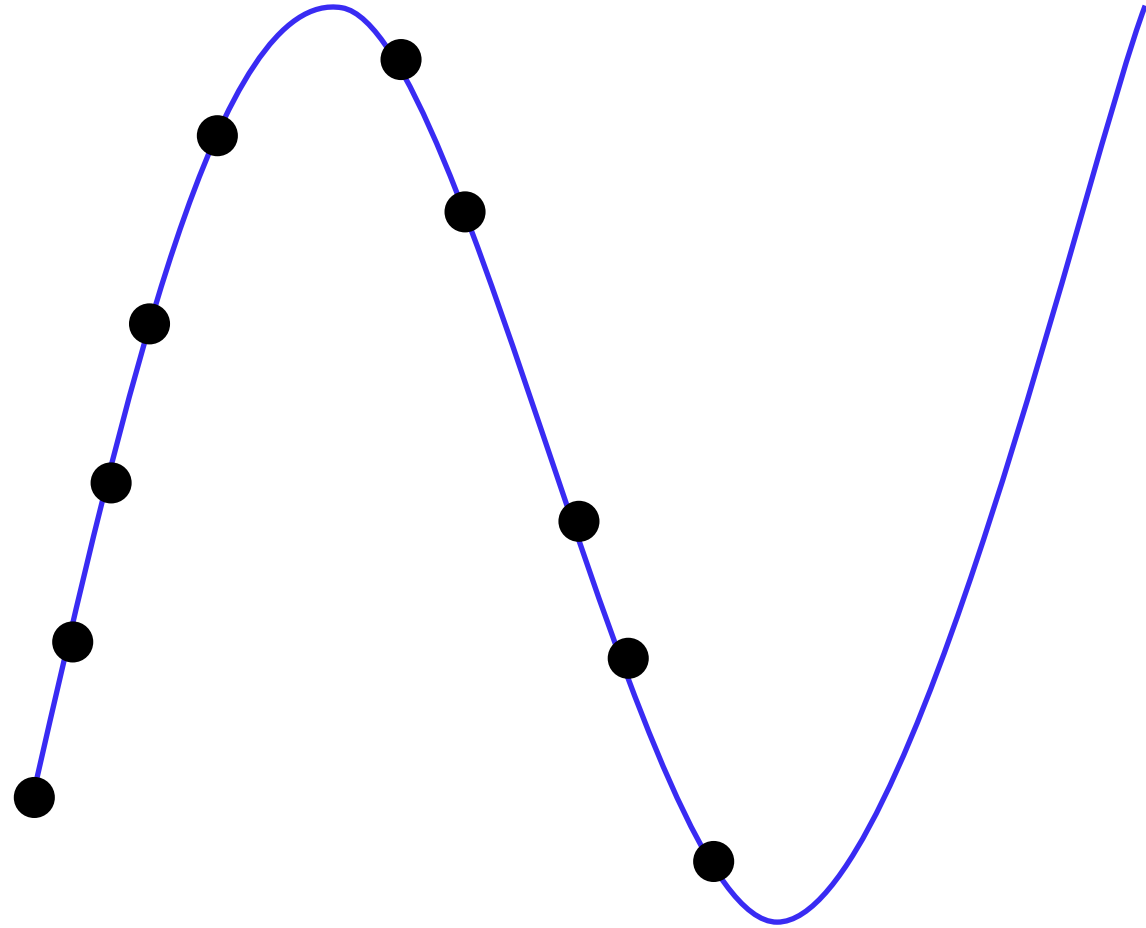
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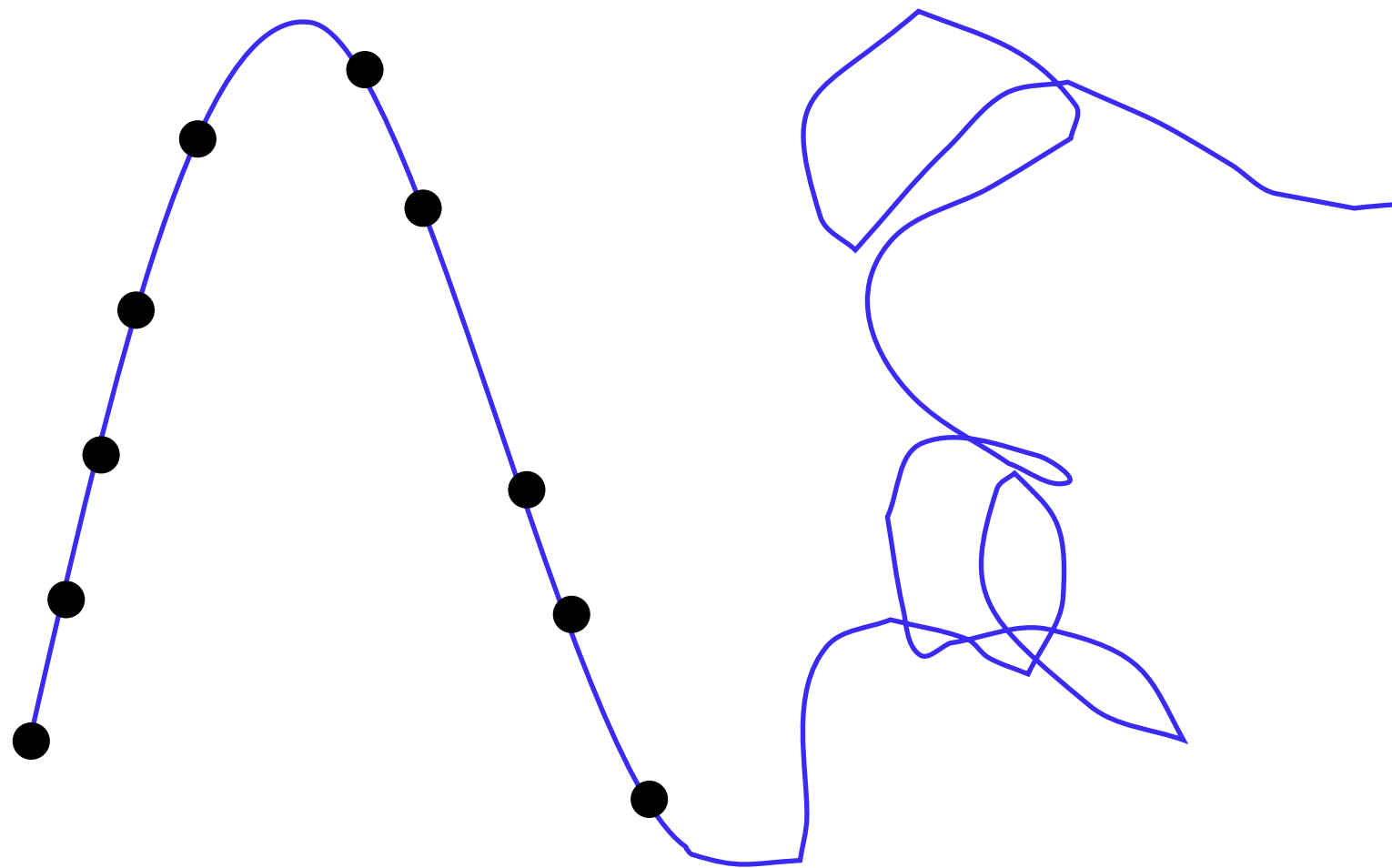
They can
interpolate



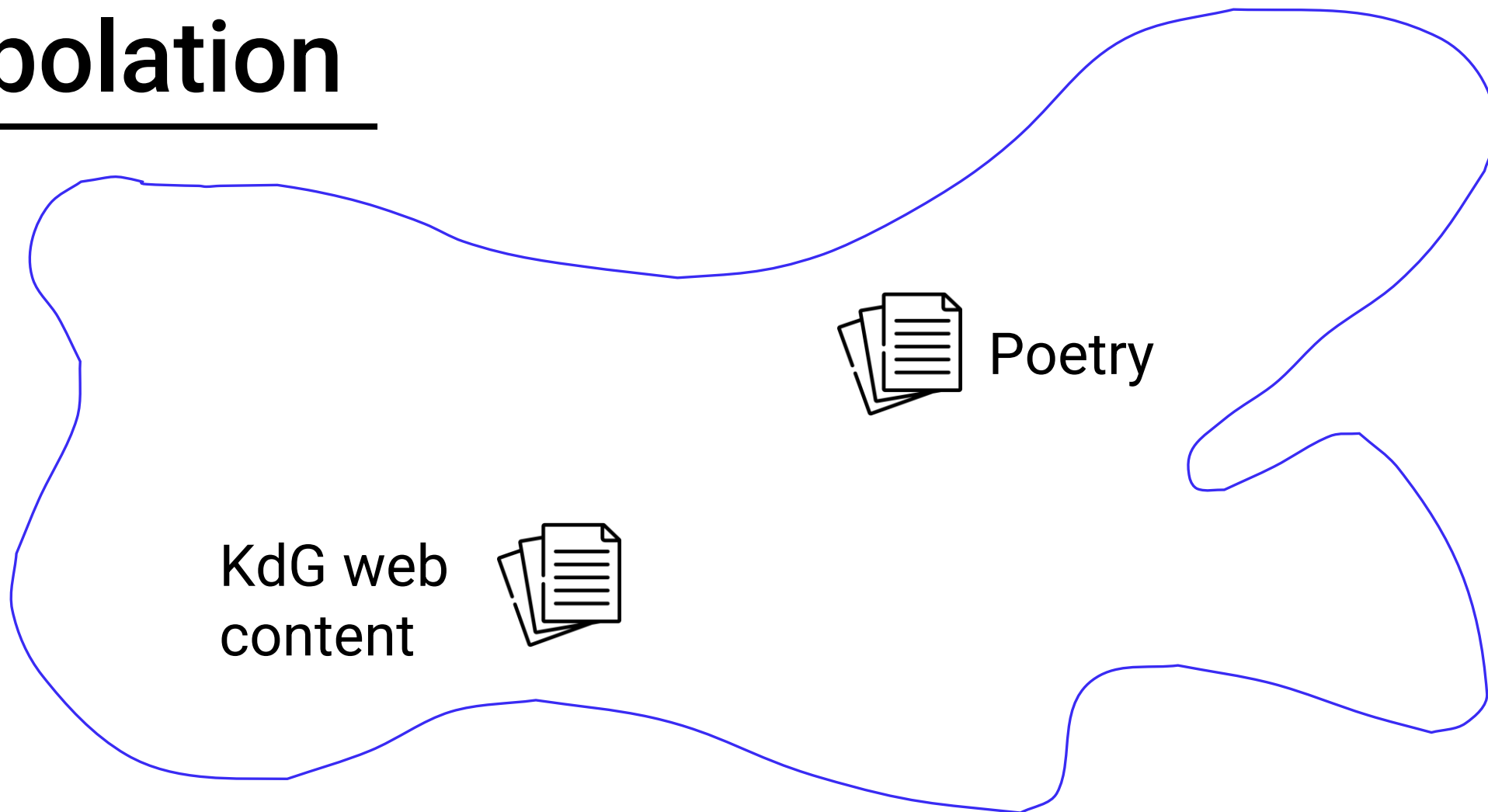
But not
extrapolate



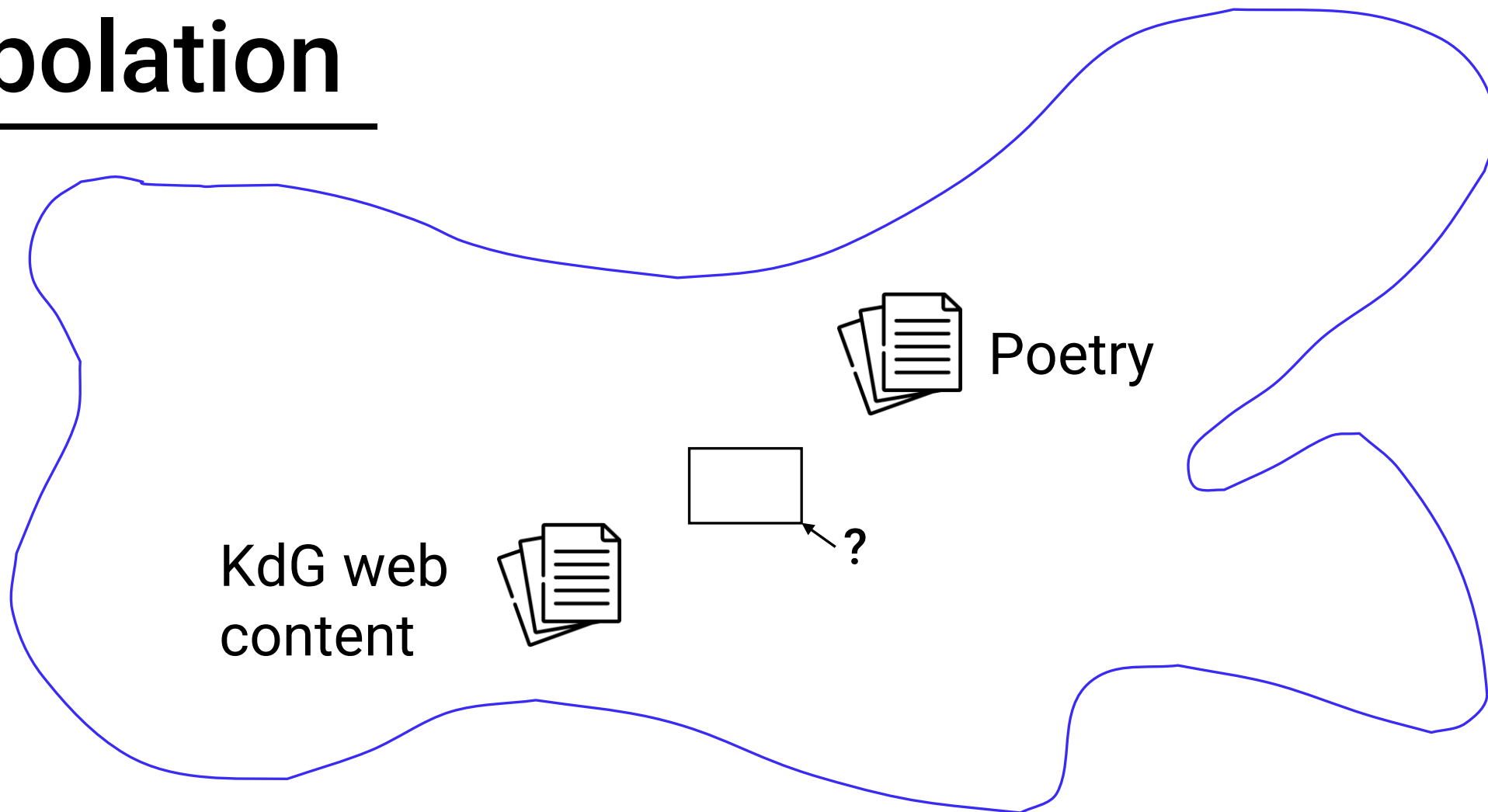
But not
extrapolate



LLM interpolation



LLM interpolation





You

Write a cinquain poem about the curriculum of the "Multimedia & Creative Technologies" programme at KdG university. Include something about where KdG is located.



ChatGPT

In Antwerp's halls,
Pixels dance, code aligns,
Creative minds converge,
Tech and art intertwine,
KdG's vision.

LLM extrapolation



Very recent
data

All training data



LLM extrapolation





You

Summarized the most important things that happened in the stock market during the first week of 2024.

< 2 / 2 >



ChatGPT Classic

As of my last update in April 2023, I don't have access to real-time or current data, including stock market events in 2024. However, I can guide you on how to find this information:

LLMs generate text that **sounds** right.

LLMs generate text that **sounds** right.
Not text that **is** right.

A lawyer used ChatGPT and now has to answer for its 'bogus' citations



OpenAI's ChatGPT is a lot of things, but a lawyer it is not. Illustration: The Verge

/ A filing in a case against Colombian airline Avianca cited six cases that don't exist, but a lawyer working for the plaintiff told the court ChatGPT said they were real.

By [Wes Davis](#), a weekend editor who covers the latest in tech and entertainment. He has written news, reviews, and more as a tech journalist since 2020.

May 27, 2023, 9:52 PM GMT+2 | [16 Comments](#) / [16 New](#)



6. As the use of generative artificial intelligence has evolved within law firms, your affiant consulted the artificial intelligence website Chat GPT in order to supplement the legal research performed.

7. It was in consultation with the generative artificial intelligence website Chat GPT, that your affiant did locate and cite the following cases in the affirmation in opposition submitted, which this Court has found to be nonexistent:

Case 1:22-cv-01461-PKC Document 32-1 Filed 05/25/23 Page 2 of 6

Varghese v. China Southern Airlines Co Ltd, 925 F.3d 1339 (11th Cir. 2019)

Shaboon v. Egyptair 2013 IL App (1st) 111279-U (Ill. App. Ct. 2013)

Petersen v. Iran Air 905 F. Supp 2d 121 (D.D.C. 2012)

Martinez v. Delta Airlines, Inc., 2019 WL 4639462 (Tex. App. Sept. 25, 2019)

Estate of Durden v. KLM Royal Dutch Airlines, 2017 WL 2418825 (Ga. Ct. App. June 5, 2017)

Miller v. United Airlines, Inc., 174 F.3d 366 (2d Cir. 1999)

Schwartz says he was “unaware of the possibility that ChatGPT’s content could be false.”

[Source](#)

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02

Ethics and morality



Ethics is a system of moral principles determining what is good or bad, right or wrong, in a societal context.

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A moral principle is a belief you have regarding what is right and wrong or good and bad in human conduct. These principles are often derived from cultural, philosophical, or religious values.

Ethics

Morality



Ethics

Structured and formalized moral principles widely adopted by societies, professions, or groups (like a university).

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Morality

The set of moral beliefs and values that an individual holds.

Ethics

The Monopoly rulebook.

Morality

How you or your family
think monopoly should be
played.

Life is full of moral dilemmas

Life is full of moral dilemmas



Situations in which you must choose between two or more actions that often involve a conflict of values or interests, such as the need to be honest versus the need to protect someone from harm.

Ethics helps individuals to mediate between competing interests and values, and to make choices that are not only good for them personally but also beneficial to others.

03

Navigating a moral dilemma



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8	Consider compromises and solutions	Think about possible ways to mitigate the negative aspects while leveraging the positive ones.
9	Make a decision	Make an informed personal conclusion.
10	Reflect and re-evaluate	Keep in mind that your conclusion isn't set in stone. As you encounter new information or as the situation evolves, be open to re-evaluating your stance.

04

Debate



Discuss in groups, following the compass for navigating a moral dilemma, and come to an informed personal conclusion



<https://etc.ch/wuPW>



Does the use of LLMs create an equity issue in higher education by providing an unfair advantage to students with access to these technologies?

Summary

The concern is that LLMs may [contribute to a digital divide](#), where students who have access to such technologies gain an unfair advantage over those who do not. This raises questions about the equitable distribution of educational resources and the ethical implications of integrating AI into academic environments.

Ethical principles

- [Equity](#): Fairness and justice in the allocation of resources and opportunities. Ensuring that no student group is disproportionately advantaged or disadvantaged.
- [Accessibility](#): The ease with which all individuals can obtain and use necessary resources.

Key stakeholders

- Students
- Educational institutions
- Educators
- AI developers and providers
- Policy makers and educational authorities

Does dependence on LLMs impede the development of critical thinking and writing skills in students?

Summary

The core issue is whether a dependence on LLMs **diminishes students' ability to develop critical thinking and writing skills**. The dilemma arises from the tension between the benefits of AI tools, which offer ease and efficiency, and the risk that these tools might inhibit deep learning, problem-solving, and independent thinking by providing quick and sophisticated answers. It questions whether the convenience of AI assistance in education undermines the essential process of learning and skill development.

Ethical principles

- **Autonomy**: Allowing students to make their own decisions and develop their skills independently.
- **Beneficence**: Using AI in a way that benefits students' learning and intellectual growth, rather than hindering it.
- **Non-maleficence**: The principle of "do no harm." Whether or not the use of LLMs could inadvertently harm students' intellectual development and critical thinking abilities.

Key stakeholders

- Students
- Educators
- Parents and guardians
- Educational institutions
- AI developers and providers
- Policy makers

Is it ethical to replace human educators with large language models?

Summary

Substituting human educators with LLMs in higher education threatens to displace educators, affecting employment and the job market. A significant concern is [the potential devaluation of human teaching roles](#), given the unique benefits of human interaction, guidance, and mentorship in education. As AI becomes capable of automating educational content and assessing student work, the traditional roles of teachers and students could evolve, possibly underestimating the importance of personalized guidance.

Ethical principles

- [Utilitarianism](#): The moral correctness of an action based on the outcome's utility, i.e., does replacing human educators with AI benefit more people than it harms?
- [Deontological Ethics](#): What is right or wrong regardless of the consequences, i.e., the intrinsic moral duty towards human educators and the value of human-led education.
- [Autonomy](#): The freedom of educators in using teaching methods and the autonomy of students in following learning processes.

Key stakeholders

- Educators
- Students
- Educational institutions
- Society at large
- AI developers and providers
- Policy makers and regulators

Does the use of LLMs threaten the authenticity and originality of student work in higher education?

Summary

As AI improves in creating content similar to human work, distinguishing between student-created and AI-generated academic work becomes challenging. This situation raises concerns about academic integrity and [the potential for a new type of plagiarism undetectable by conventional tools](#). The key issue is maintaining the authenticity of academic work while balancing the use of AI for educational purposes and preserving individual creativity and effort.

Ethical principles

- [Academic Integrity](#): Honesty, trust, fairness, respect, and responsibility in an academic setting.
- [Authenticity](#): The genuineness of student work and how much it reflects their own thoughts and understanding if it is AI-generated.
- [Intellectual Property and Plagiarism](#): AI-generated content complicates the definition and detection of plagiarism, challenging the boundaries of intellectual property in academic work.

Key stakeholders

- Students
- Educators and academic institutions
- Parents and guardians
- AI developers and providers
- Policy makers and educational authorities
- Academic and professional communities

Is it ethical to develop and enforce policies that limit the use of generative AI tools like ChatGPT in higher education instead of embracing them?

Summary

This dilemma revolves around the decision of whether universities **should restrict the use of generative AI tools** like ChatGPT in academic settings. It arises from the conflict between mitigating the risks associated with LLM use in academic settings (such as academic dishonesty) and embracing the potential benefits of these AI tools for enhancing teaching and learning experiences.

Ethical principles

- **Integrity**: Concerns about academic dishonesty, where AI tools might be used to plagiarize or fabricate work, undermining the integrity of academic work.
- **Innovation and Progress**: This principle values the advancement of knowledge and technology. Embracing AI tools in education aligns with this principle.
- **Autonomy**: Allowing educators and students the freedom to choose whether or not to use AI tools in their academic work.

Key stakeholders

- Educators
- Students
- Educational institutions
- Society at large
- AI developers and providers

Thank you for listening

Jesse van der Zweep

Reach me at Jesse@vanderzweep.be

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Prompts



Image prompts

Generate an image.

- The image's art style is a combination of Fauvism (60%) and Minimalism (40%).
- The main color theme is blue (#392BF3).
- The image illustrates the concept of [\[insert\]](#).

System prompts

Machine role for lecture design:

“You design and teach a comprehensive, multidisciplinary course focusing on the ethical implications of using large language models (like GPT-4) in higher education settings. This involves critically analyzing the benefits, challenges, and societal impacts of AI technology, with a particular emphasis on ethical considerations, responsible use, and policy development.”

System prompts

Machine role for literature study:

“You are a Research Assistant conducting a comprehensive literature review focusing on the ethical implications and moral dilemmas of utilizing large language models (LLMs) like ChatGPT in higher education settings. Your role is pivotal in identifying, analyzing, and synthesizing ethical debates surrounding this technology.”