

# Ethical considerations in AI-driven education

Houndji V. Ratheil

# AI in education

Long term  
impact

Transparency

Inclusion and  
diversity

## Ethics in AI

Fairness

Privacy  
Protection

Bias mitigation

# Ethical considerations



## Some open questions

How can educational institutions find a balance between leveraging AI for **personalized learning** and **ensuring the privacy of student data**?

How do **we identify and address biases in AI systems used in education**, and what measures can be taken to mitigate these biases?

What are the **most important ethical considerations** should be taken into account when developing and deploying AI-driven assessment tools in educational settings?

How can we ensure that AI systems used in education promote **fairness and equitable opportunities for all students**, regardless of their backgrounds?

# Outline

01

AI &  
Education

02

Ethical  
considerations

03

What to do?



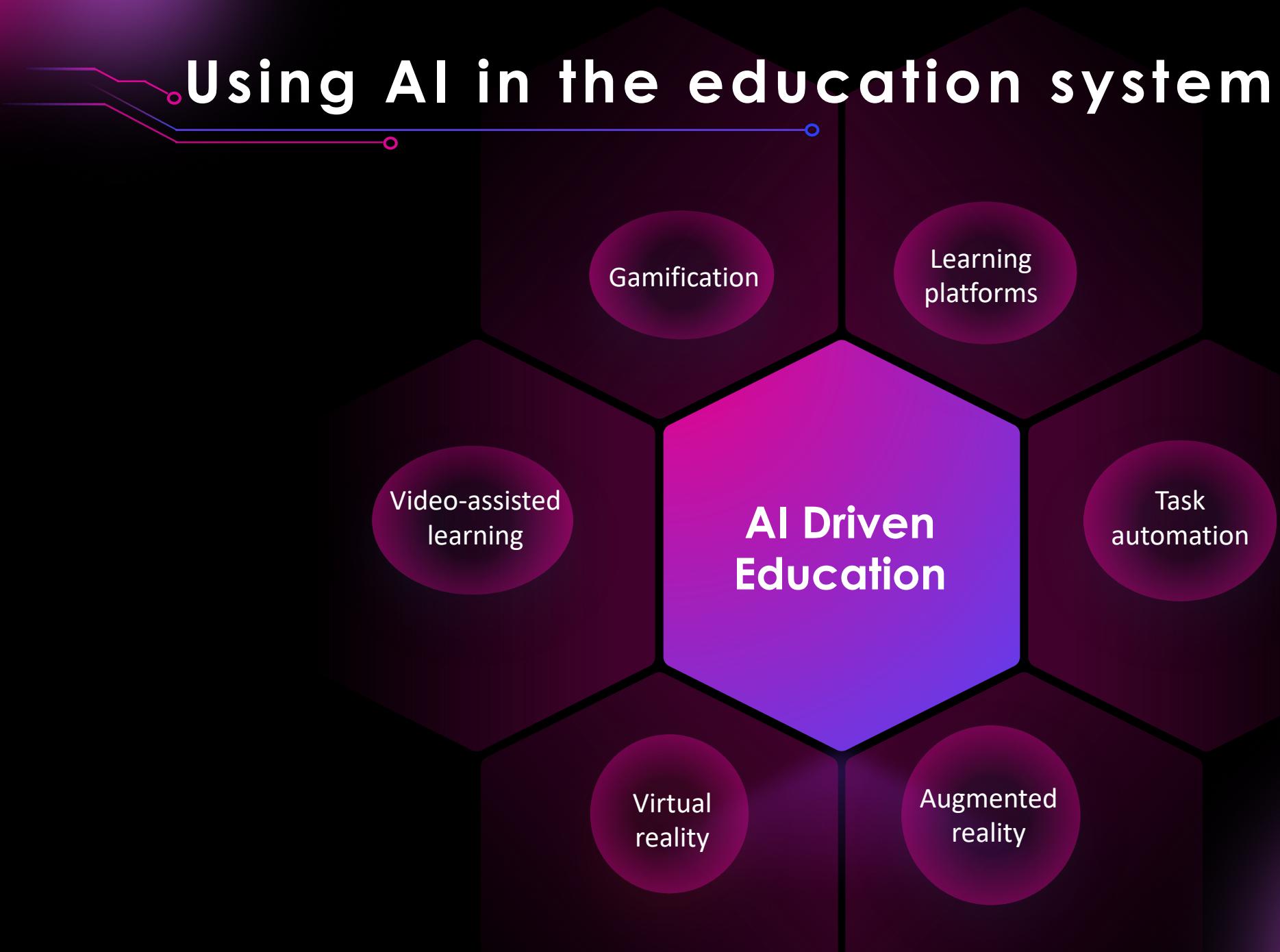
## AI & Education

# Potential impact of AI in education

According to UNESCO (United Nations Educational, Scientific and Cultural Organization)...

- AI has the potential to address some of the biggest challenges in education today, to develop innovative teaching and learning practices, and ultimately to accelerate progress towards achieving SDG 4.
- In particular, it could be used in the fight against current inequalities in access to knowledge, research and the diversity of cultural expressions, and to ensure that AI does not accentuate technological gaps within and between countries.

# Using AI in the education system



# AI & Advantages in Education

01

Improve the educational experience

02

Improve learning experience for students

03

Analyze student performance

04

Personalize the learning experience

05

Interactive and immersive learning

08

Automate administrative tasks

07

Distance learning

06

Improve learner motivation

Advantages

Advantages

# Examples of applications using IA to improve education

01

## Duolingo

A language-learning application that uses AI to personalize lessons for each user

02

## Aleks

An AI-powered mathematics learning platform that provides adaptive assessments and personalized learning plans.

03

## ChatGPT

can revolutionize academic research by rapidly processing and analyzing large quantities of data, making new discoveries and performing literature reviews faster than traditional methods.

04

## DeepL

which uses AI, in particular NLP, to process and translate texts

05

## Coursera

which uses AI to recommend courses to students based on their interests and learning history.



02



## Ethical considerations

# Ethical considerations

01

Privacy

02

Bias

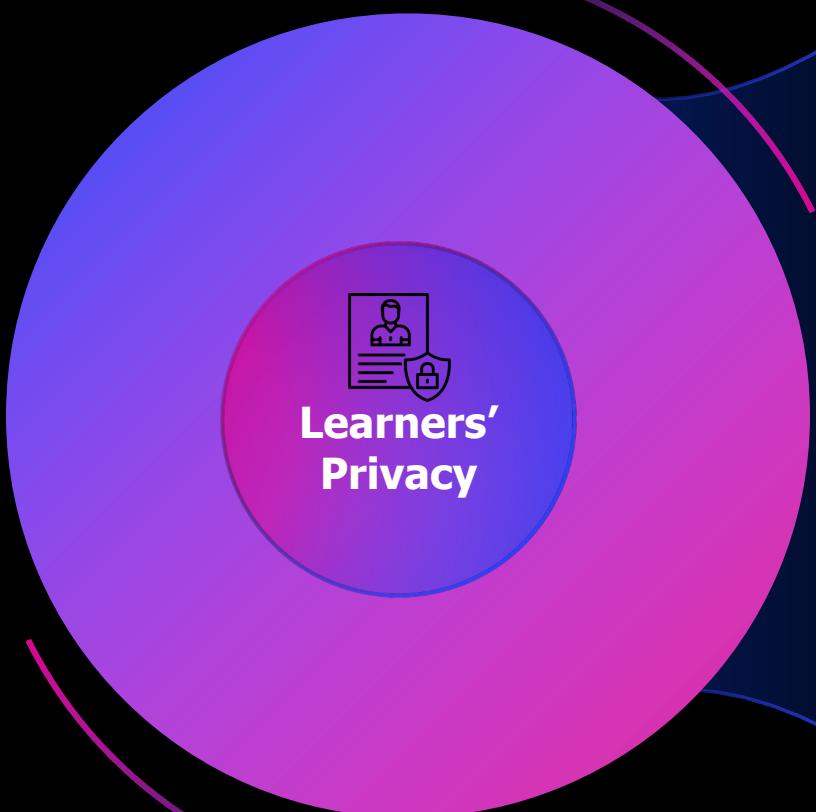
03

Fairness

# Learners' privacy



# Learners' privacy

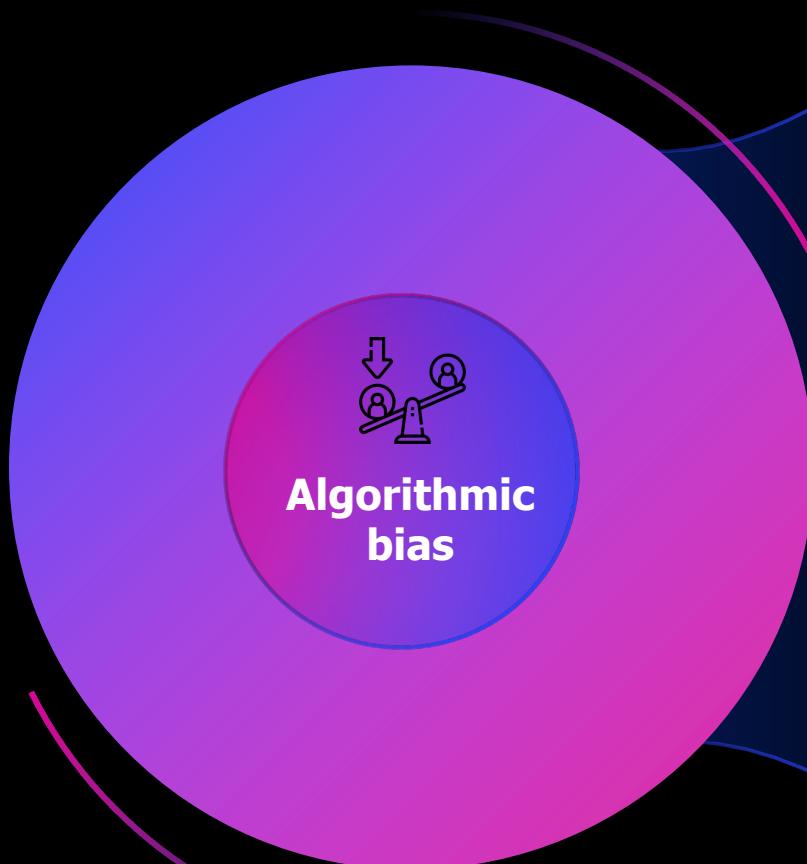


AI requires the use of massive data, which can induce potential biases and raise the question of the privacy of students and school staff (Andrejevic et al., 2020; Perrotta et al., 2020).

Take the example of Google's education suite, which collects data without the free and informed consent of students and school staff and exploits it in an opaque manner. Pupils' and school staff's data is therefore used without their knowledge, resulting in a breach of their privacy (Krutka, 2021).

The people concerned are, therefore, out in the open on the various sites or applications that use AI for learning and education.

# Algorithmic bias

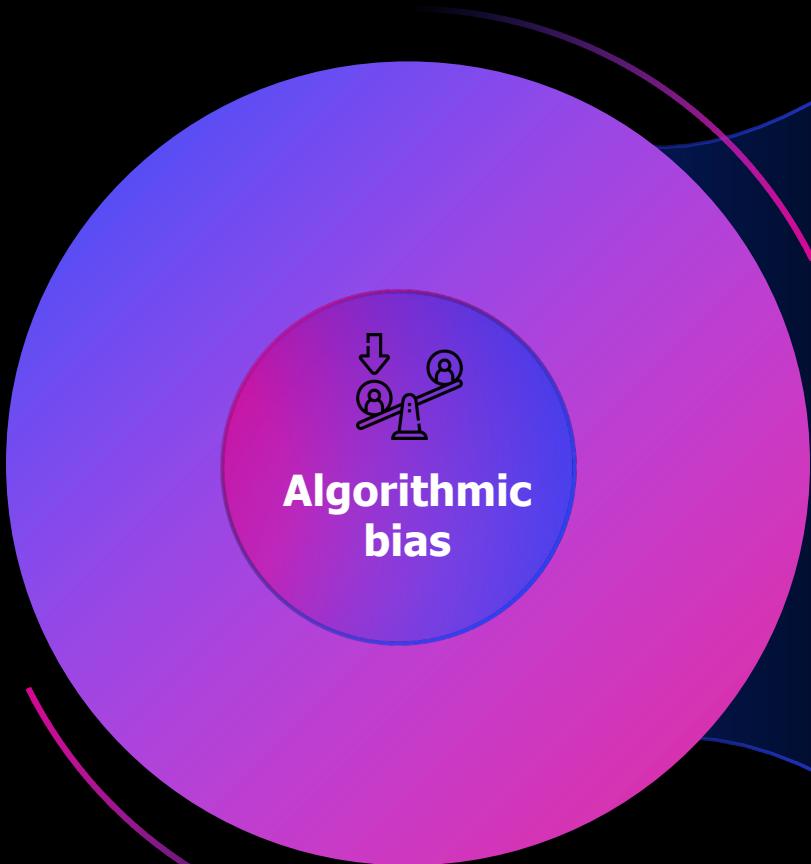


Explainability / Transparency

Inclusion

Diversity

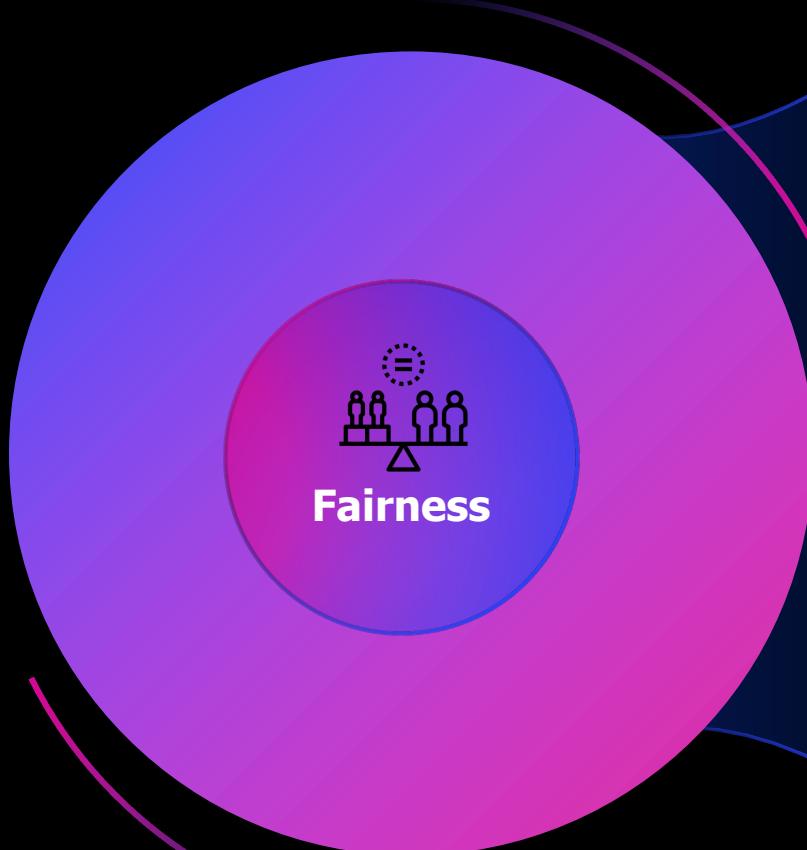
# Algorithmic bias



It's worth pointing out that AI can be influenced by unconscious bias in the data it uses to make decisions. Indeed, this can have negative implications for students if algorithms fail to take into account **cultural, linguistic and socio-economic diversity**.

Algorithmic bias refers to the presence of systematic and unfair discrimination in the outcomes produced by an algorithm. This bias can lead to disproportionate and unjust impacts on certain individuals or groups, perpetuating existing inequalities.

# Fairness

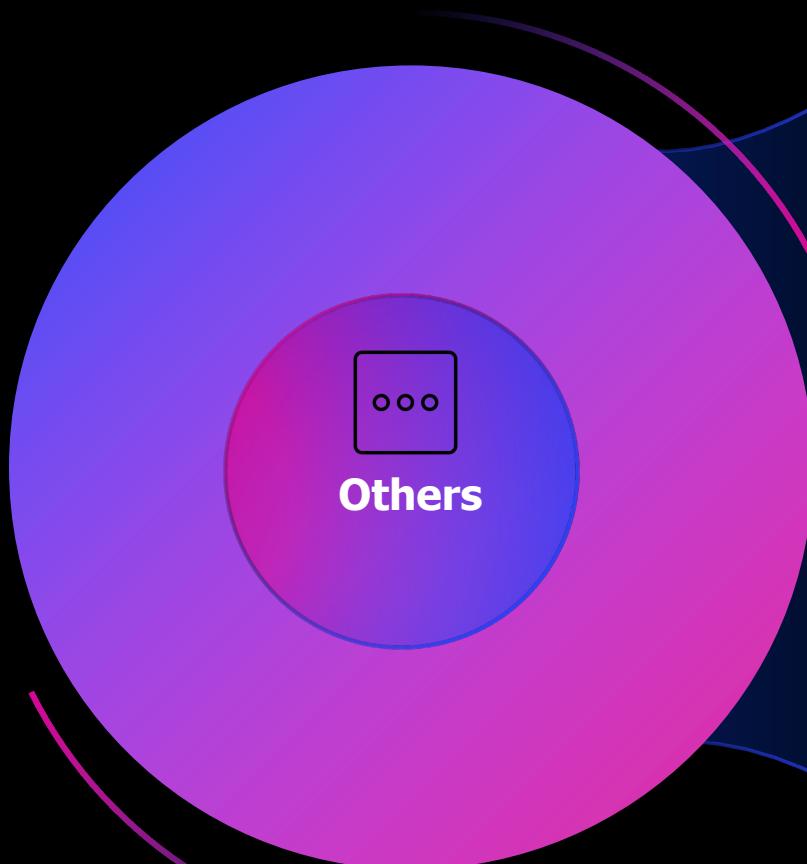


**Access:** Schools and students do not have equal access to AI technologies due to economic disparities. People living in disadvantaged areas may lack funding to acquire (high-quality) AI devices and software, creating inequalities of access.

**Languages:** AI systems based on natural language processing can be biased towards less common dialects or languages, creating inequalities for learners who use these languages or dialects.

**Teachers' skills:** Not all teachers have the same training to effectively use AI technologies in the classroom. Those who receive adequate training are better prepared to integrate AI into teaching, while others could be left behind.

# Other ethical considerations



Many educators fear that AI-powered tools will replace human interaction and affect the quality of classroom teaching. The risk of **dehumanizing learning** is, therefore, an ethical consideration that needs to be addressed now.

AI can create pressure for perfection, as students may feel they are constantly being assessed. Promoting the **right to make mistakes** and not overload students with unnecessary stress is important.

03

What to do ?

# Some recommendations

01

Preparing for AI: Raising awareness of the advantages and disadvantages of AI

03

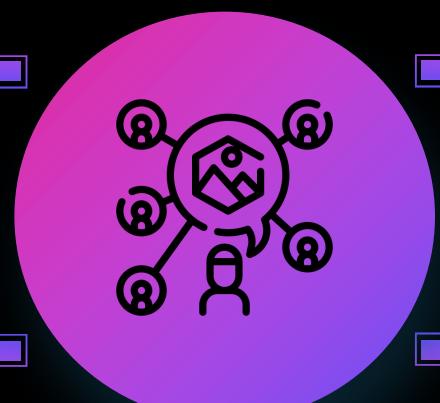
Integrating ethical issues into the design of different technologies

02

Raising awareness of the ethical issues surrounding the use of AI in the education system

04

Creating some standardized frameworks for the use of AI in schools.



# Take away message

AI et al. are powerful tools that can help us to have a better quality education but one should be aware of the potential dark sides of these technologies.



Thank you

Houndji Vinasétan Ratheil