CUHK Jockey Club AI for the Future Project

中大賽馬會「智」為未來計劃

Sharing on Teaching Experience

Ethics in AI

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Introduction

- Pioneering School / Champion School
- Pilot run for F.1 – F.3 in 2019/20
- Two more rounds for F.1 – F.3 in 2020-22
- 5 classes / form level
- Chapters 1 – 3, 5, 7, 9
- Both online teaching & classroom teaching

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Curriculum Matrix

✓ Beginner Unit (BU) ✓ Intermediate Unit (IU) ✓ Advanced Unit (AU)

Modules \ Teaching Units (✓)	Awareness	Ethics and Impact	Knowledge	Interactions	Empowerment
1. Introduction to AI	✓	✓	✓	-	-
2. Fundamentals of AI	✓	✓	✓	✓	-
3. "See the World"	✓	✓	✓	✓	✓
4. "Hear"	✓	✓	✓	✓	✓
5. "Speak"	✓	✓	✓	✓	✓
6. "Read"	✓	✓	✓	✓	✓
7. "AI Reasoning"	✓	✓	✓	✓	✓
8. "Simulate"	✓	✓	✓	✓	✓
9. "Think and Create"	✓	✓	✓	✓	✓
10. Societal Good, Social Impact and Challenges of AI	✓	✓	✓	✓	✓
11. AI and Ethics	✓	✓	✓	✓	✓
12. AI and Future of Work	✓	✓	✓	✓	✓

Big Challenge: Insufficient F2F lessons for hands-on practice

12 Chapters with 55 Modules divided into three levels to allow for flexible teaching by secondary schools

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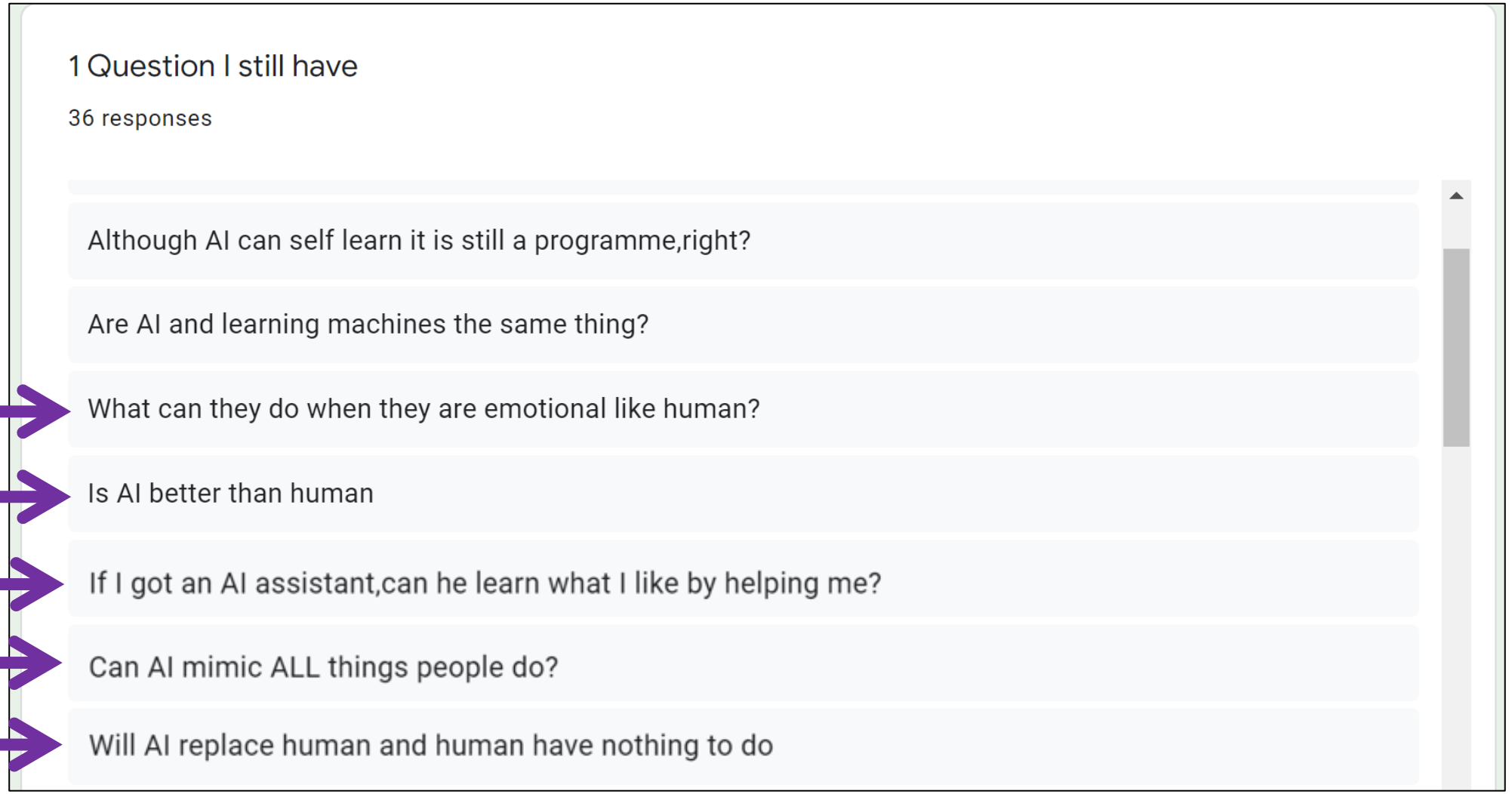
AI for the Future

1 Question I still have

36 responses

- Although AI can self learn it is still a programme,right?
- Are AI and learning machines the same thing?
- What can they do when they are emotional like human?
- Is AI better than human
- If I got an AI assistant,can he learn what I like by helping me?
- Can AI mimic ALL things people do?
- Will AI replace human and human have nothing to do



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1 Question I still have

36 responses

May AI betrays us one day?
How can we prevent that?

How can we use AI then

Will Ai replace for us in the future?

Why are A.I smart but not reliable

Actually is touch id AI?

Why we need AI in our life

Will AI robot replace human in the future

Can AI replace humans?

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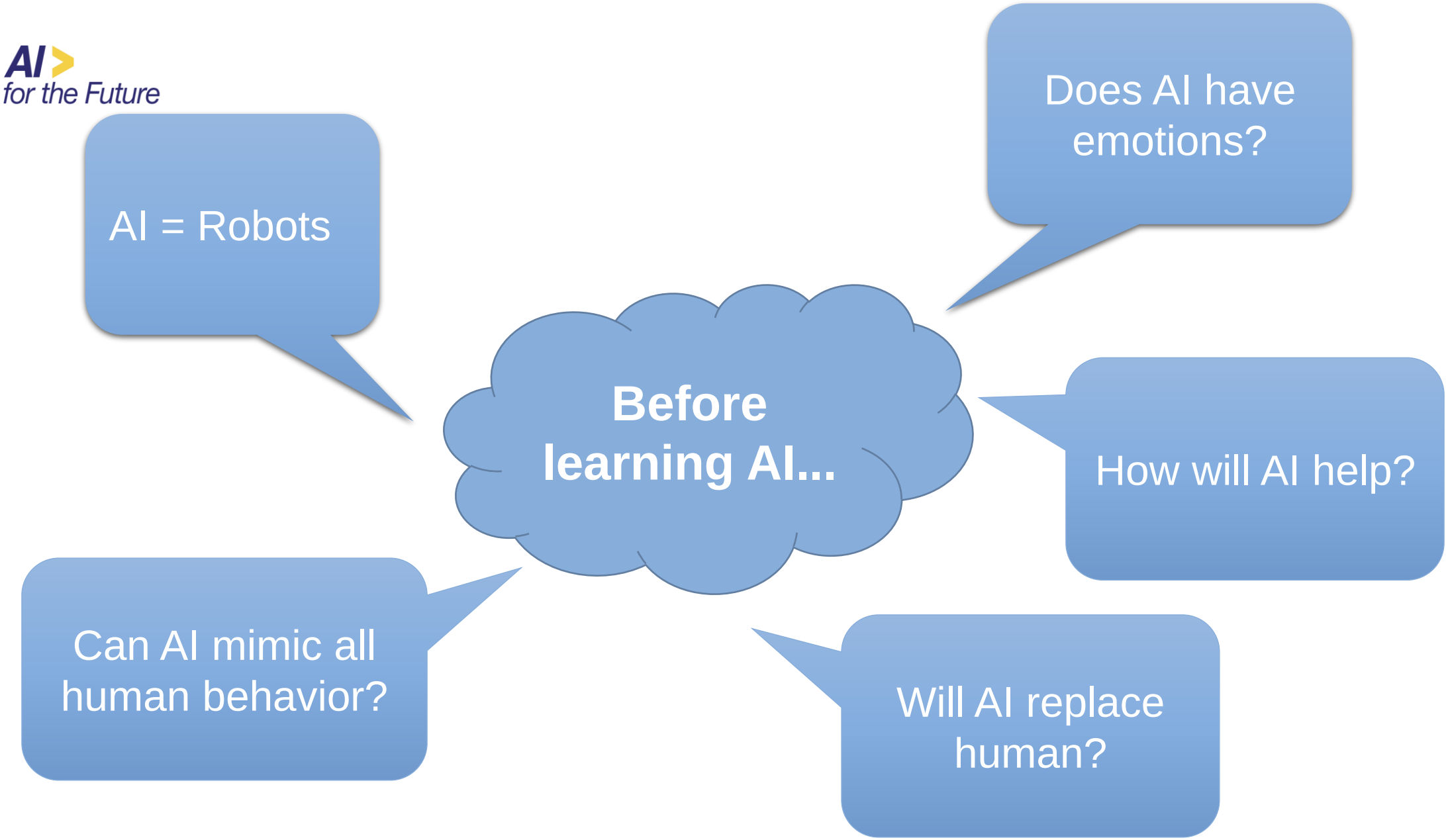
AI for the Future



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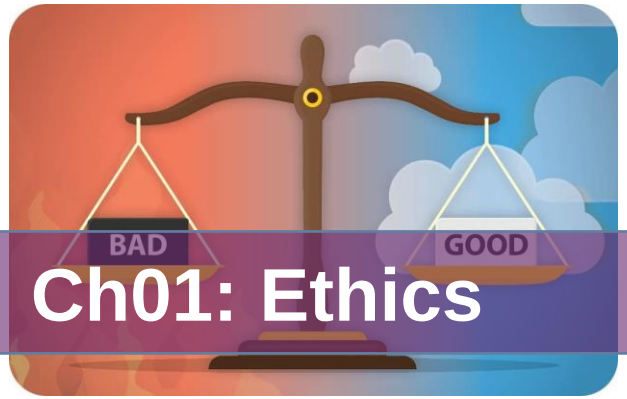
What is Ethics?

Ethics is a system of moral principles, concerned with:

- What is good and bad for individuals, groups and society?
- What is right and wrong?
- Balancing one's rights and responsibilities
- Thinking not only of ourselves, but also others and the society



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What are Ethical Considerations in AI?

- IMPORTANT
  - AI can help and AI can hurt
  - Consider benefits vs harm when using AI applications

Globally converging ethical principles for AI	
Transparency	Can be understood and explained
Fairness and justice	Respect of equality, inclusion and diversity
Beneficence	Do no harm
Responsibility	Be accountable and honest
Privacy	Protect and secure sensitive data

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Task One

Please watch the video (1:09 – 2:47) and answer the following question:

How can AI technologies affect our daily lives?

Link: https://youtu.be/qn60qhCSel0?t=69

Ch01: Ethics

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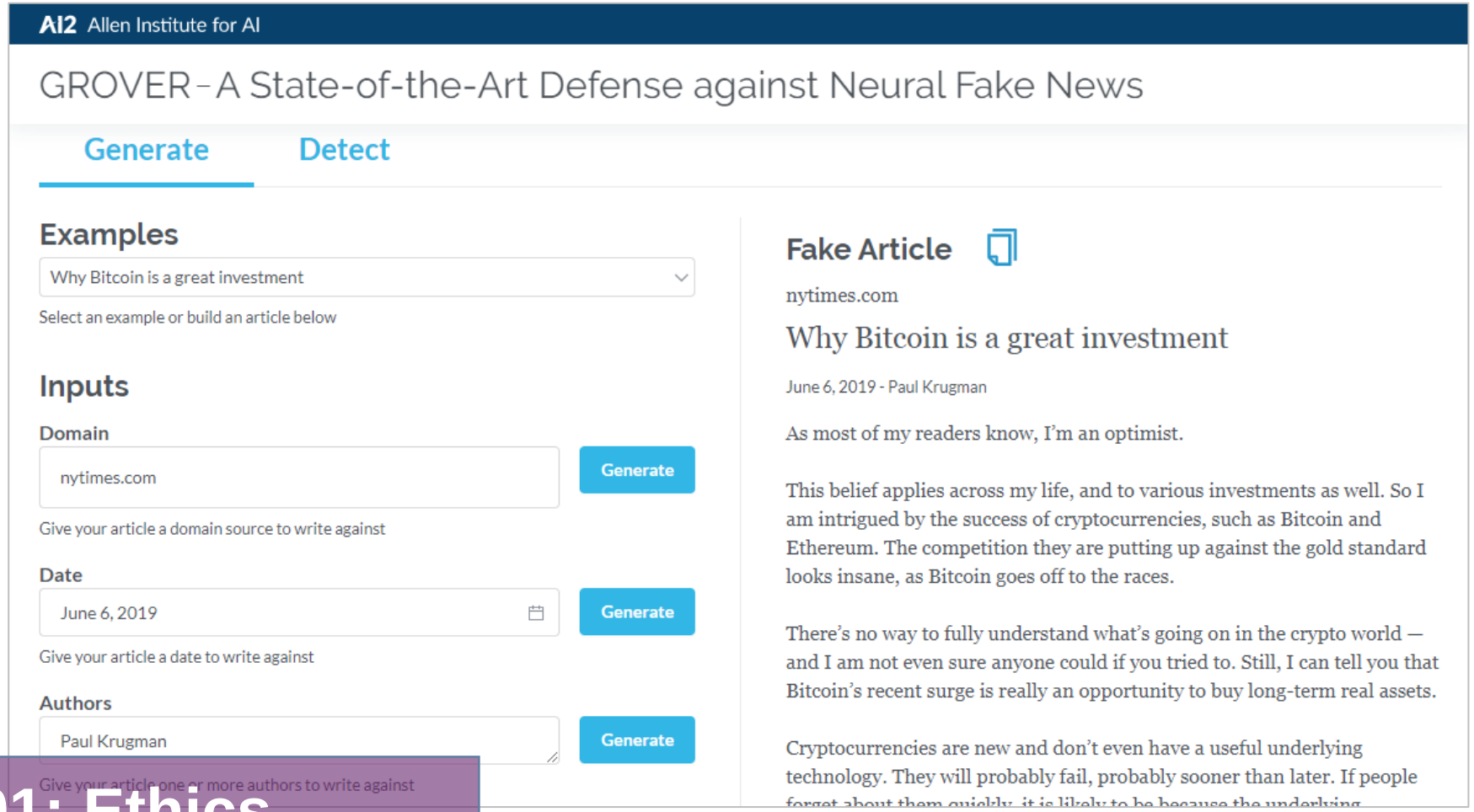
News generator



Ch01: Ethics

https://grover.allenai.org/

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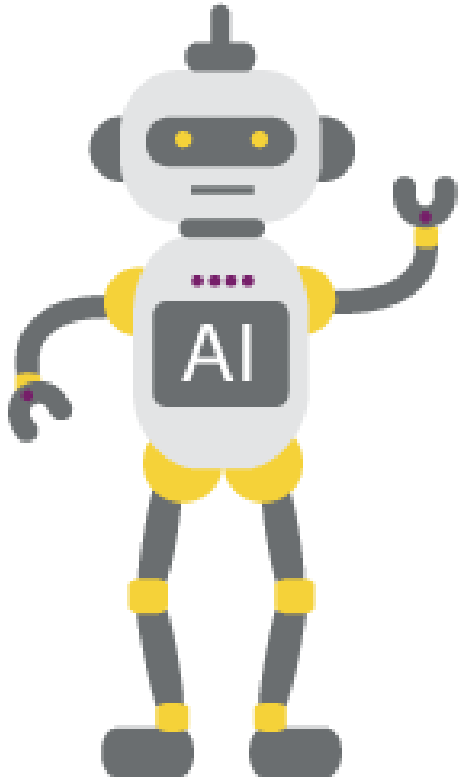
Problem

AI can help or hurt

Help

Produce and spread true news

- more efficient
- more convenient
- relief the workload of news reporters



Hurt

Produce and spread fake news

- deceive the public
- influence social stability
- cause panic (*e.g. No rice and tissue paper*)

Ch01: Ethics

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Task One

Can we use AI to solve the problem of fake news?

Ch01: Ethics

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How does AI news detector work?

Input

Reading a large set of true news and fake news

Process

Train the AI with the inputs and reference outputs

Output

Distinguish whether a news is true or fake

Ch01: Ethics

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Solutions

Be careful when reading any news online

- Fact check
- Do not believe and share everything easily

Be mindful of ethical use of AI

- Use AI to do good
- Use AI to counter harm
  - *e.g. develop powerful AI tools to detect fake news*

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Summary of Task One

Ch01: Ethics

1

Ethical use of AI

Misuse of AI technologies can hurt.
We should design and use AI technologies for the good of mankind.

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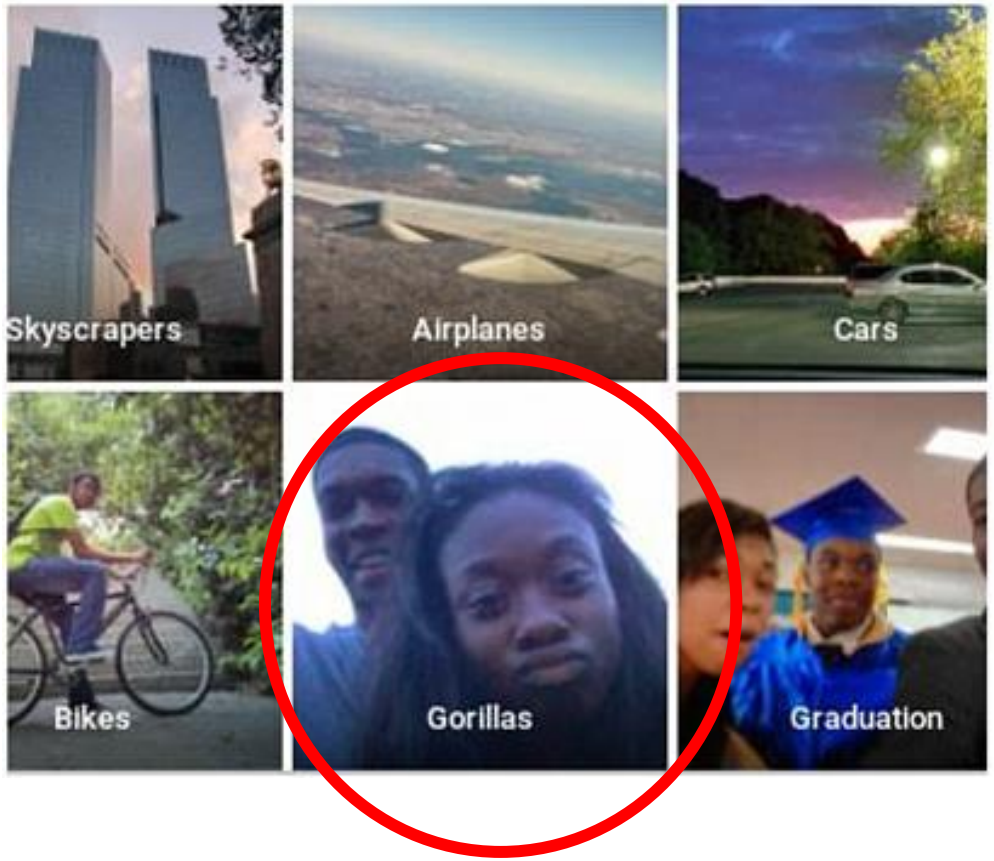
Face recognition

Successful Case

Failed Case



Ch01: Ethics

Google Vision AI - https://cloud.google.com/vision

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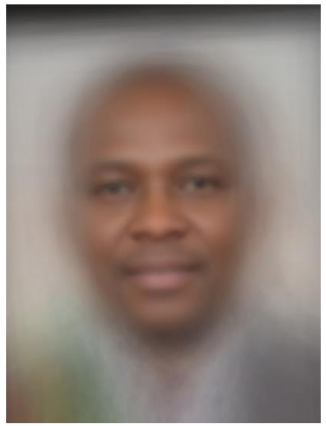
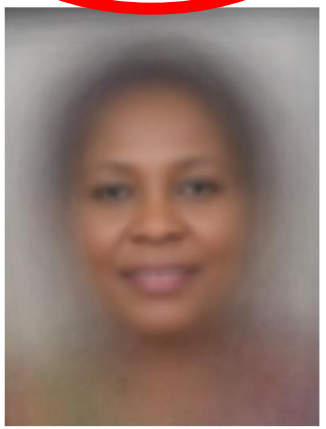
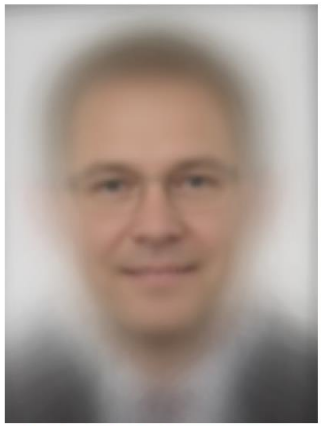
August 2018 Accuracy on Facial Analysis Pilot Parliaments Benchmark

amazon

98.7%	68.6%	100%	92.9%
			
DARKER MALES	DARKER FEMALES	LIGHTER MALES	LIGHTER FEMALES

Amazon Rekognition Performance on Gender Classification

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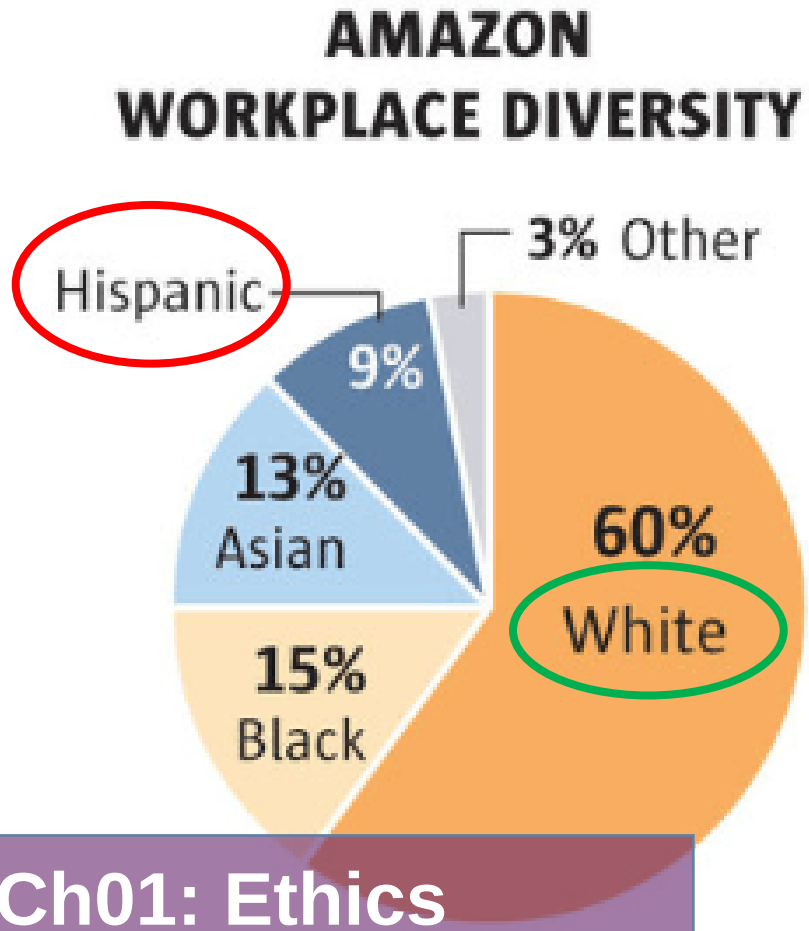
Recruit a person base on history



What is the problem here?

How can we avoid?

Hispanic
/hɪˈspanɪk/

adjective

relating to Spain or to Spanish-speaking countries, especially those of Central and South America.

noun

a Spanish-speaking person, especially one of Latin American descent, living in the US.

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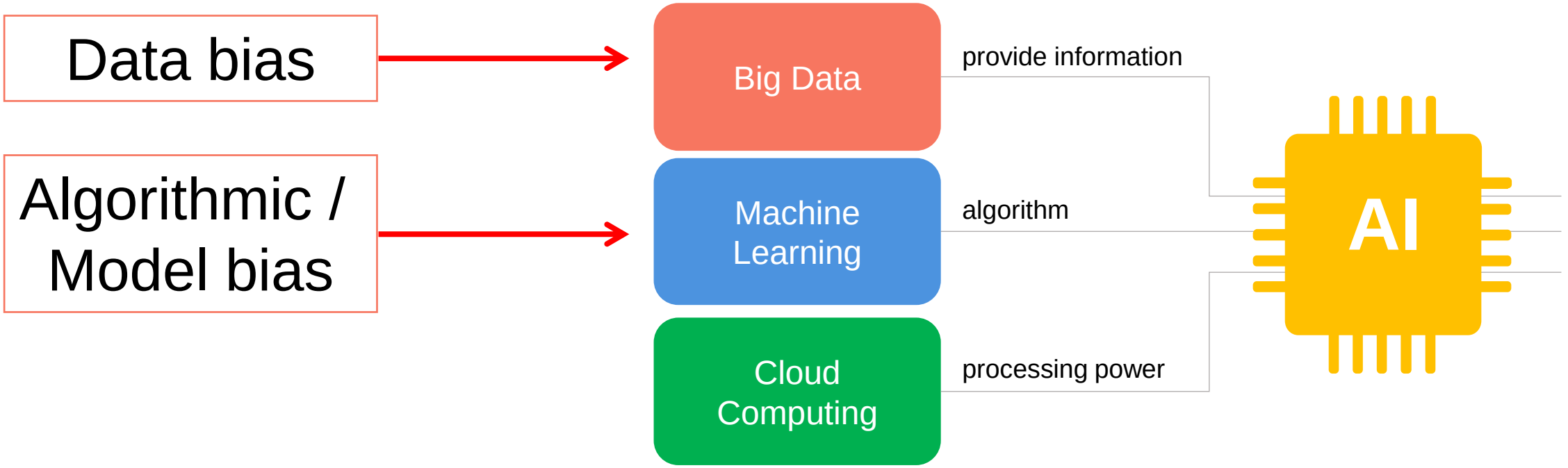
Source of bias



Ch01: Ethics

AI today is empowered by **Big Data**, **Machine Learning** and **Cloud Computing**

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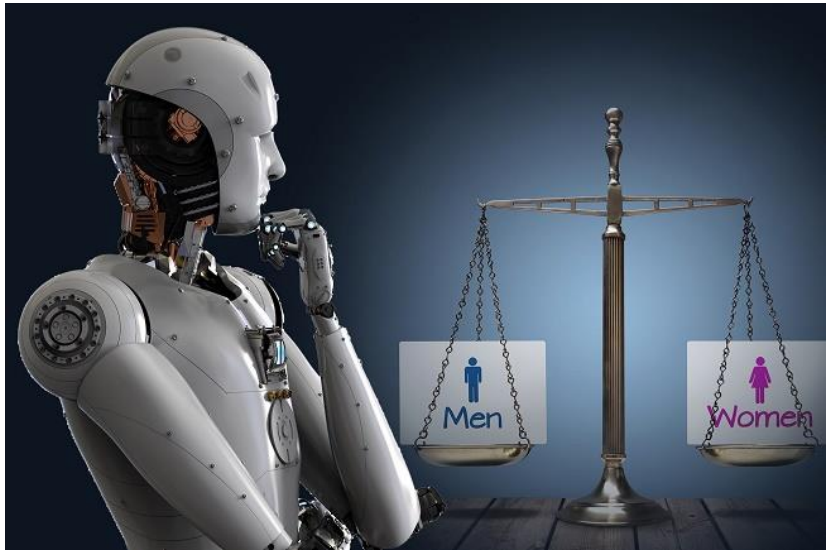
Problem

Data bias

- *e.g. gender / racial bias in image recognition (Google)*

Algorithmic / Model bias

- *e.g. using criminal records to predict the possibilities of future crimes*



Ch01: Ethics

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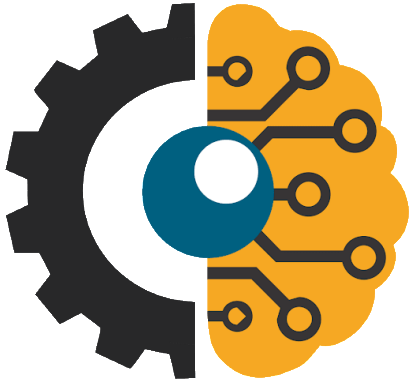
What would happen if Computer Vision is applied to our daily life?



Ch03: Ethical Issues

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Task One

Fewer crimes because everyone is afraid of being caught

We don’t know how our data are used

Privacy concerns

Will the developers get all the data?

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Ethical Dilemma of Self-driving cars

https://www.youtube.com/watch?v=ixIoDYVfKA0

Ch03: Ethical Issues

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Ethical Dilemma of Self-driving cars

https://www.youtube.com/watch?v=ixIoDYVfKA0

Ch03: Ethical Issues

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Task Two

Hit the one with helmet

I can’t choose

Hit the one without helmet

I should apply the brake

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AI NEWS SHARING

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- Self driving car accident
- hit and killed a woman
- Poorly lit road with a speed limit of 40 mph.
- Watching her cellphone right before the car hit the woman

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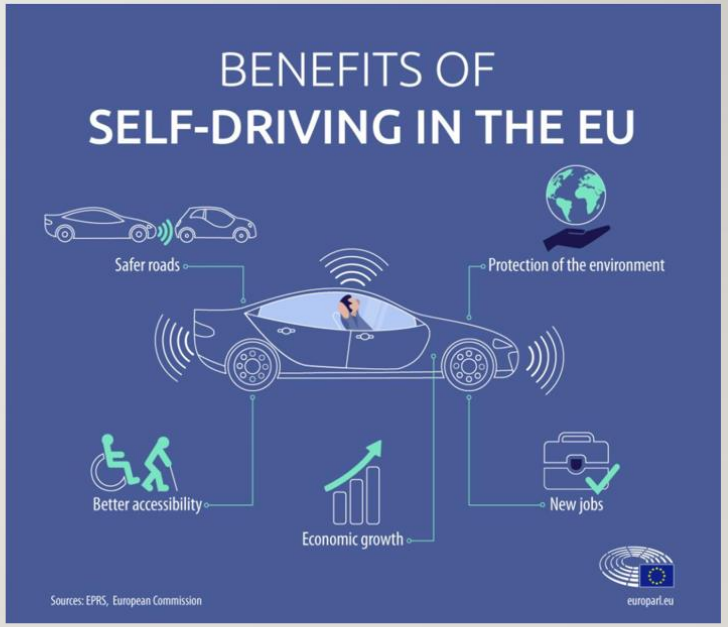
Benefits of the self driving system

The roads will be safer
For example if a cargo is falling
But a self driving car can quickly calculate what action it should do.
long, tiring rides will become less tiring for the driver



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Possible flaws of the self driving system

Driving is a very complex
The environment a self driving car has to deal with, could be very complicated.

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Our thoughts on the article

no matter how advanced the AI is, there will still be potential problems
the manufacturer must do tons of testing to make the system have as little risk as possible.
While it is convenient, it is also risky to implement it.

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AI HOTEL ROBOT

- A robot that works in a hotel which simulates human behavior and learn by itself
- can inform guests about anything they wish to know
- automating a series of procedures like check-in,lights control and room service
- do some simple works in the hotel

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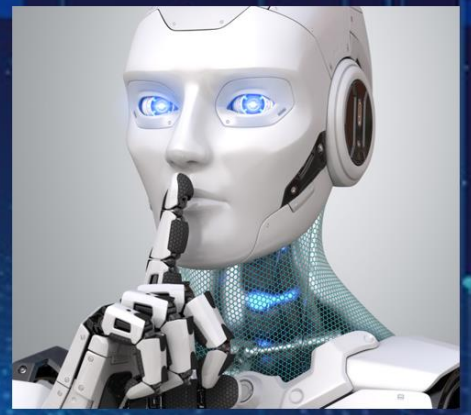
Questions

1. Do you want to live in a robot-run hotel? Why?

2. Do u think AI robots will bring harm or benefits to hotels?



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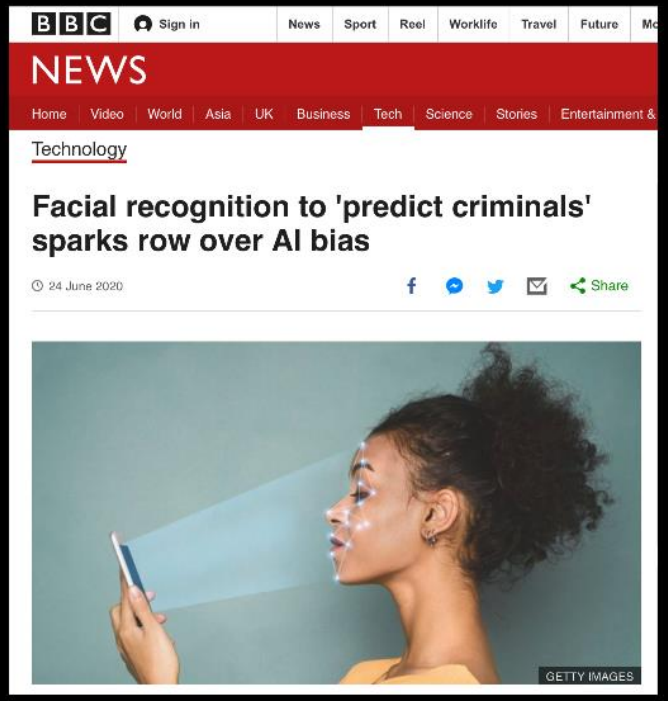
NEWS



Is it harmful or beneficial to human?

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CONCLUSION

- Is it fair to all people?
- Is the transparency enough for us about this AI?

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eLearning

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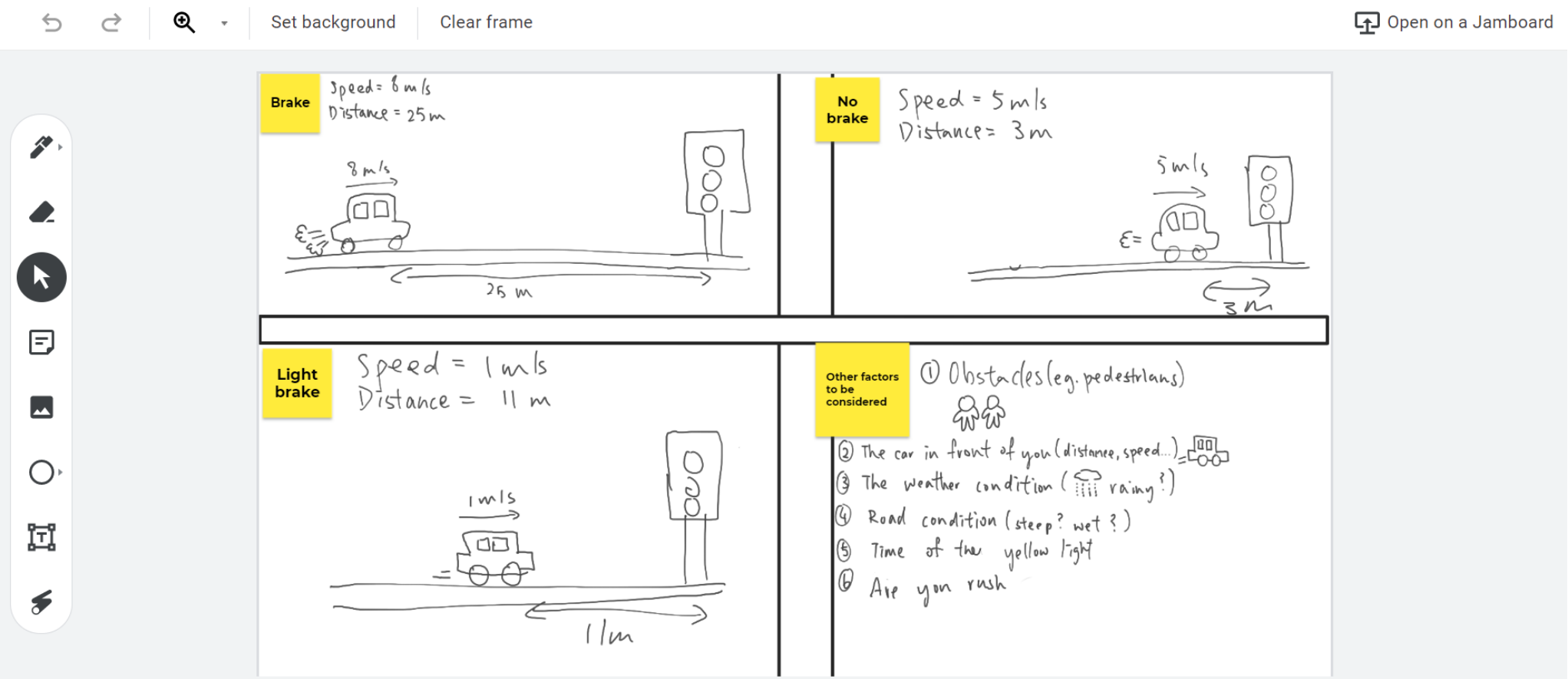
Students' Work
Reasoning (Jamboard)



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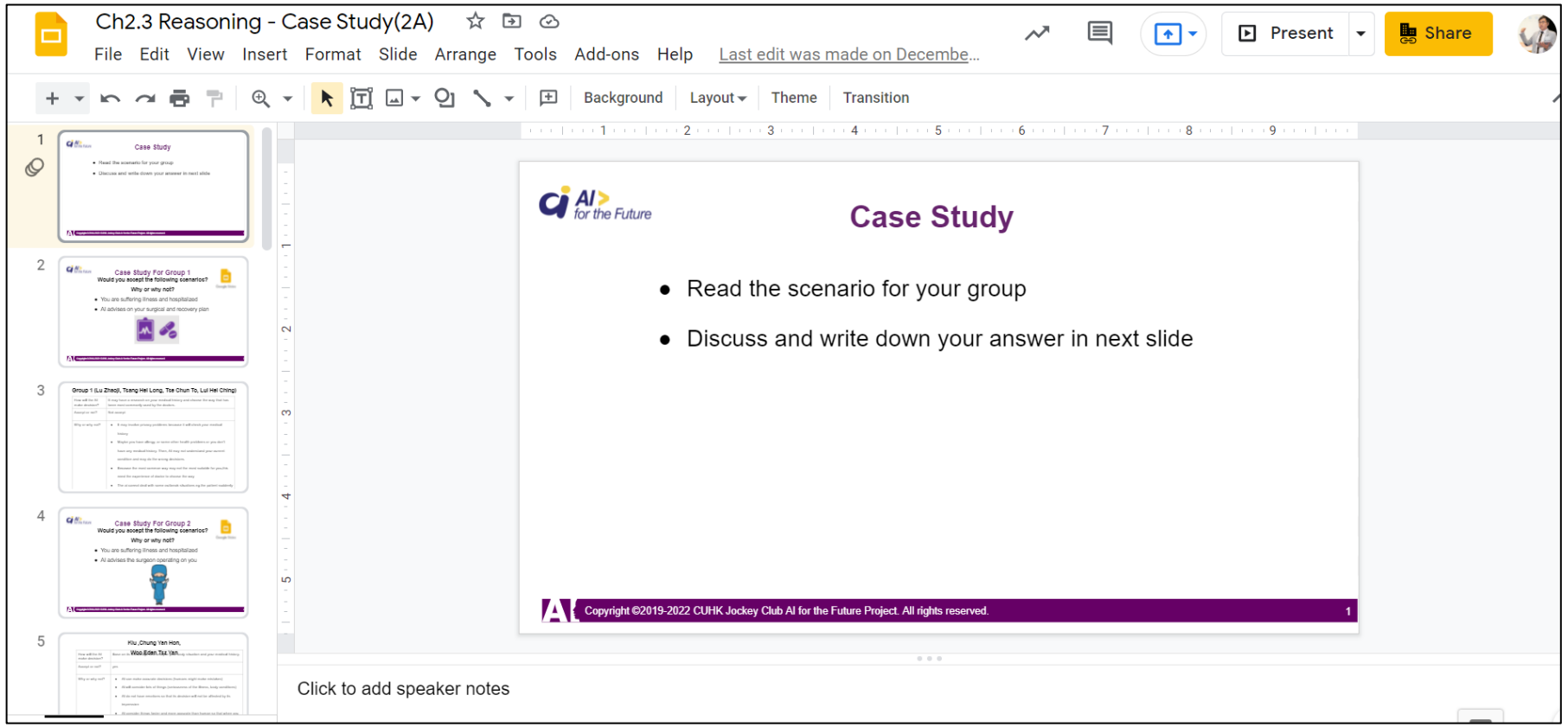
Students' Work
Case Study (Google Slides)



https://docs.google.com/presentation/d/1zJN-jx1PyEDP_rBmN4LEALOnhgztxrmQ18nNQWTwam8/edit?usp=sharing

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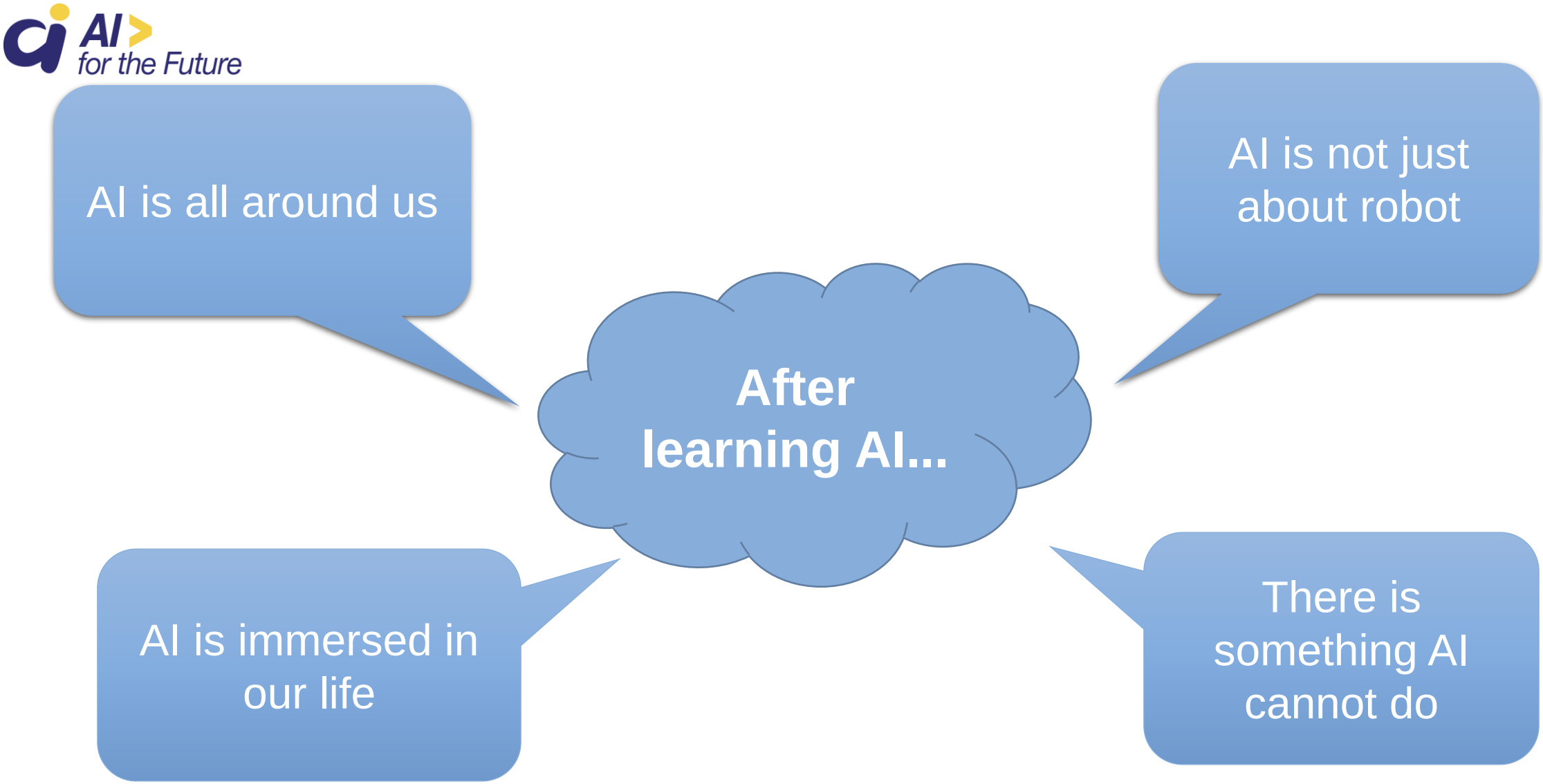

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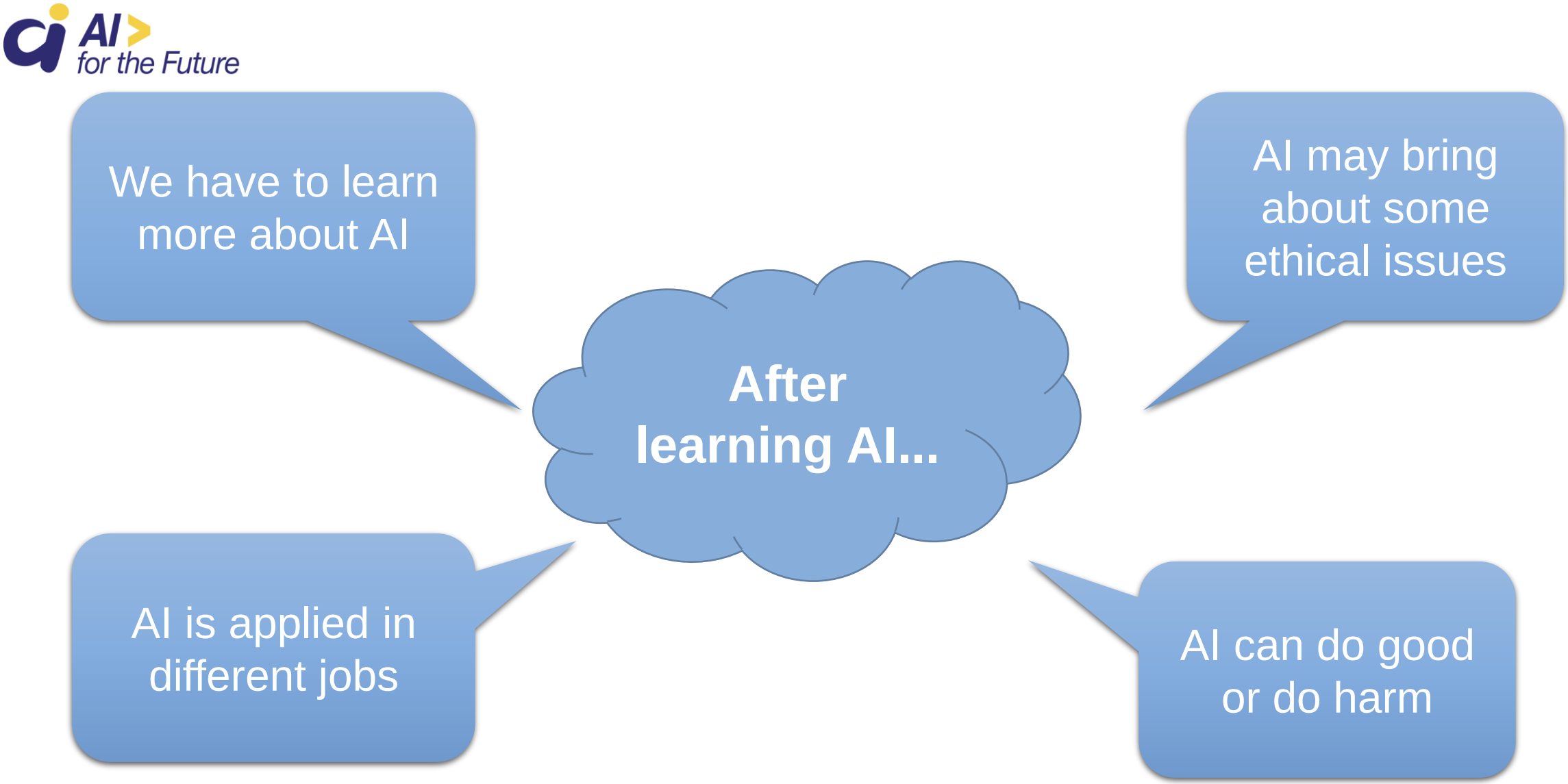

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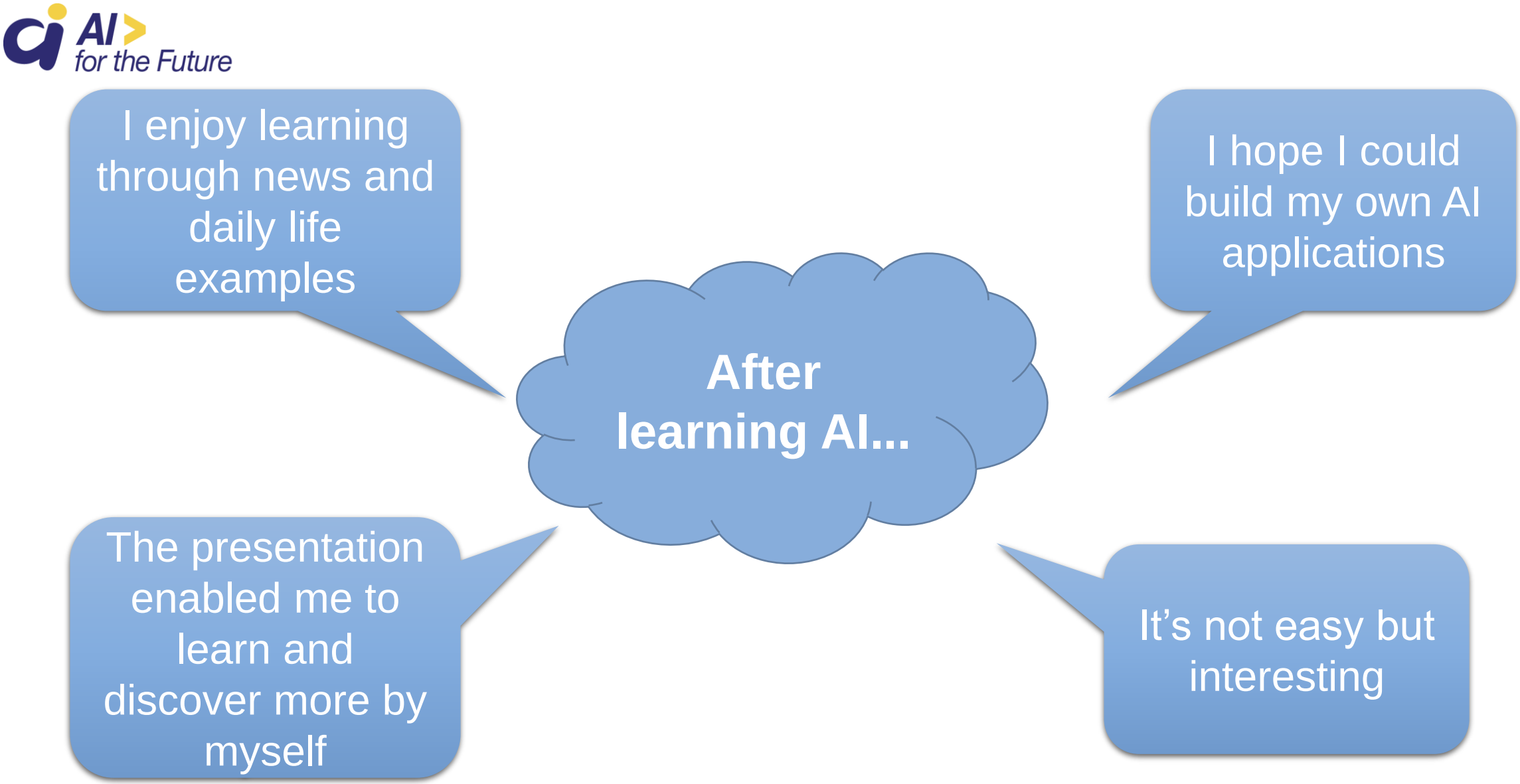

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2 Facts I found interesting

36 responses

1 A lots of things surrounded us is related to AI
2 AI may also fail

1.AI does not work on its own.
2.AI learns by itself

1. AI can learn by itself
2. AI simulate human brain in solving problems

Some AI can talk to you
There are many different kinds of AI

Everything is interesting.

I just know the one talk with me in TaoBao is AI !

1. AI needs to learn to improve 2. There is already an AI robot in the world

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