

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



Curriculum Matrix

Modules \ Teaching Units (✓)	<div> <div>✓ Beginner Unit (BU)</div> <div>✓ Intermediate Unit (IU)</div> <div>✓ Advanced Unit (AU)</div> </div>				
	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

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


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?

AI = Robots

**Before
learning AI...**

Does AI have
emotions?

How will AI help?

Can AI mimic all
human behavior?

Will AI replace
human?

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**



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

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

News generator

AI2 Allen Institute for AI

GROVER – A State-of-the-Art Defense against Neural Fake News

Generate

Detect

Examples

Why Bitcoin is a great investment

Select an example or build an article below

Inputs

Domain

nytimes.com

Generate

Give your article a domain source to write against

Date

June 6, 2019

Generate

Give your article a date to write against

Authors

Paul Krugman

Generate

Give your article one or more authors to write against

Fake Article

nytimes.com

Why Bitcoin is a great investment

June 6, 2019 - Paul Krugman

As most of my readers know, I'm an optimist.

This belief applies across my life, and to various investments as well. So I am intrigued by the success of cryptocurrencies, such as Bitcoin and Ethereum. The competition they are putting up against the gold standard looks insane, as Bitcoin goes off to the races.

There's no way to fully understand what's going on in the crypto world — and I am not even sure anyone could if you tried to. Still, I can tell you that Bitcoin's recent surge is really an opportunity to buy long-term real assets.

Cryptocurrencies are new and don't even have a useful underlying technology. They will probably fail, probably sooner than later. If people forget about them quickly, it is likely to be because the underlying

Ch01: Ethics

<https://grover.allenai.org/>

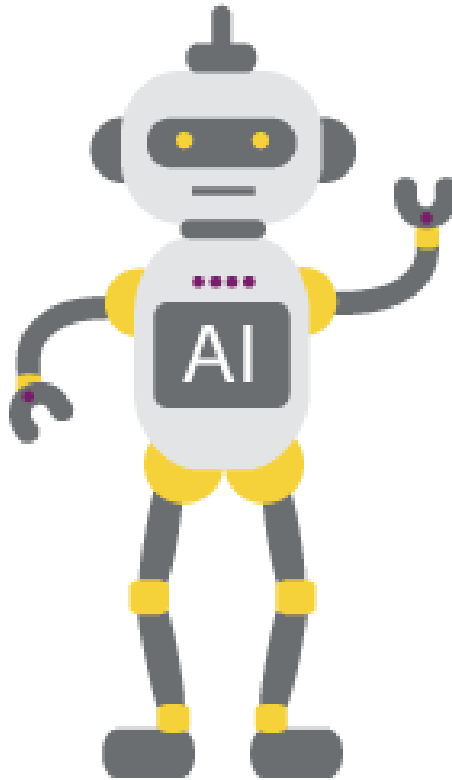
Problem



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

Task One



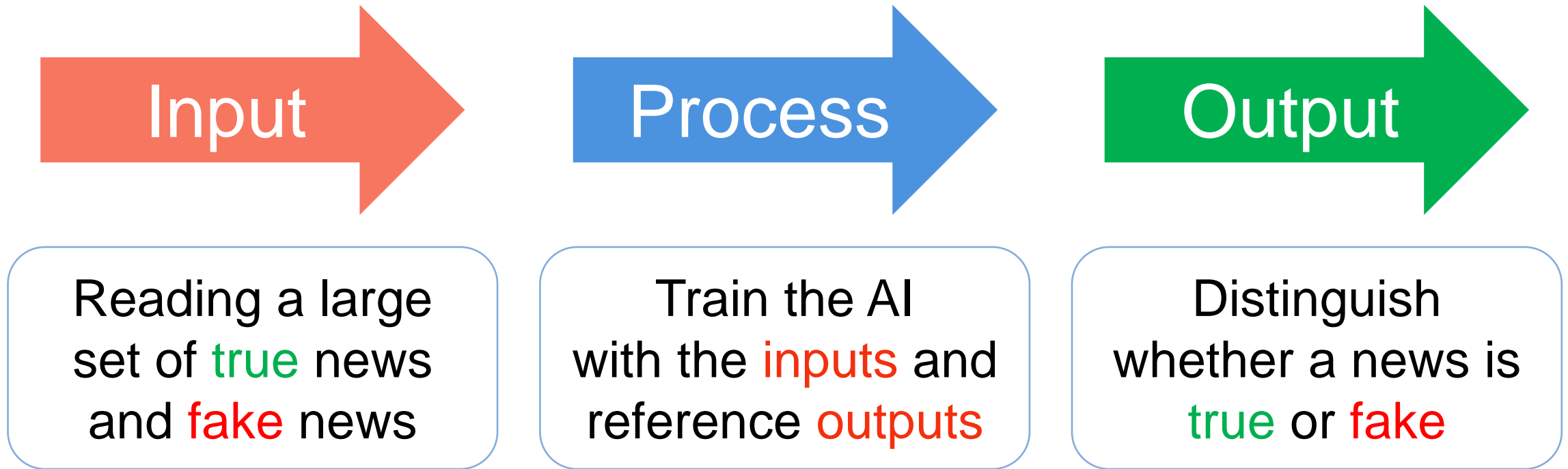
**Can we use AI to solve
the problem of fake news?**



Ch01: Ethics

no copyright infringement is intended

How does AI news detector work?



Ch01: Ethics

Solutions

Be careful when reading any news online

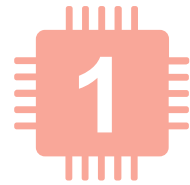
- Fact check
- Do not believe and share everything easily

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*

Ch01: Ethics

Summary of Task One



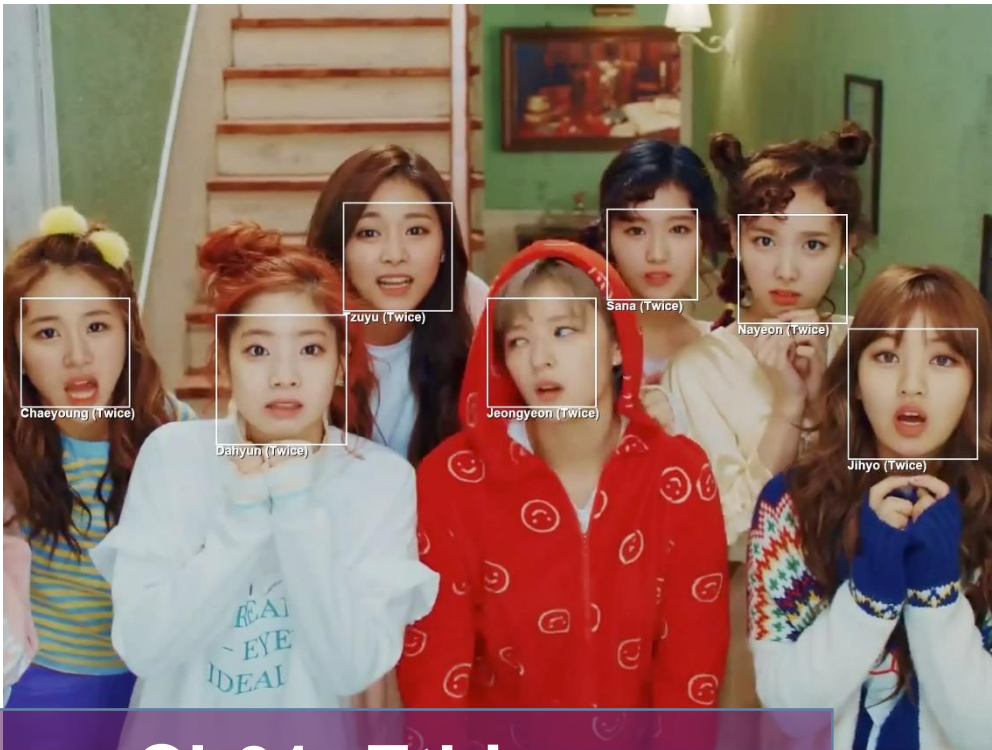
Ethical use of AI

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

Ch01: Ethics

Face recognition

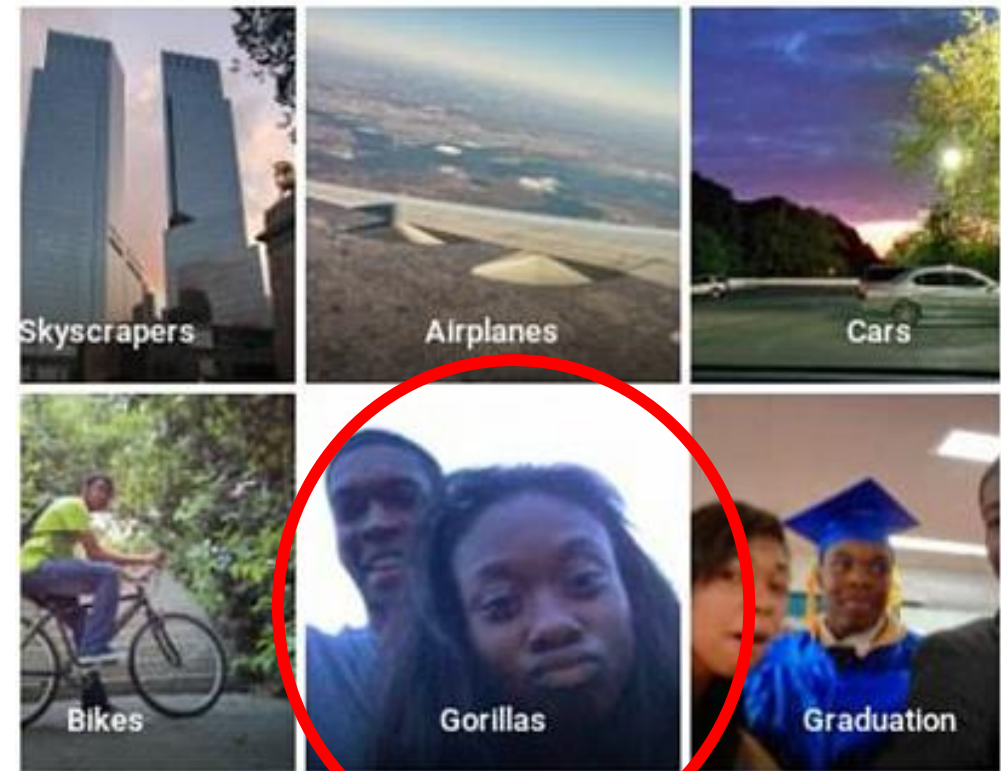
Successful Case



Ch01: Ethics

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

Failed Case



August 2018 Accuracy on Facial Analysis Pilot Parliaments Benchmark

amazon

98.7%

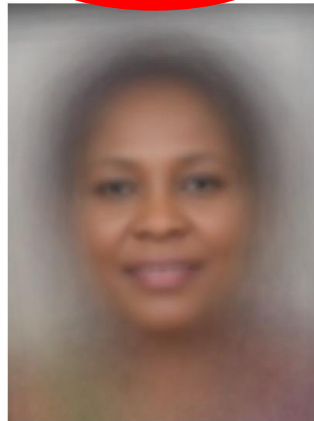
68.6%

100%

92.9%



**DARKER
MALES**



**DARKER
FEMALES**



**LIGHTER
MALES**



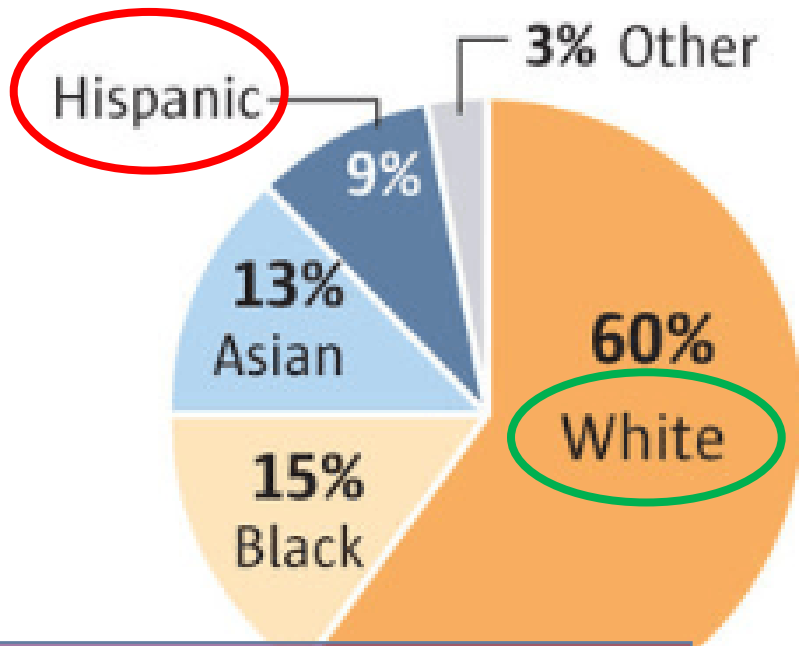
**LIGHTER
FEMALES**

Ch01: Ethics

Amazon Rekognition Performance on Gender Classification

Recruit a person base on history

AMAZON WORKPLACE DIVERSITY



What is the problem here?
How can we avoid?

Ch01: Ethics

 **Hispanic**

/hiˈspanɪk/

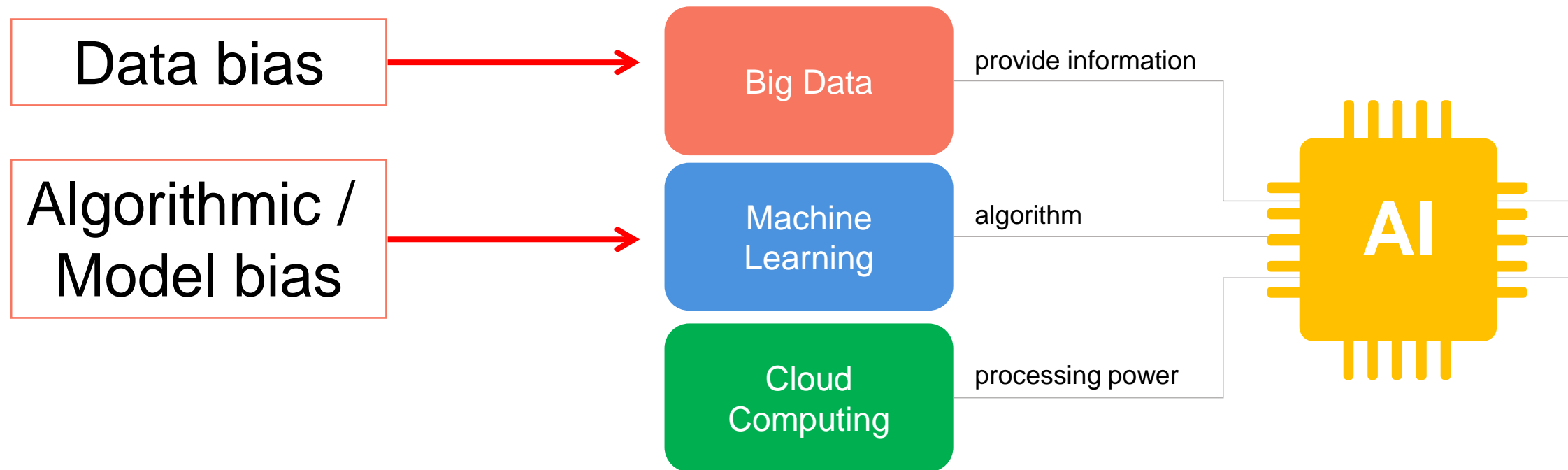
adjective

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.

Source of bias



Ch01: Ethics

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

Problem ?

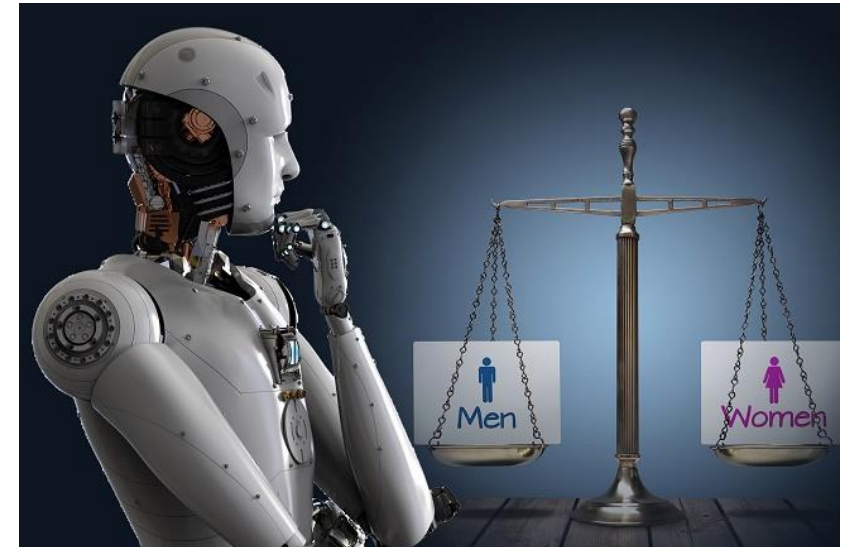
Data bias

- 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



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



Ch03: Ethical Issues

no copyright infringement is intended



Task One

Fewer crimes
because
everyone is
afraid of being
caught

We don't know
how our data are
used

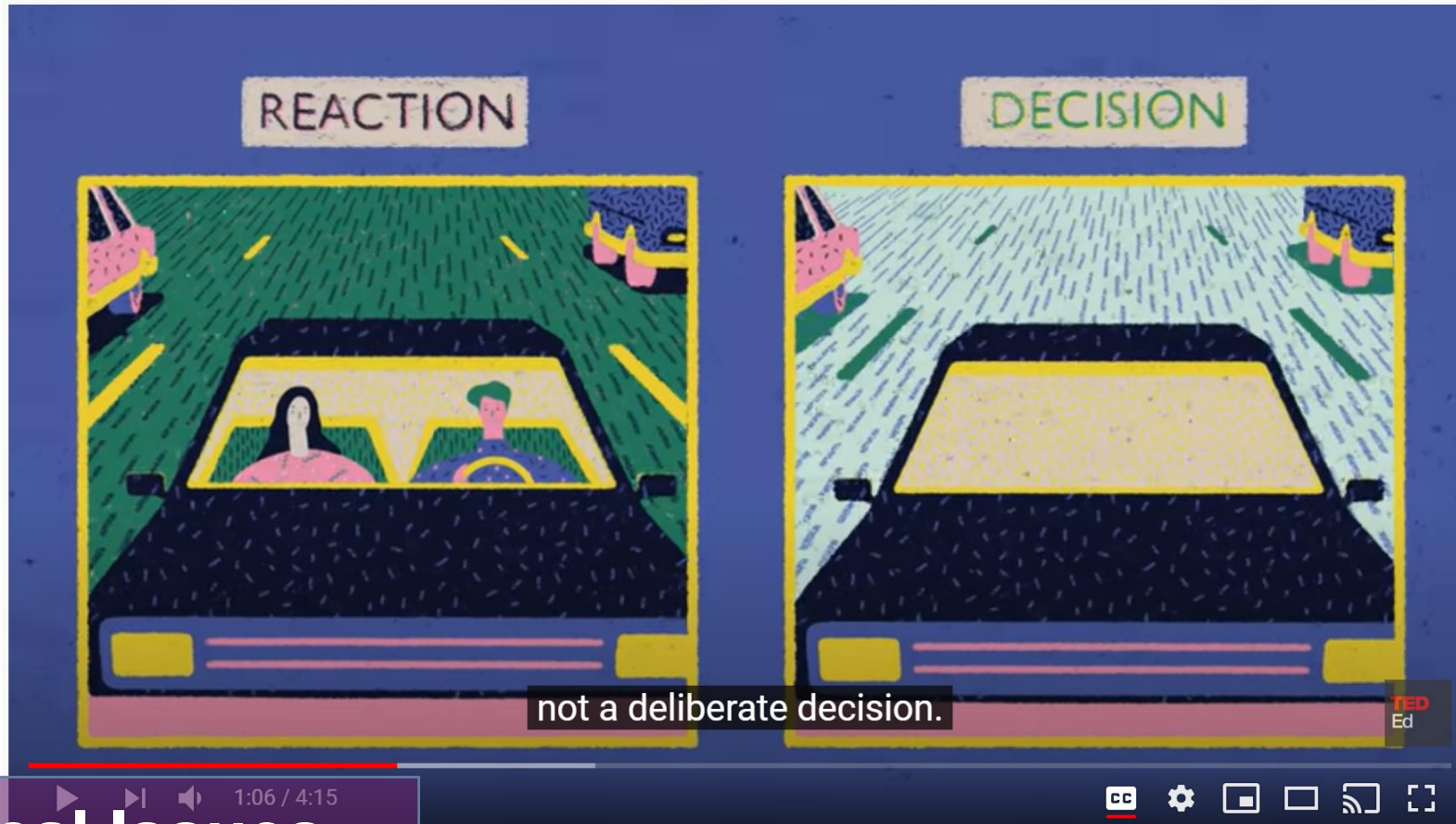
Privacy concerns

Will the developers
get all the data?

Ch03: Ethical Issues

Ethical Dilemma of Self-driving cars

<https://www.youtube.com/watch?v=ixloDYVfKA0>



Ch03: Ethical Issues

The ethical dilemma of self-driving cars - Patrick Lin

Ethical Dilemma of Self-driving cars

<https://www.youtube.com/watch?v=ixloDYVfKA0>



Ch03: Ethical Issues

then aren't you penalizing
the responsible motorist?

Task Two

Hit the one with
helmet

Hit the one without
helmet

I can't choose

I should apply the
brake

Ch03: Ethical Issues

AI NEWS SHARING



- 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

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



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.



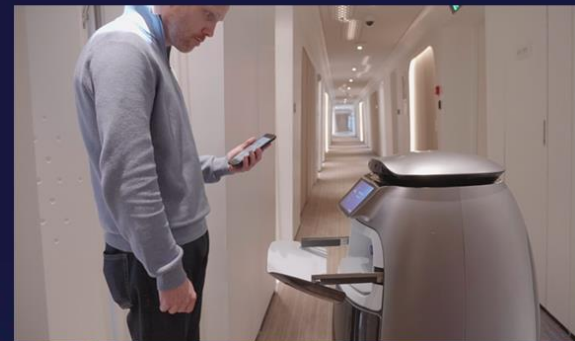
Our thoughts on the article

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.



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



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?



NEWS



Is it harmful or
beneficial to human?

Disadvantages

- Racial bias
- Responsibility
- Accuracy

CONCLUSION

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

eLearning



Students' Work Reasoning (Jamboard)



Set background

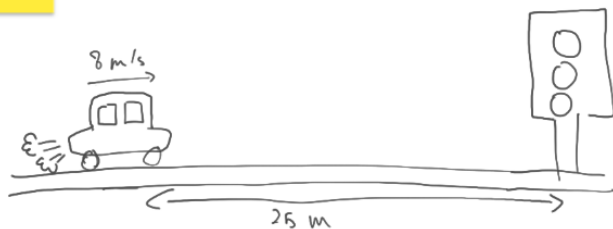
Clear frame



Open on a Jamboard

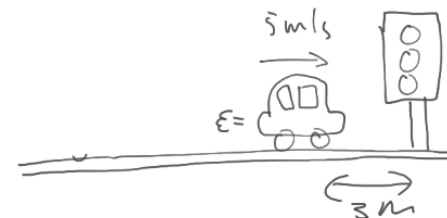
Brake

Speed = 8 m/s
Distance = 25 m



No brake

Speed = 5 m/s
Distance = 3 m



Light brake


Speed = 1 m/s
Distance = 11 m



Other factors to be considered

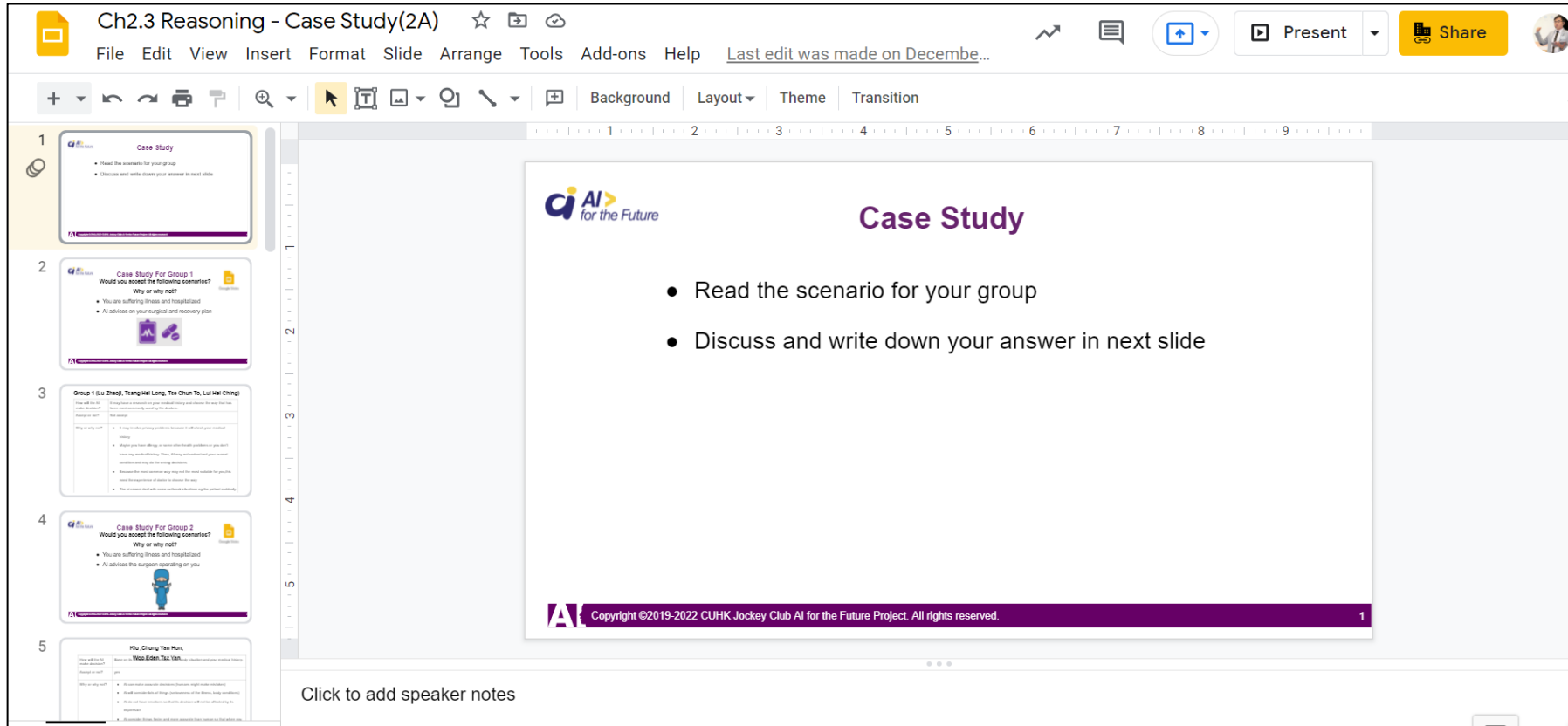
① Obstacles (eg. pedestrians)



- ② The car in front of you (distance, speed...) 
- ③ The weather condition (☔ raining?)
- ④ Road condition (steep? wet?)
- ⑤ Time of the yellow light
- ⑥ Are you rush

Students' Work

Case Study (Google Slides)



Ch2.3 Reasoning - Case Study(2A) ☆ 📁 🌐

File Edit View Insert Format Slide Arrange Tools Add-ons Help Last edit was made on Decembe...

Background Layout Theme Transition

1 Case Study

- Read the scenario for your group
- Discuss and write down your answer in next slide

2 Case Study For Group 1

Would you accept the following scenarios? Why or why not?

- You are suffering illness and hospitalized
- AI advises on your surgical and recovery plan

3 Group 1 (Lu Zhenqi, Tsang Hei Long, Tse Chun To, Lui Hei Ching)

How will the AI help you?

Would you accept the following scenarios? Why or why not?

- You are suffering illness and hospitalized
- AI advises on your surgical and recovery plan

4 Case Study For Group 2

Would you accept the following scenarios? Why or why not?

- You are suffering illness and hospitalized
- AI advises the surgeon operating on you

5 Wu Chung Tsz Hon, Wong Shun Tsz Yan

How will the AI help you?

Would you accept the following scenarios? Why or why not?

- You are suffering illness and hospitalized
- AI advises the surgeon operating on you

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Click to add speaker notes

https://docs.google.com/presentation/d/1zJN-jx1PyEDP_rBmN4LEALOnhgztXrmQ18nNQWTwam8/edit?usp=sharing

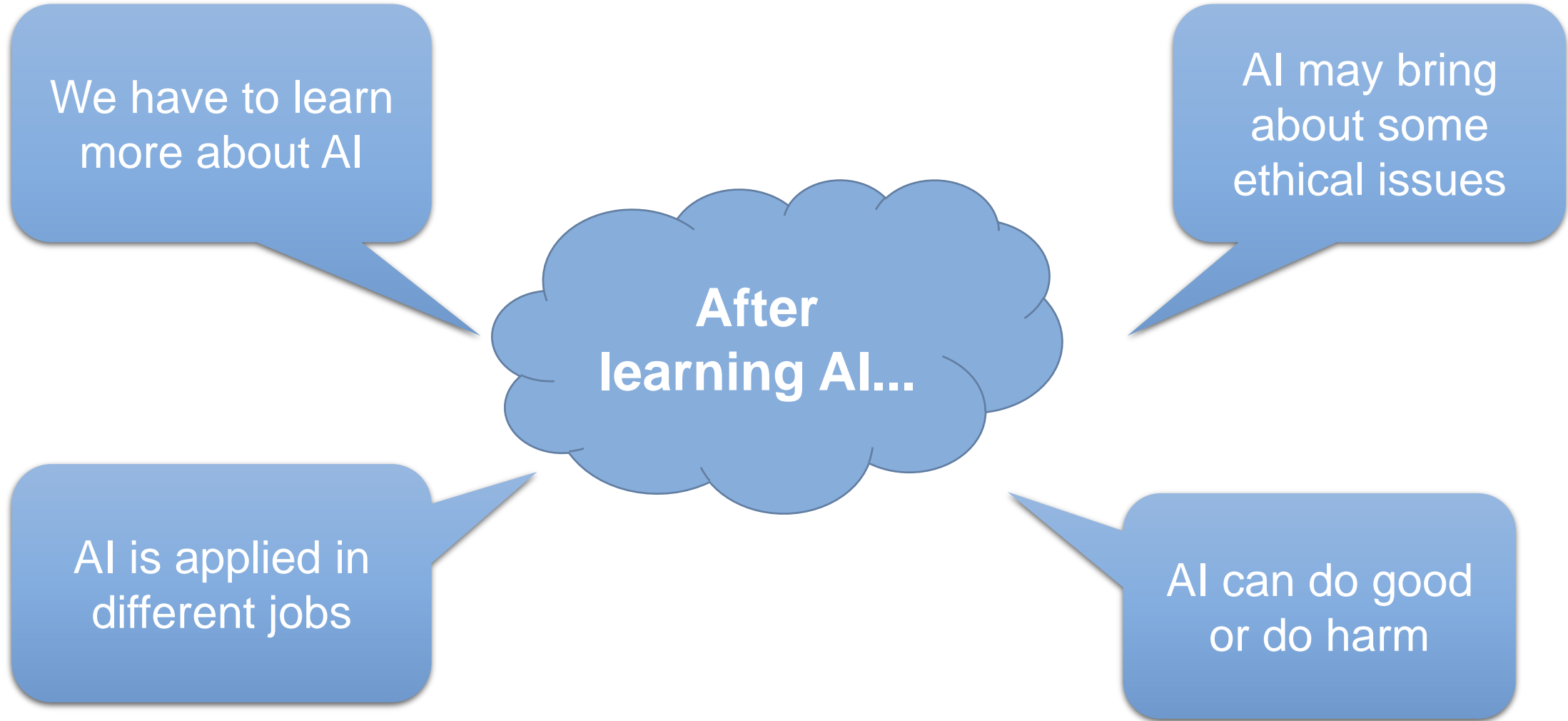
AI is all around us

AI is not just
about robot

**After
learning AI...**

AI is immersed in
our life

There is
something AI
cannot do



I enjoy learning
through news and
daily life
examples

**After
learning AI...**


I hope I could
build my own AI
applications

The presentation
enabled me to
learn and
discover more by
myself

It's not easy but
interesting


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

A light purple silhouette of a human head in profile, facing right. The words "Thank You" are written in white, sans-serif font across the center of the head.

Thank You