Can AI Harm Us?

AI is not only robots! AI can have many other forms. Maybe you know of few of them. Have you ever used Snapchat, Netflix, Youtube, Siri, Alexa? Then you have used AI.

Where is AI? - Mini Game

You will see a picture of a city.

Click on the places where you think AI is!

~~Have fun!~~

Where is AI?

Camera
Smart Home
Delivery Truck
Bank
Trees
Person
Hospital
Car

Where is AI?

camera

The video surveillance camera could be indeed linked with AI. In that case, it could recognize faces and record certain suspicious activities (China is currently using such technology).

Where is AI?

Smart Home

A smart home is indeed based on AI and relies on digital assistants (like Alexa or Siri).

Where is AI?

car

A car does not have AI. But people are trying to build a self-driving car full with AI.

Where is AI?

Delivery truck

Delivery trucks use AI to find the fastest routes!

Where is AI?

Hospital

The hospital uses AI a lot. For example to find out if people are sick or not.

Where is AI?

Bank

The bank uses AI for many things. For example, to recognize your hand-writing!

Where is AI?

Trees

The trees are not connected to AI.

Where is AI?

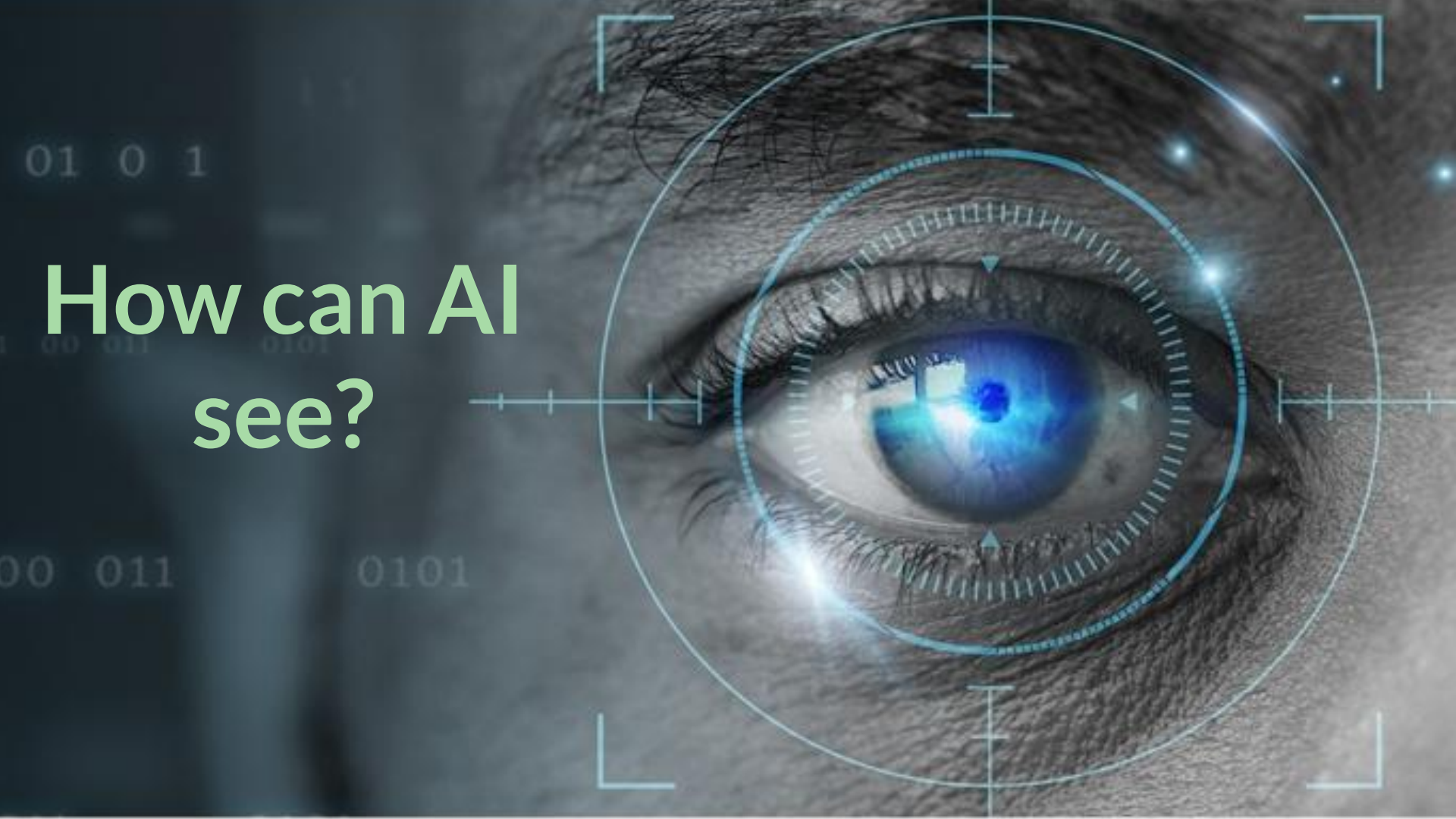
Person using a phone

A mobile phone has lots of examples of AI. A lot of your apps use AI: Netflix, snapchat, YouTube!

“It’s going to be interesting to see how society deals with artificial intelligence, but it will definitely be cool.”

—COLIN ANGLE

How can AI see?

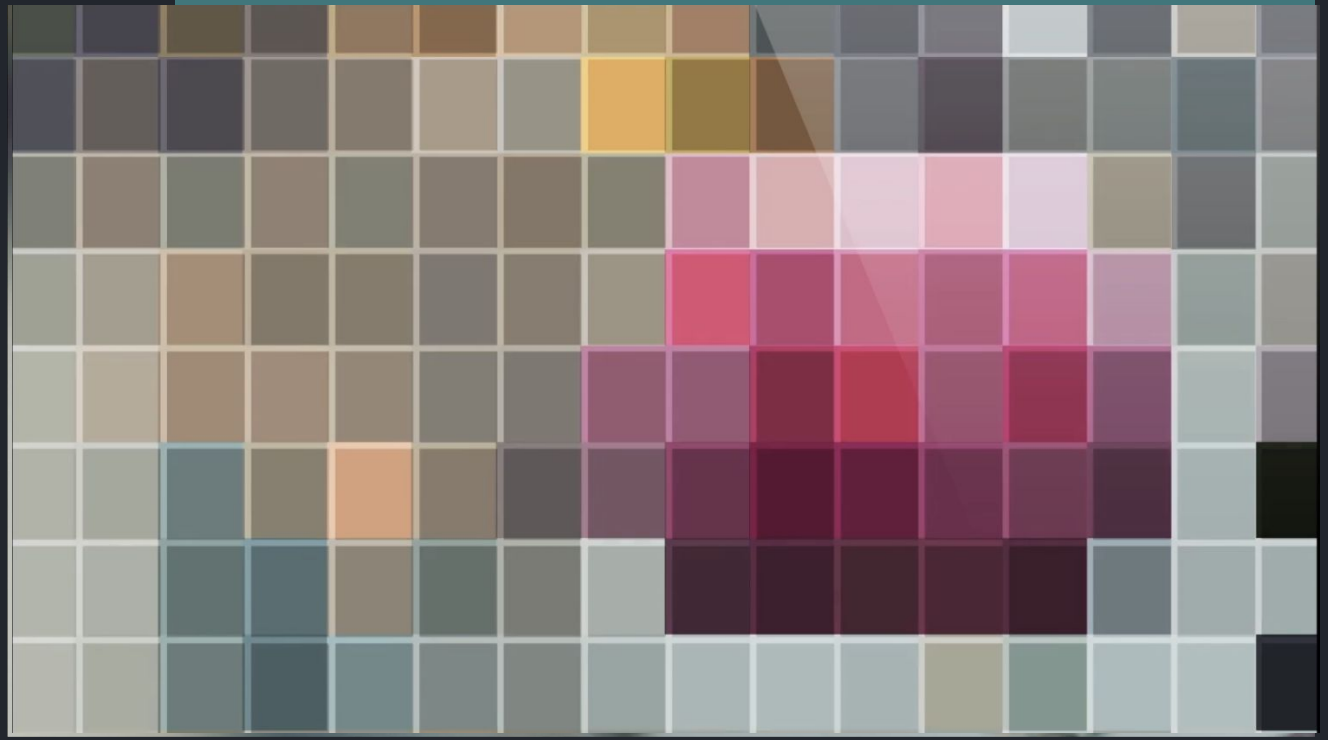


WITH PIXELS!

WHAT WE SEE

PIXELS!

WHAT AI SEES

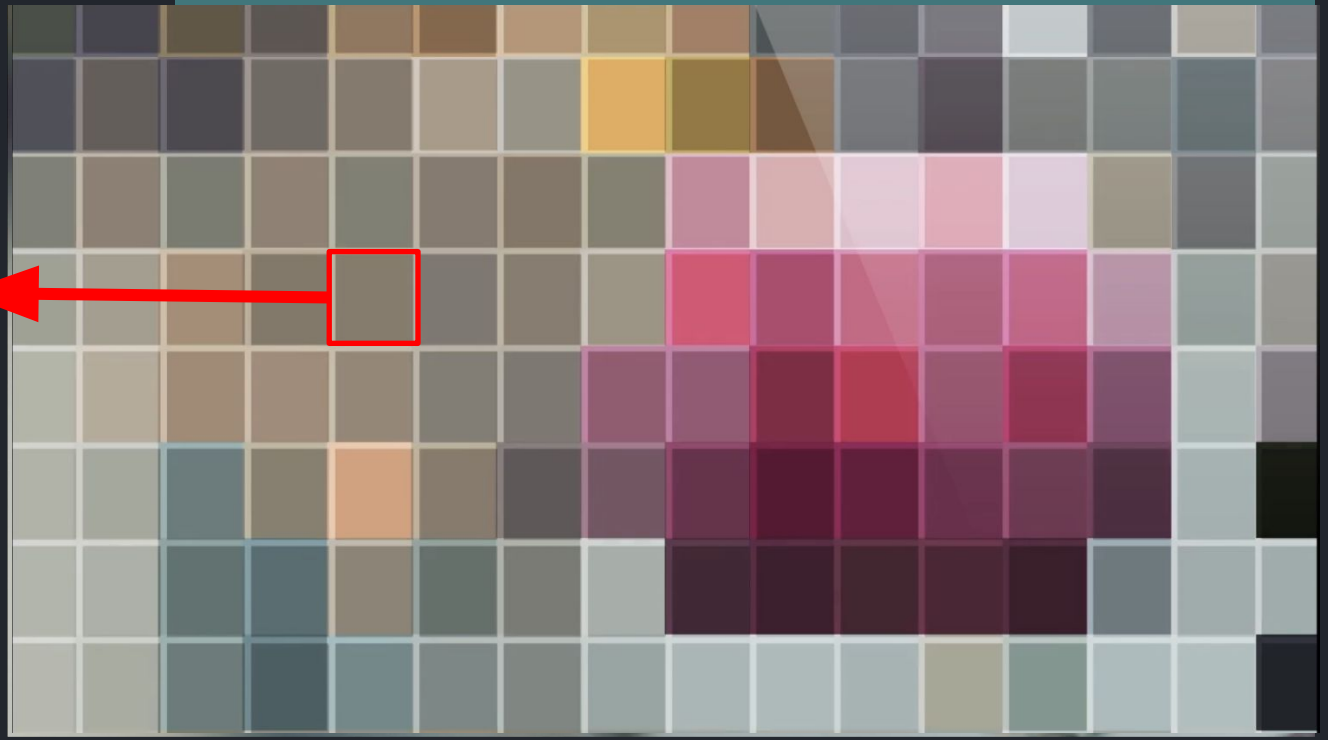


PIXELS!

These squares are called **pixels.**

This is what AI sees.

WHAT AI SEES

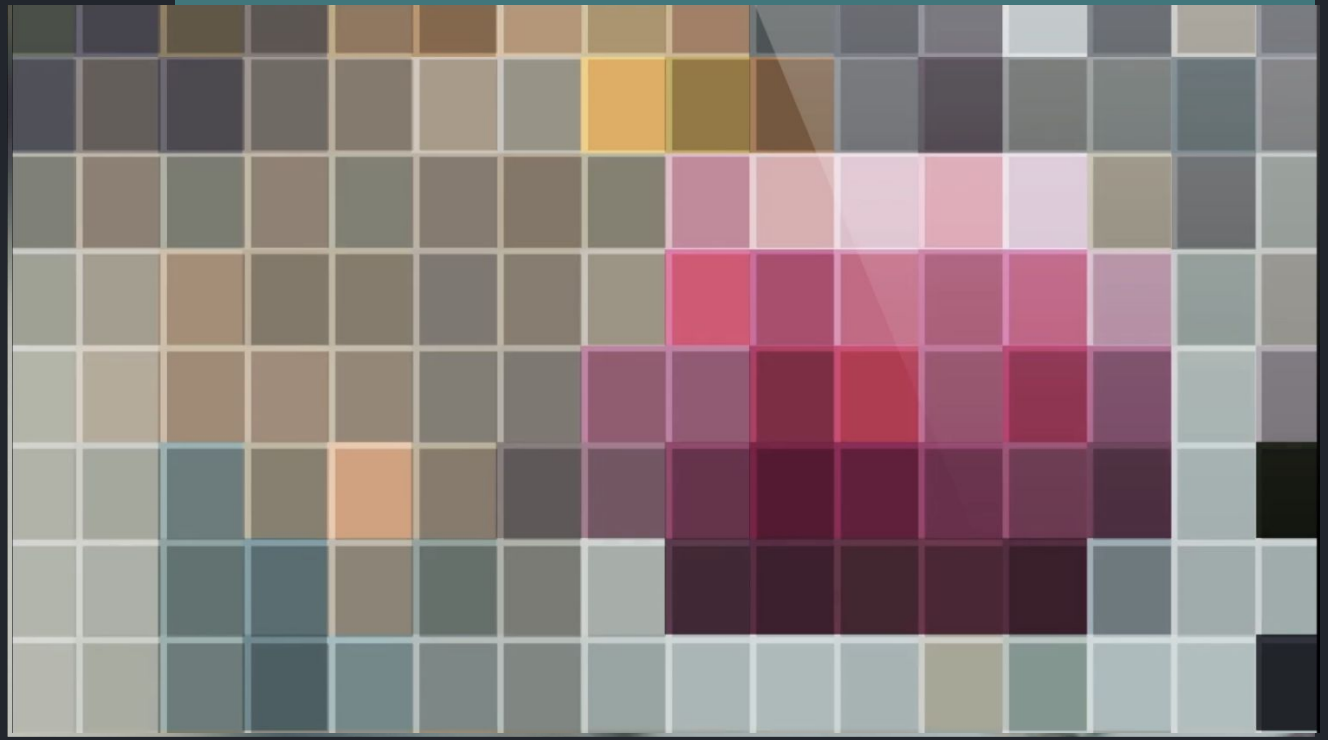


PIXELS!

This picture has 128 squares.

Thus, 128 pixels!

WHAT AI SEES



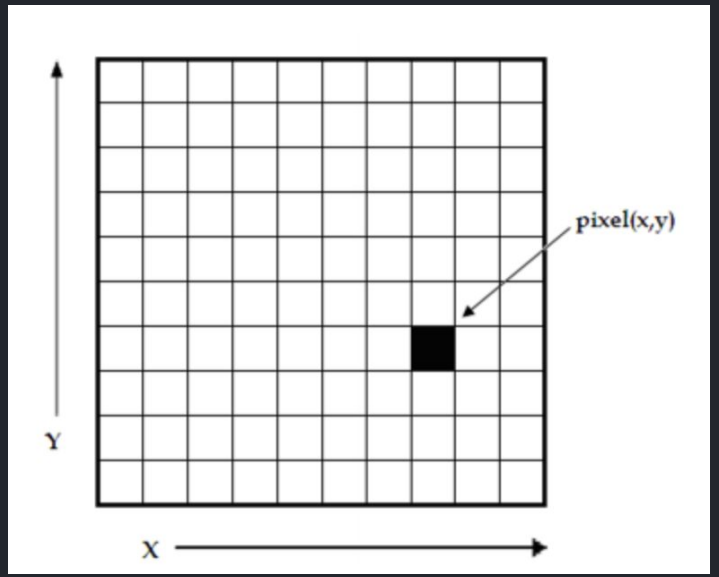
The more the better!

This picture has millions of pixels!

See the difference?

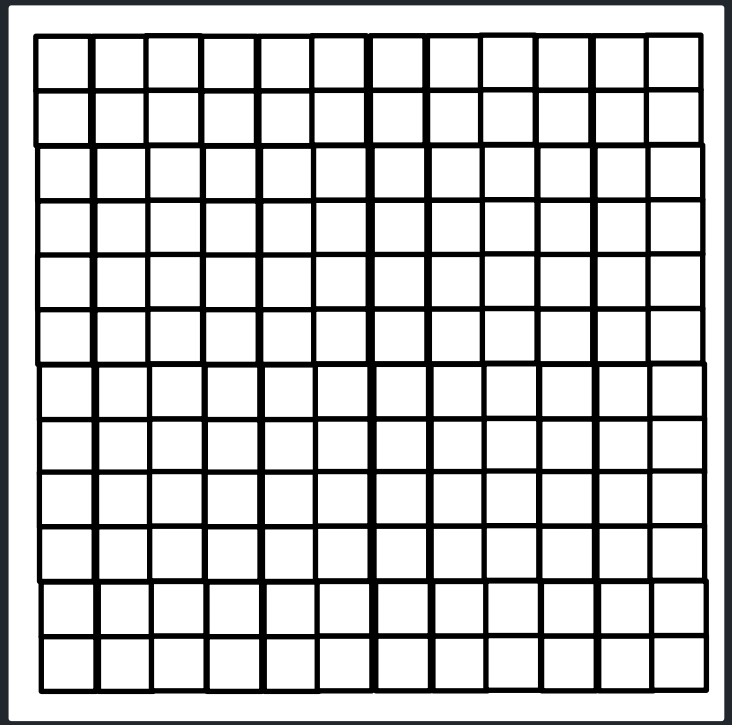
How does AI see this cat?

Where are the pice



How does AI see this cat?

How does the computer sees this cat?



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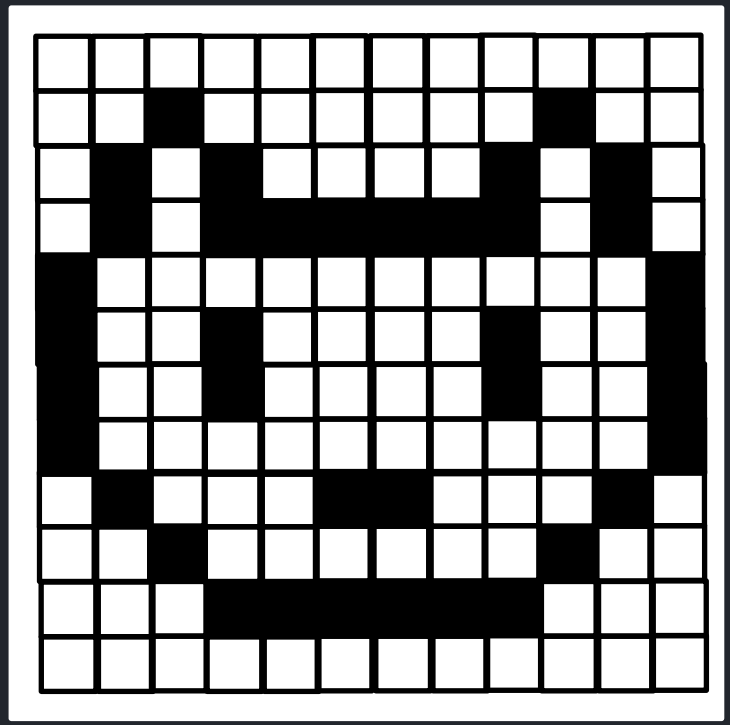
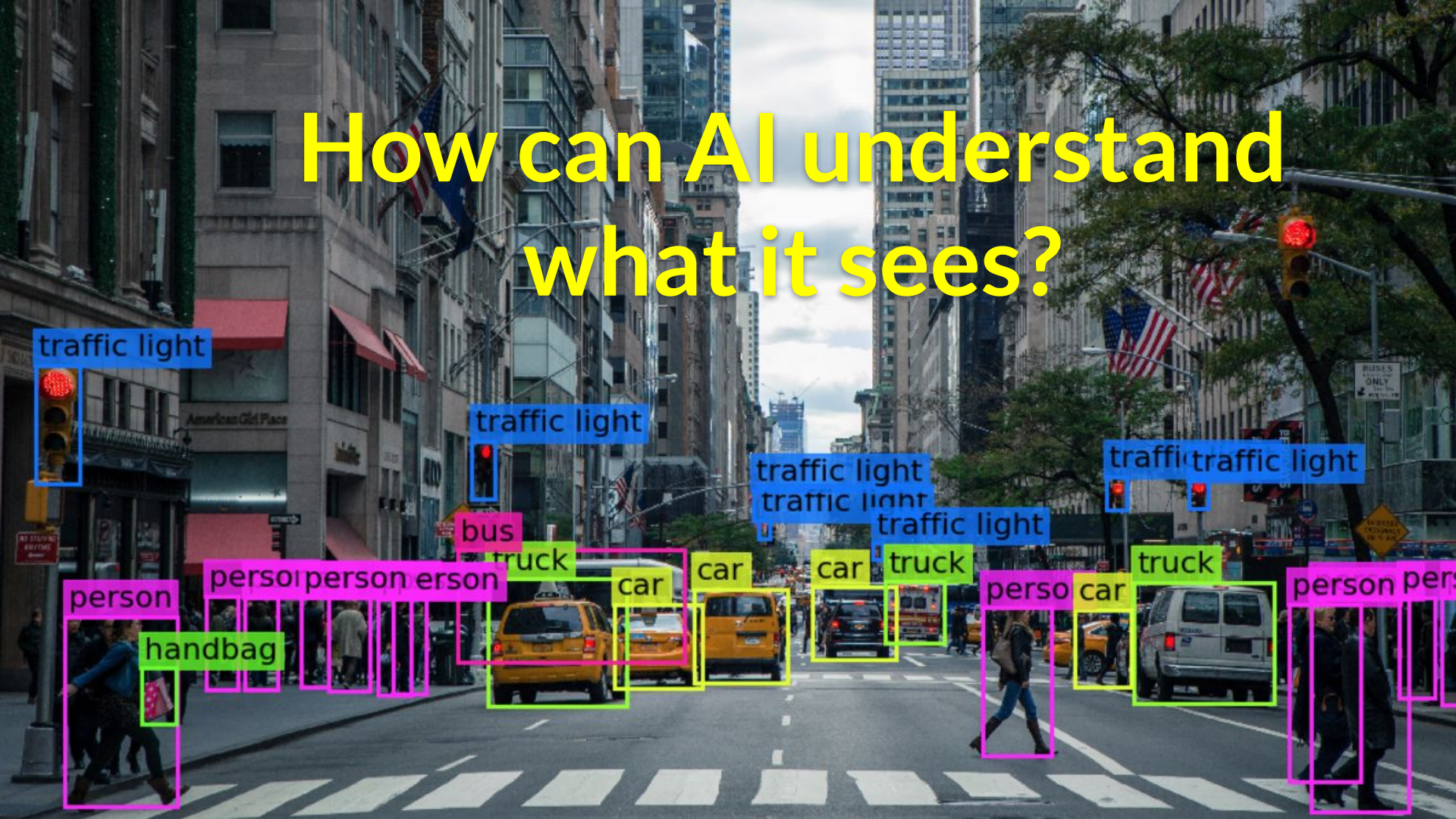


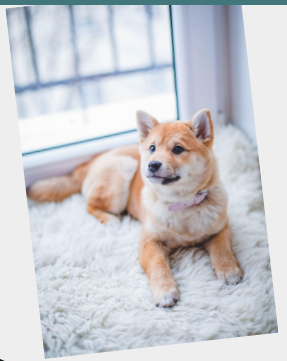
How can AI understand what it sees?



How do you learn?

How do you know this is a cat?

How do you know this is a dog?



How do you Learn?

How do you know this is a cat?

Cats have:
- 2 eyes
- A nose
- Hair
- Tail
- Four legs
- Different colors

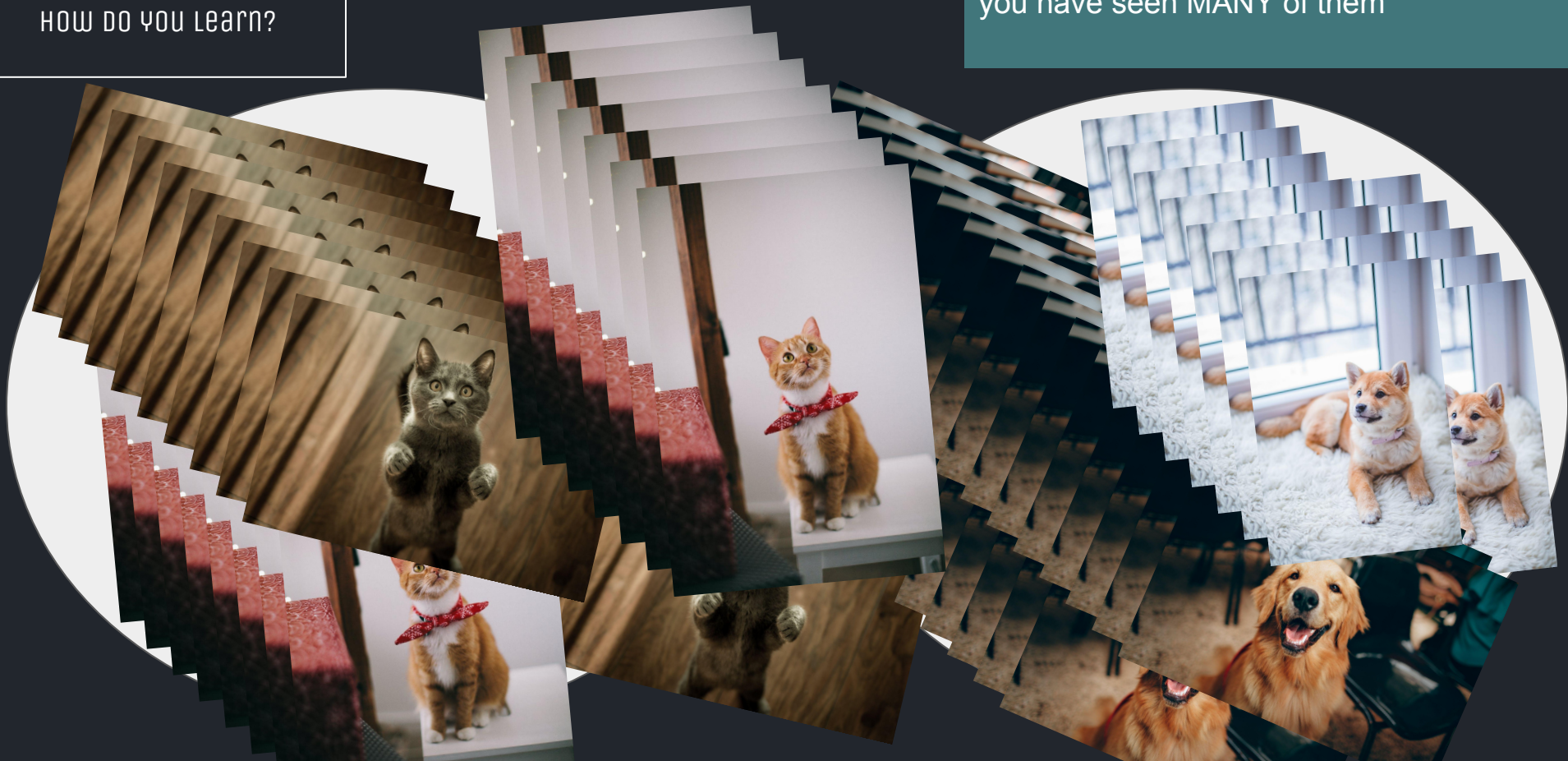
How do you know this is a dog?

Dogs have:
- 2 eyes
- A nose
- Hair
- Tail
- Four legs
- Different colors

How do you know the difference?

How do you learn?

You recognize cats and dogs, because you have seen MANY of them



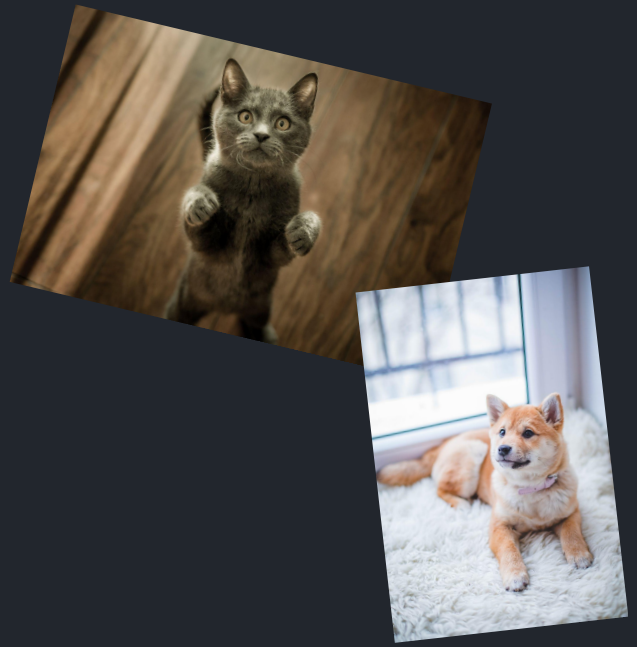
Machine Learning

This is also how AI can recognize cats and dogs.

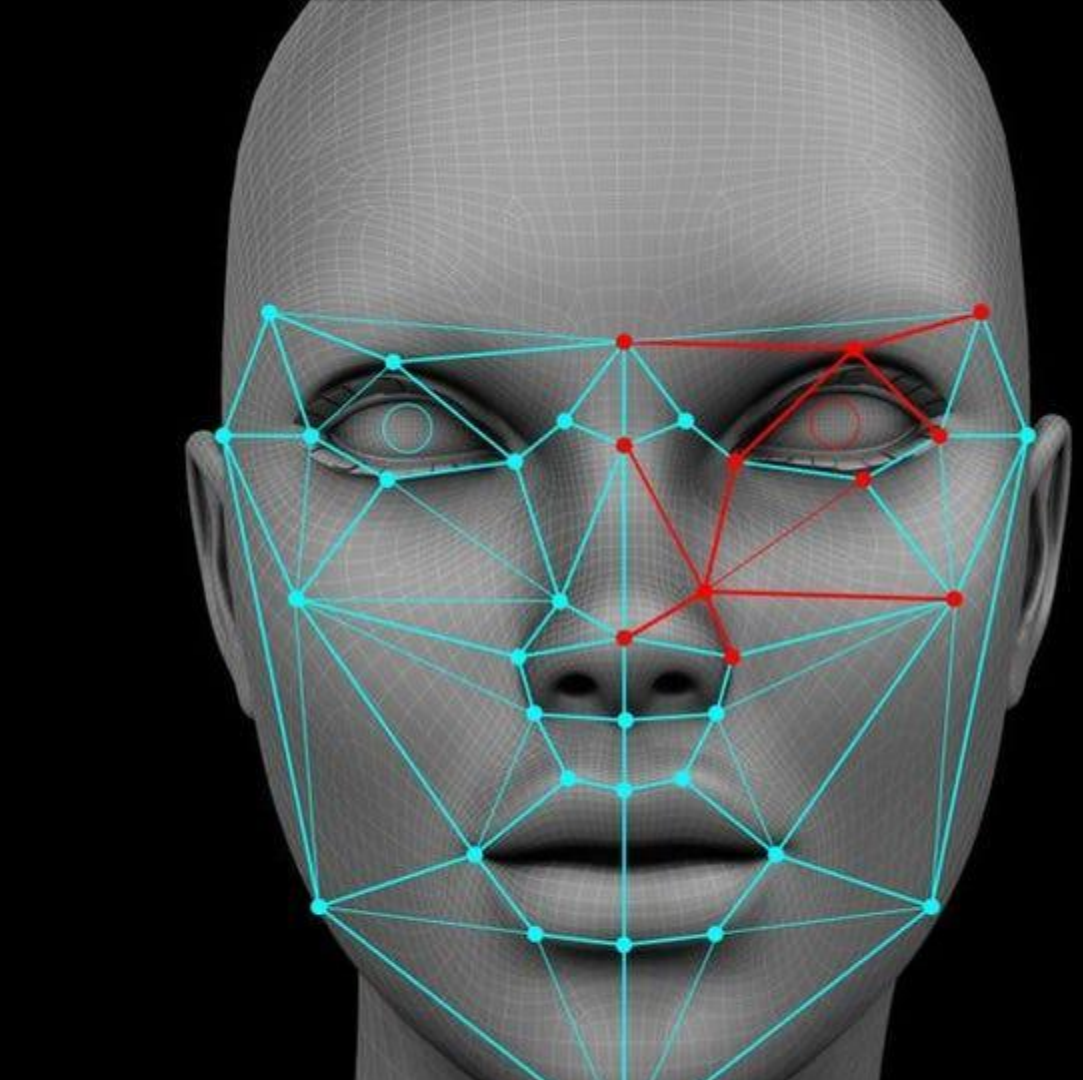
First, we need to show AI many pictures of cats or dogs. So the AI can practice, or **train.**

After many pictures, the AI is trained very well, and can recognize a cat or a dog.

We call this learning process **Machine Learning**.



Go to and play the game and come back:
https://quickdraw.withgoogle.com/



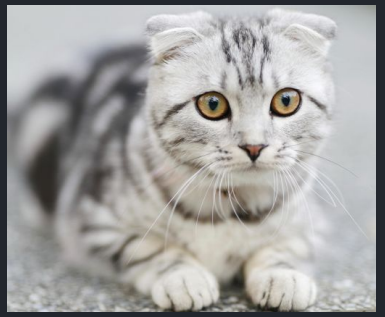
What are the dangers of training AI to ‘see’ us?

AI BIAS

Sometimes AI can make **mistakes**, because we train it wrong.

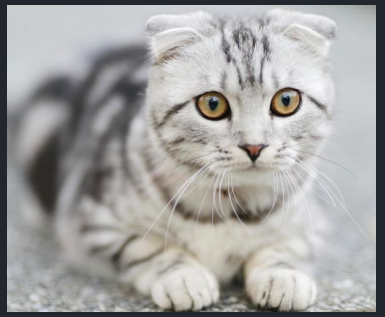
AI Bias

Imagine we say to a computer: This is what cats look like:



AI BIAS

Imagine we say to the AI system: This is what cats look like:



Will it recognize this cat?

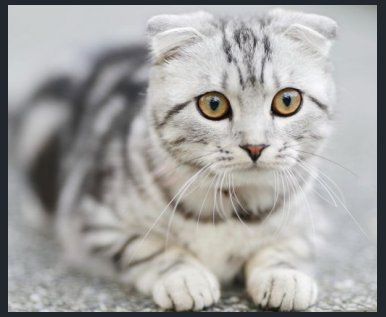
AI BIAS

Imagine we say to the AI system: This is what cats look like:

Will it recognize this cat?

Maybe not, because:

- This cat has no hair, all other do.
- This cat has a lot of wrinkels and the other don’t



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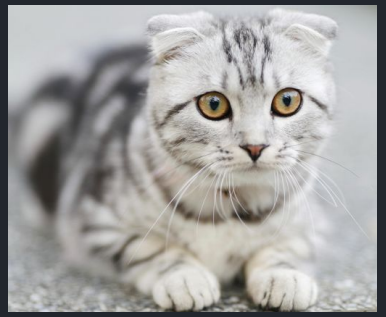


Will it recognize this cat?

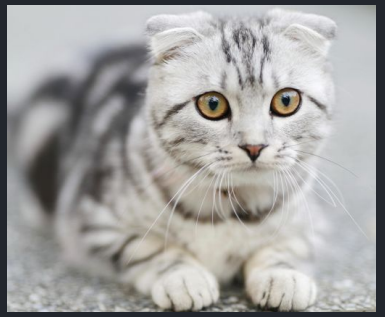
AI BIAS

Imagine we say to the AI system: This is what cats look like:

Will it recognize this cat?

Maybe not, because:

- This cat doesn't show its face and the others do



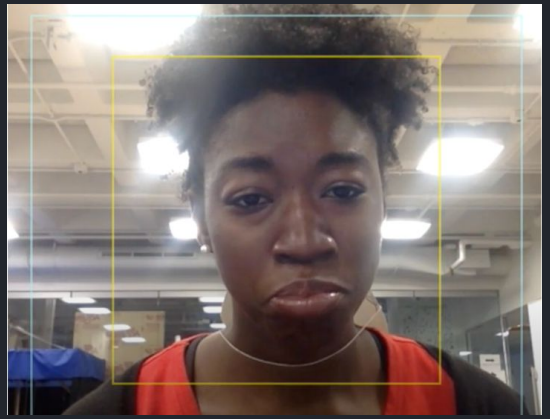
AI BIAS

If AI makes mistakes because it was trained wrong, we call that **AI BIAS.**

AI BIAS

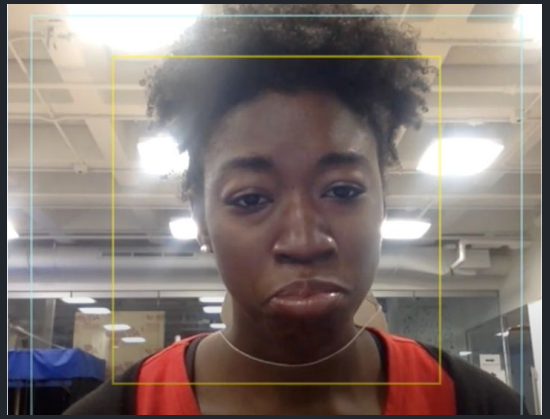
Example from Real Life:

In the picture you see Joy.



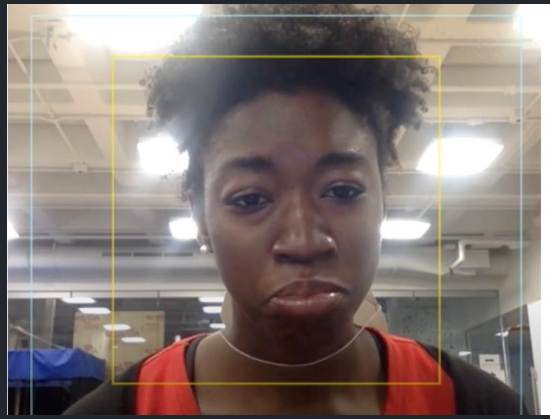
AI Bias

Joy is trying to get her face recognized, but the AI system doesn't see her face.

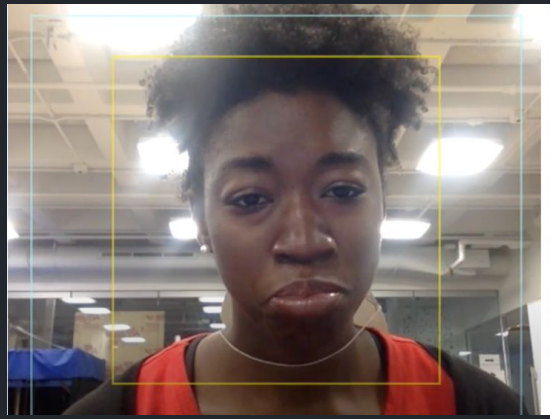


AI Bias

When she puts on a white mask, the AI system does see her face.

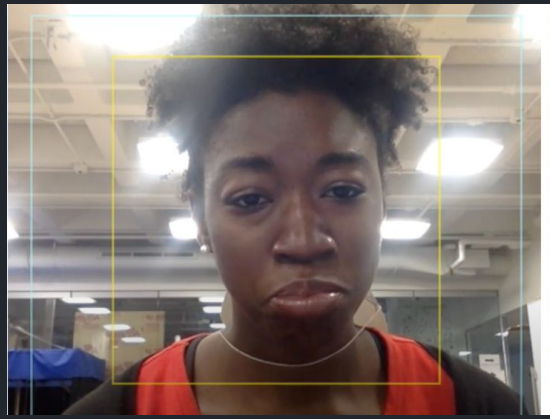


AI Bias



Probably, because the AI system was trained with pictures of people with white faces and not with other skin colors.

AI Bias

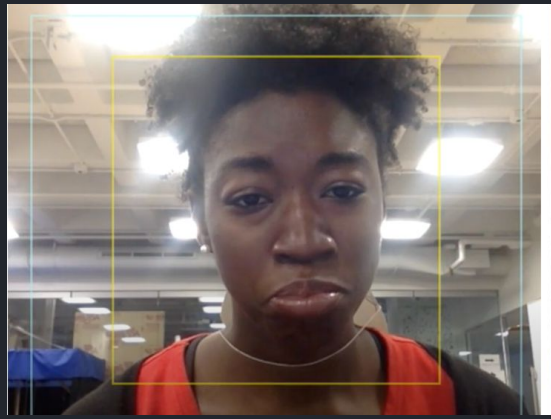


The AI is now biased, because it is not trained to recognize other skin colors.

AI Bias

Do you think that is fair?

AI Bias



Do you think that is fair?

Do you think that is dangerous?

AI Bias

Do you think that is fair?

Do you think that is dangerous?

More info, watch Coded Bias on Netflix or check out: https://www.ajl.org/

Are you up for a challenge?

Go to the next part of the lesson: **THE CHALLENGE**

Help up build a cat-dog classifier for a pet door

1. Click here

2. Train the classifier recognize dogs other animals

3. Will it pass the bias test?

4. What will happen if such classifiers are used on a larger scale?