Diploma in Apple Development (\*\*) (2):

Product One: Lecture 4: Vision, Face Detection.

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Name:

Yuwei(UV) Chen / Debbie

Academic background:
Msc Creative computing in CCI

Worked as UX designer and product designer

Exploring UX design, digital product design, installations, fine arts, music, computer science, and music technology fields.

Before we start, remember to confirm your attendance using the Seats Mobile app!

#### There are 7 visual related practical AI tasks:

Face Detection
Barcode Detection
Saliency Detection
Image similarity
Image Classification
Drawing recognition
Style classification

#### How does it work and how do we use them?

Write your ideas down -- it's not a test, could ask questions or share your thought if you like

#### **Face detection**

This uses image analysis techniques to count faces in an image and perform various actions with that information, such as applying other images on top of the face, with the correct rotation.

#### **Barcode detection**

This uses Apple's frameworks to find barcodes in images.

## Saliency detection

This task finds the most salient area of an image using Apple's frameworks.

## **Image similarity**

How similar are two images? We build an app that lets the user pick two images and determine how similar they are.

#### Image classification

Classification is a classic AI problem. We build a classification app than can tell us what we've taken a photo of.

#### **Drawing recognition**

Recognition is basically classification, no matter what you're classifying, but in the interest of exploring a breadth of practical AI topics with you, here we build an app that lets you take a photo of a line-drawing and identify the drawing.

## Style classification

We update our Image Classification app to support identifying the style of a supplied image by converting a model built with another set of tools into Apple's CoreML format.

**Excerpt From** 

Practical Artificial Intelligence with Swift

Tim Nugent

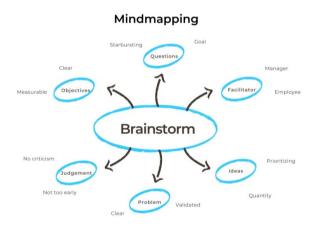
## Today, We start with AI Face Detection.

How does it work?

When do we use them in our daily life?

What app got face detection to support good/bad using functions?

What app can you make with face Detection?



Let's talk in groups and chose one team leader to share your ideas

## What's Going On With Facial Recognition



# Those are set of tools for finding and using patterns in data, then use them to make decisions.

**Basic Process:** 

**Prepare dataset** 

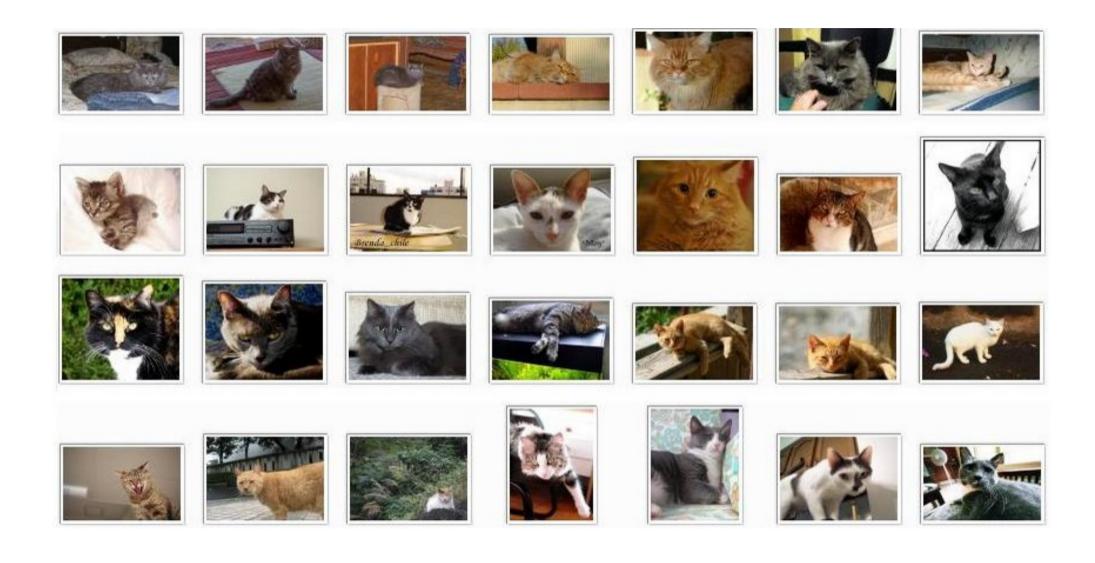
Train the machine (Time could be very long)

**Get the pattern** 

Use the result

Neural network

# Where is the dog?

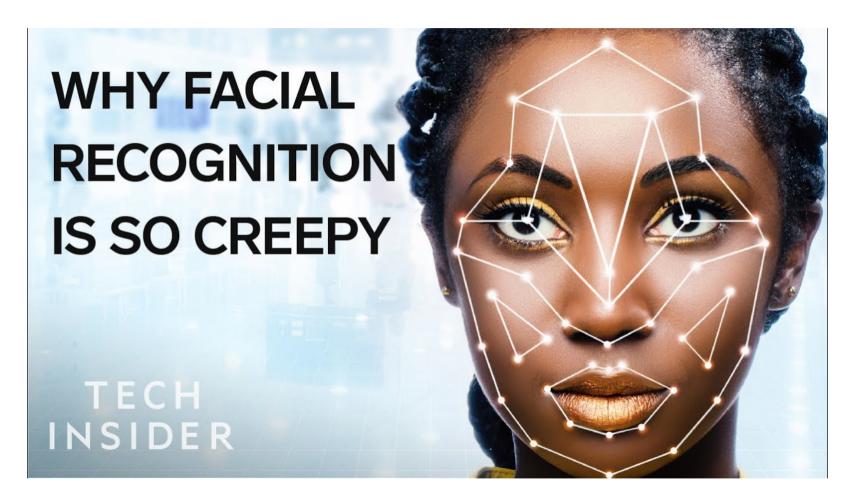


Why are they cats instead of dogs?
How could Al tell if they are dogs or not?

# Where is the apple tree?



What should we consider when we are preparing the dataset?



www.youtube.com/watch?v=BqQT4sIOYA0&t=1s

Things about datasets and training Al are quite complex and time-killing. For now, we will use existing Apple frameworks to run our app.

#### **Hands-on Activities**

?Now, let's turn to Practical Artificial Intelligence with Swift Page 164, try to understand how the code works, and try to run it together.

?Now, let's download the resources, try to import them into your Xcode, and run it.

**Github link:** 

#### **Vocabulary Review**

Face Detection
Barcode Detection
Saliency Detection
Image similarity
Image Classification
Drawing recognition
Style classification
Dataset
Neural network
Apple frameworks