Lesson 5: Thinking machines

Computing

Computer Systems

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Task 1 - Be the teacher

Task details Google Teachable Machine is a machine learning program that you can train to classify images or sounds into categories.

In this task, you will use **Google Teachable Machine** to classify images of fruit. You will do this by providing it with example images for each category.

Task 1 - Be the teacher - part 1: gather

First, you will specify the categories of images that you want Google Teachable Machine to recognise, e.g. apples and oranges, and then gather example images for each category.

Task 1 - Be the teacher - part 1: gather

| Steps	Further instructions
1. Visit the Google Teachable Machine website.	Open a browser and visit: oaknat.uk/comp-teachable-machine Click on **Get Started**
2. Specify that you will train the machine to **classify images**.	Select **Image Project**.
3. Specify that, initially, there will be two categories of images. Every image will be classified as either an **Apple** or an **Orange**.	There are already two classes in the project, so you will only need to **rename** them. Rename **Class 1** to Apple Rename **Class 2** to Orange

Task 1 - Be the teacher - part 1: gather

Steps	Further instructions
4. Specify that you will be providing example images for the **Apple** class using the webcam.	In the **Apple** class, under 'Add Image Samples', select **Webcam**.

Task 1 - Be the teacher - part 1: gather
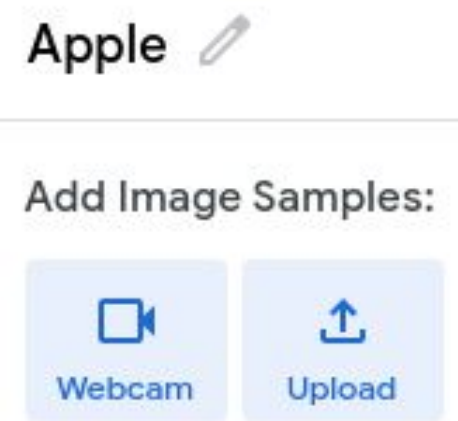
Steps

Further instructions

5. Provide examples of images for the **Apple** class.

You may need to adjust the settings.

Tip: A large number and variety of training examples will improve the machine's accuracy.

However, limit yourself to no more than a few dozen images for each class, otherwise the training phase will take longer.

Click the button below to capture images. Releasing the button will stop recording images.

If it is inconvenient for you to hold the button while capturing images, click the 'Settings' (gear) button and turn off **Hold-to-record**. This will allow you to capture images for a set amount of time.

Try minimising background 'noise' in your pictures. Use the 'Crop' icon to zoom in on the fruit as much as possible.

Task 1 - Be the teacher - part 1: gather

Steps

Further instructions

6. Repeat steps 4 and 5 to provide example images for the **Orange** class.

Task 1 - Be the teacher - part 2: train

Task 1 - Be the teacher - part 2: train

Steps

Further instructions

7. Train your machine, using the examples that you have provided.

Locate the **Training** rectangle.
Click on Train Model

A progress bar will inform you of the time remaining until training is complete.

Training

Training...

00:14 - 34 / 50

Note: Training may take some time. Make sure that you don't switch tabs during the process.

Task 1 - Be the teacher - part 3: test

Task 1 - Be the teacher - part 3: test

Steps

Further instructions

8. Use the trained machine to classify images as either **Apples** or **Oranges**.

Locate the **Preview** rectangle.
The 'Output' will display how confident the machine is that the current image can be classified as an **Apple** or an **Orange**.

Example: Definitely an **Apple**

Output

| Apple | 100% |
| Orange | |

Example: Definitely an **Orange**

Output

| Apple | |
| Orange | 100% |

Example: Inconclusive

Output

| Apple | 32% |
| Orange | 68% |