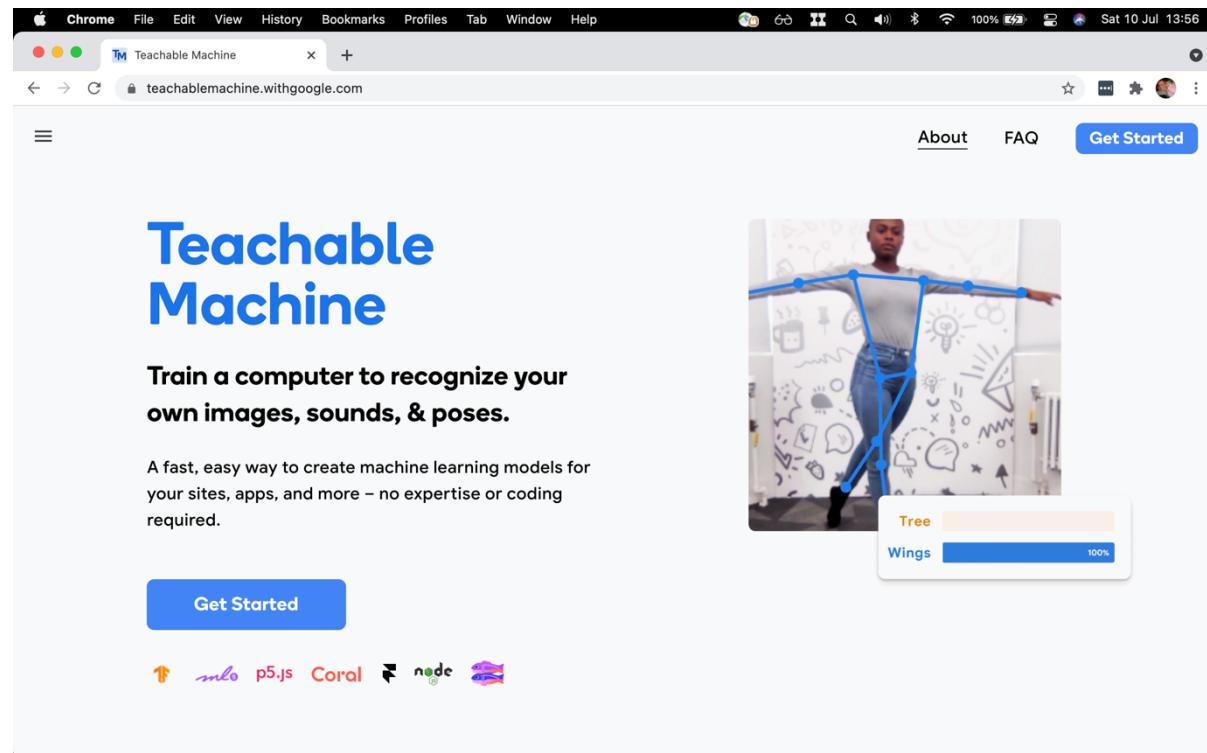


**Instructions for creating the Scratch project described in dalelane.co.uk/blog/?p=4447**

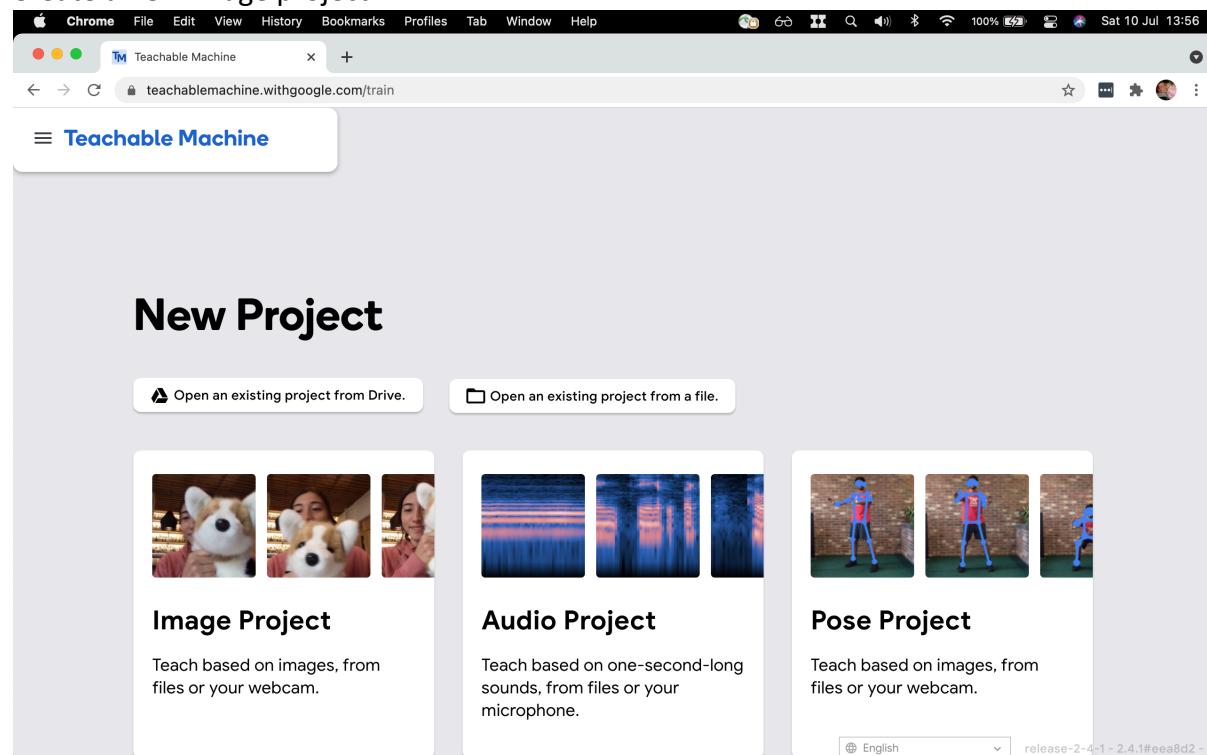
-- Dale Lane

---

Go to Teachable Machine



Create a new image project



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## Choose the standard image model

New Image Project

**Standard image model**  
Best for most uses  
224x224px color images  
Export to TensorFlow, TFLite, and TF.js  
Model size: around 5mb

**Embedded image model**  
Best for microcontrollers  
96x96px greyscale images  
Export to TFLite for Microcontrollers, TFLite, and TF.js  
Model size: around 500kb  
[See what hardware supports these models.](#)

**Image Project**  
Teach based on images, from files or your webcam.

**Audio Project**  
Teach based on one-second-long sounds, from files or your microphone.

**Pose Project**  
Teach based on images, from files or your webcam.

## Set up classes for a few objects

Chell

Gandalf

The Doctor

Venkman

Add Image Samples:

Webcam Upload

Training

Train Model

Advanced

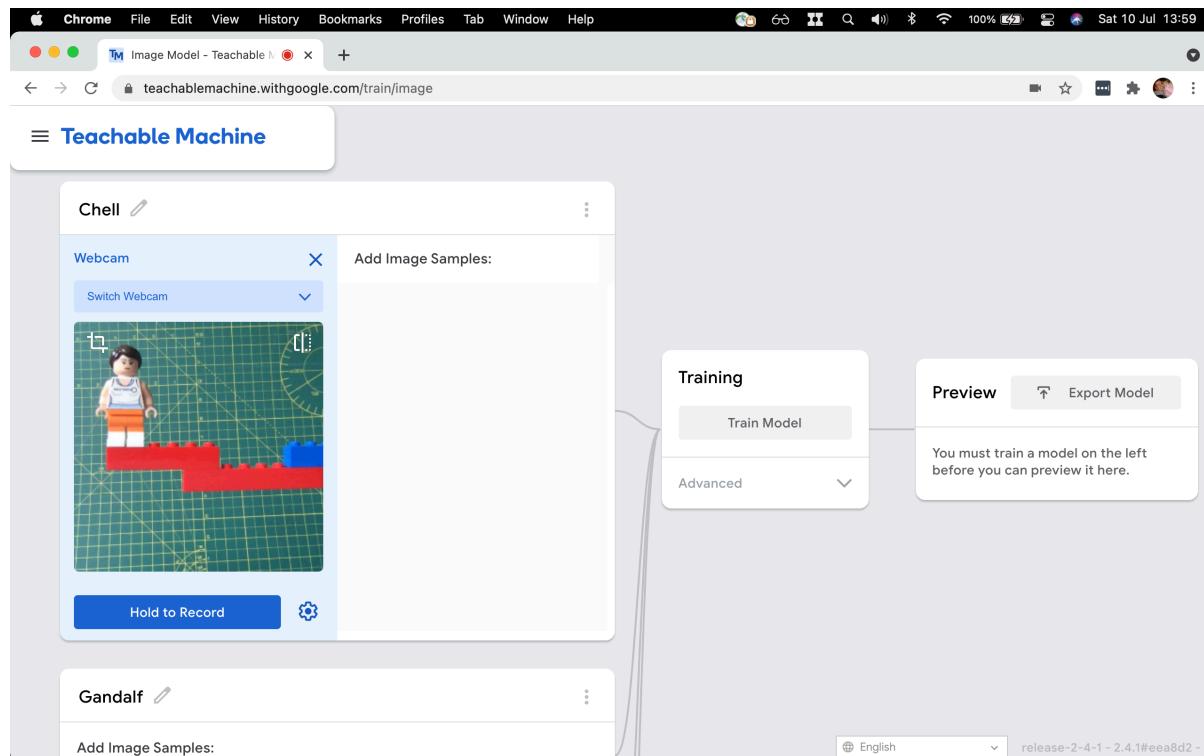
Preview Export Model

You must train a model on the left before you can preview it here.

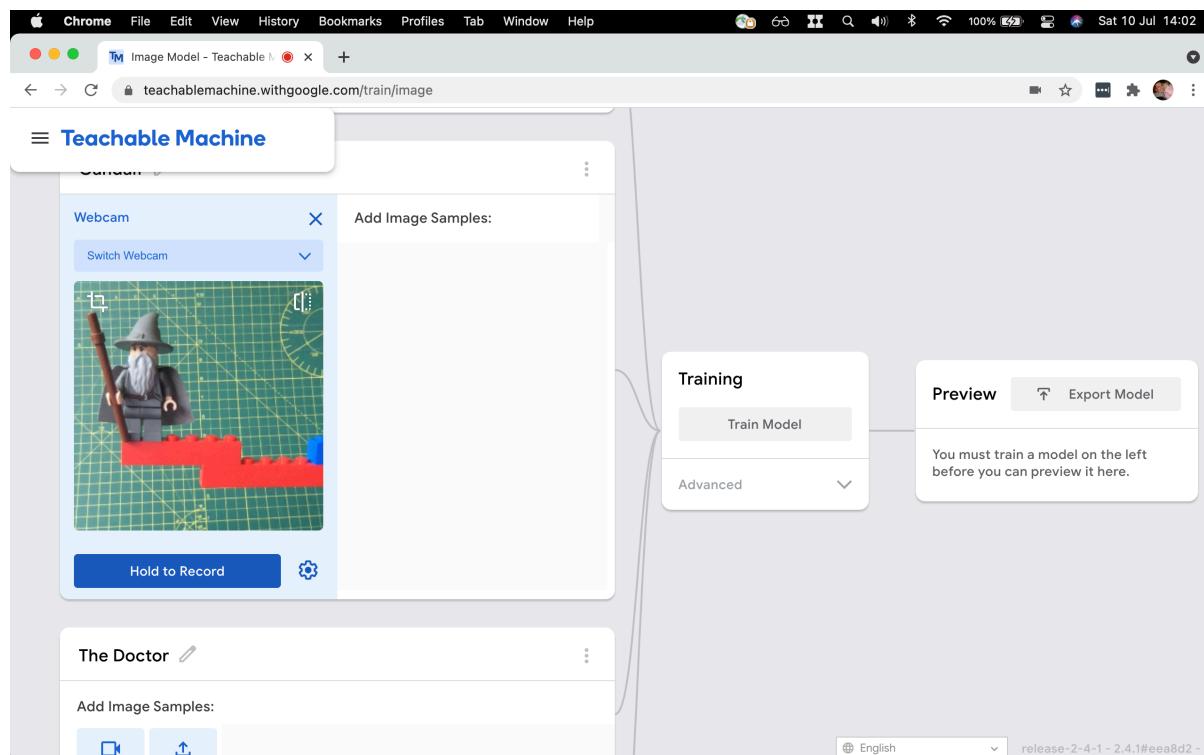


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Use the webcam to take photos of the object



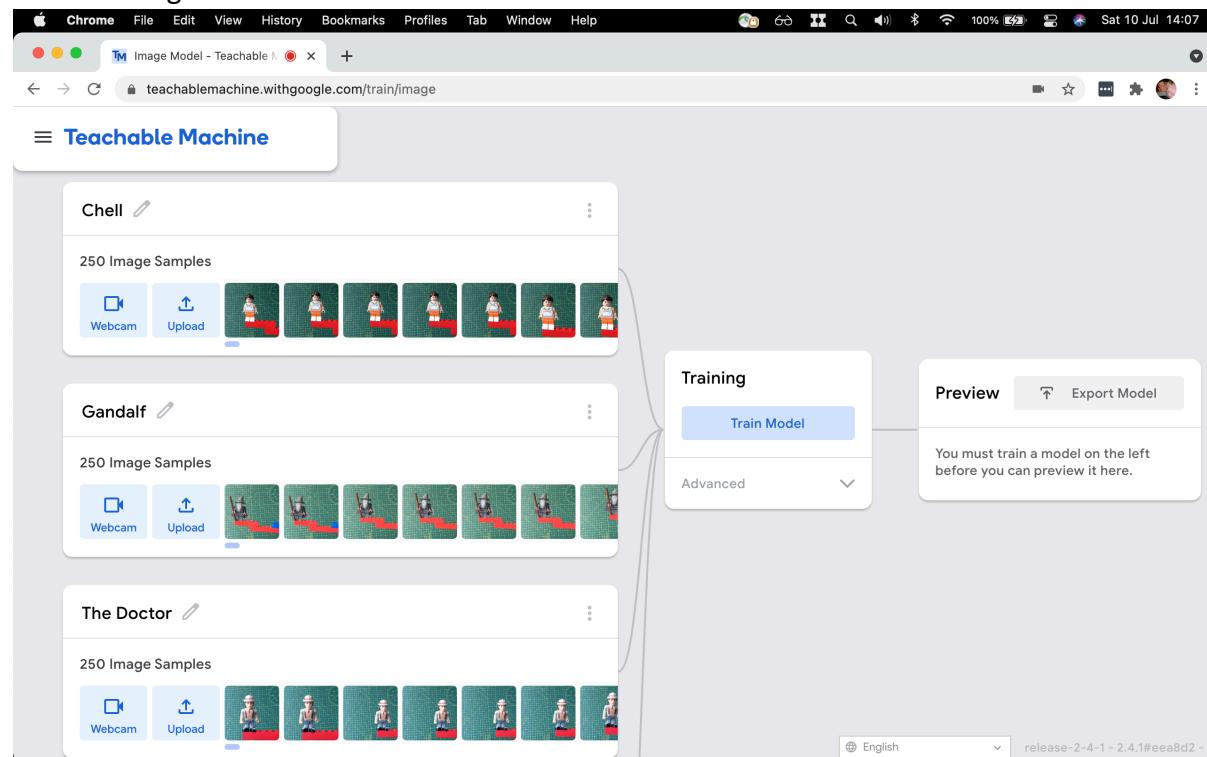
I used long LEGO pieces rather than my hand in the photos, as it was easier to keep that aspect of the photos consistent.



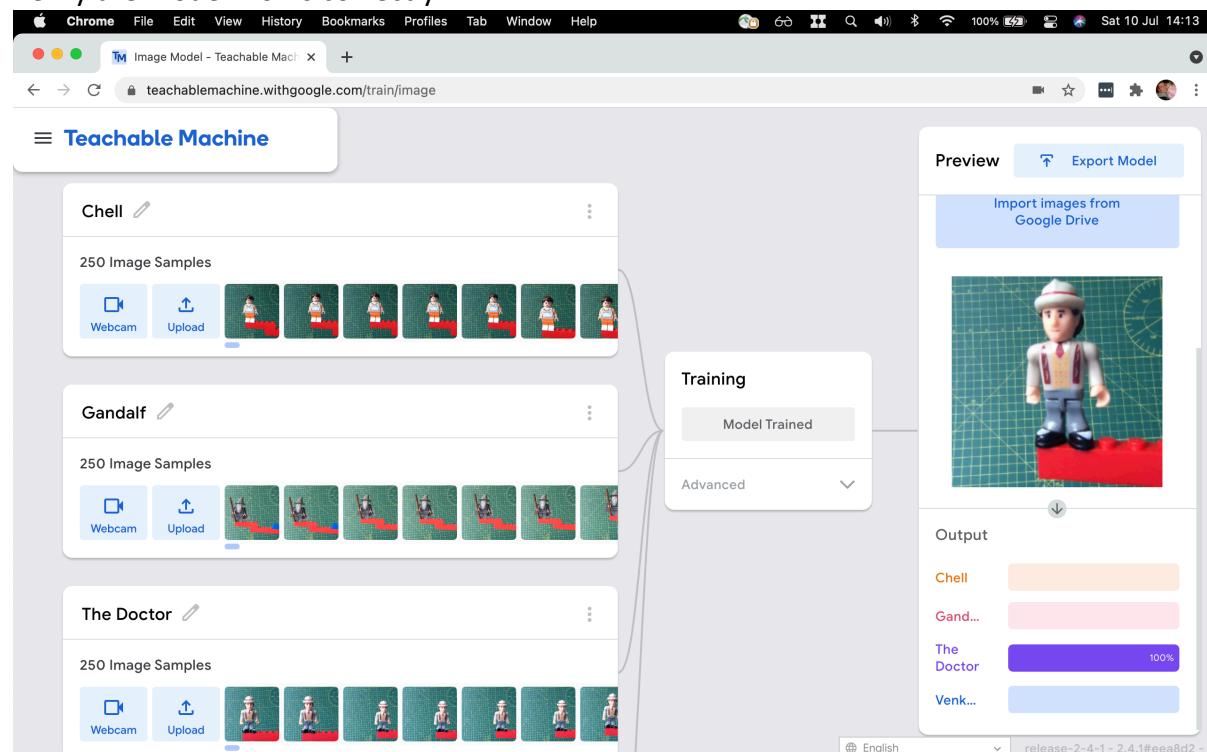
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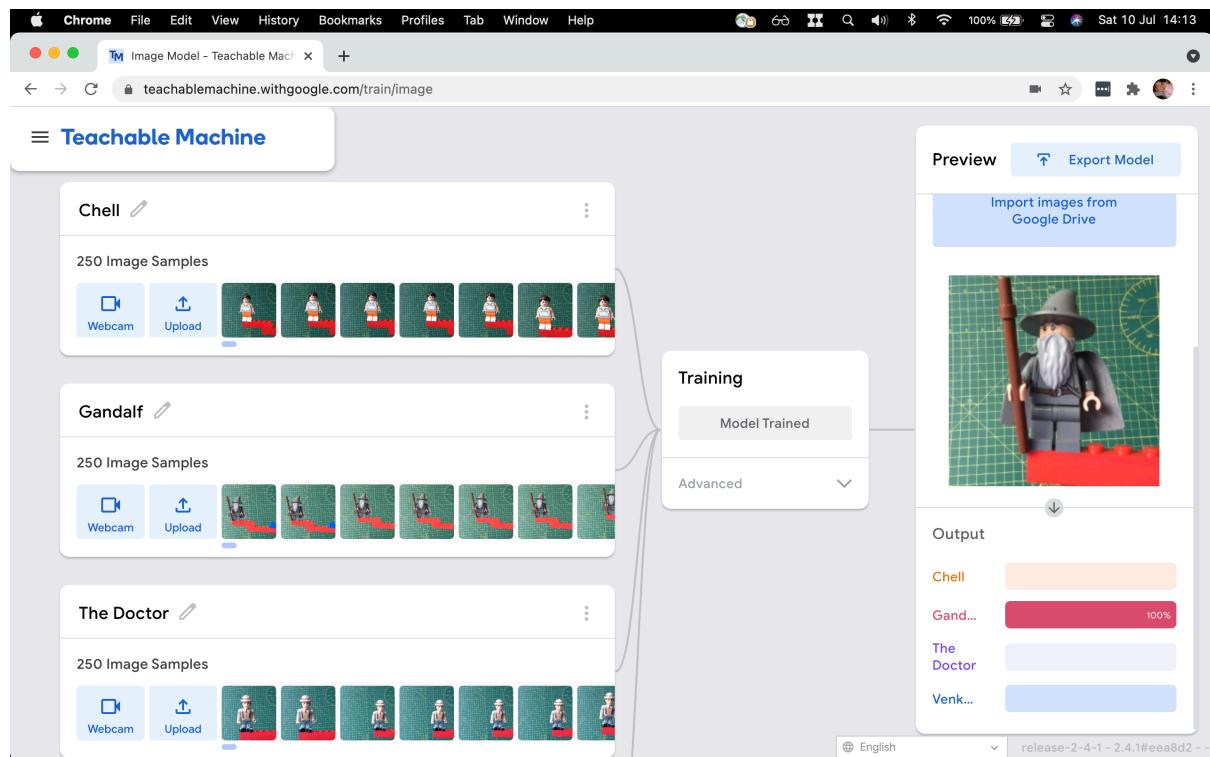
Collect 250 examples of each object, in a variety of positions, against a consistent background

### Start training a model

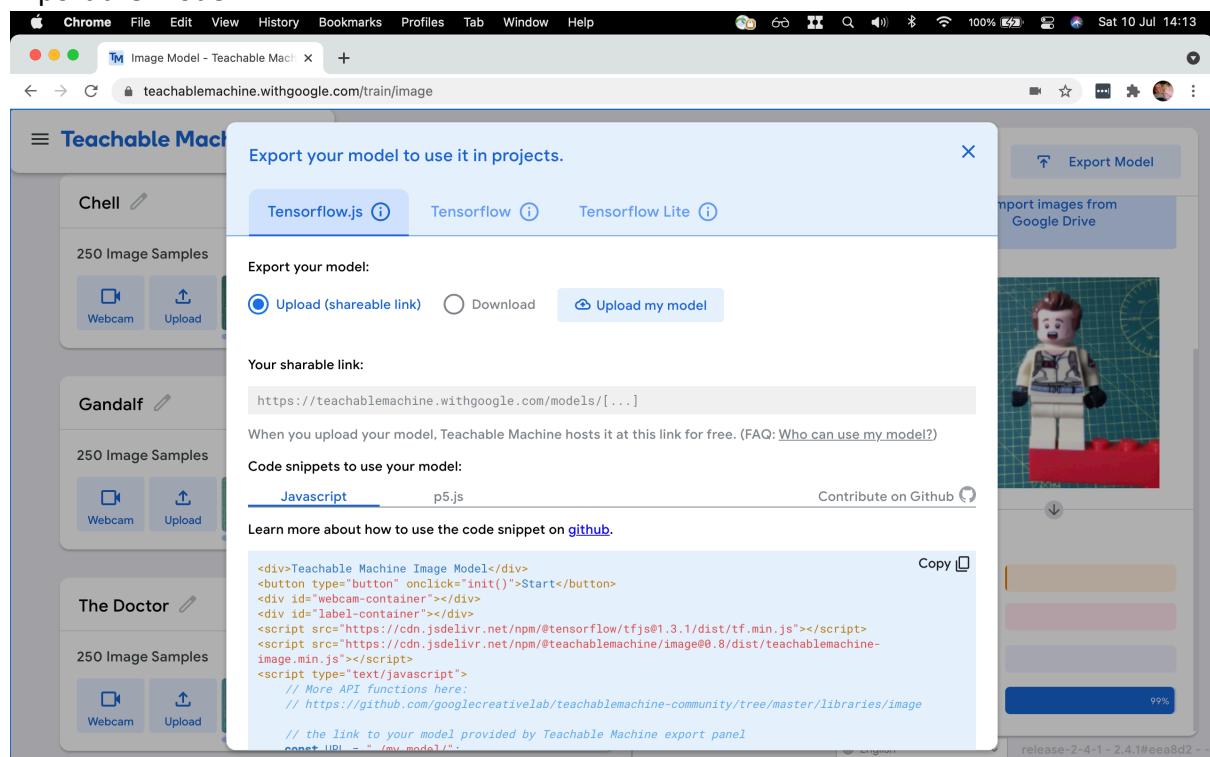


### Verify the model works correctly



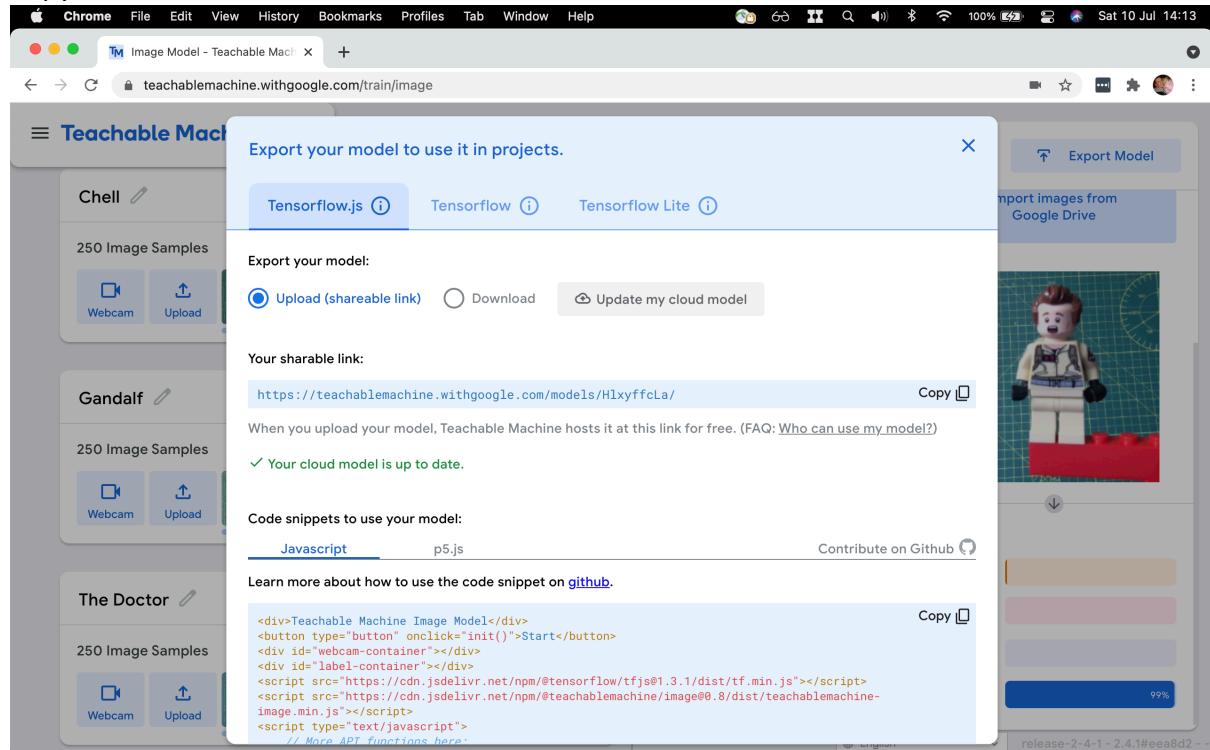


## Export the model



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## Copy the model URL



Go to <https://machinelearningforkids.co.uk/pretrained>

Machine Learning for Kids provides pre-trained models you can use in your projects. Real-world machine learning projects often use models already trained by other people. There are lots of well-trained models that are freely available, and these are useful when you don't have time to collect the amount of training data needed to train your own.

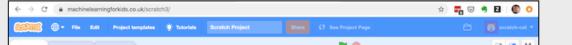
### How to use

Get started

Click on the button to go to Scratch.

Go to the version of [Scratch 3](#) available from Machine Learning for Kids.

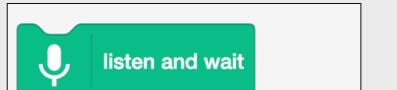
Pre-trained models are available from the Extensions panel. Click on the blue extensions button in the bottom-left of the Scratch window to find them, then click on the one you want to add to your project.



### Speech to text

This model can be used to recognize speech recorded through your microphone.

It gives you a block you can use to record some audio and then give you the text that it recognized, and a block that you can tell it to listen out for a particular word or phrase.



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## Go to the TensorFlow section

The training data used for this model came from two-million user-generated comments posted on news articles.

It has been trained to recognize photos of one-thousand common objects. The machine learning model is based on MobileNet (a ML model designed for mobile devices, so it doesn't need much computing power).

It has been trained to recognize photos, and won't recognize cartoons or drawings very well.

It is a type of machine learning model called BERT which is useful for projects with text.

It has been trained using a set of questions and answers from Wikipedia articles collected by Stanford University called 'SQuAD'.

This is a complex model, so you might find that it is slow and needs a lot of memory on your computer!

## TensorFlow beta

[Open a TensorFlow model](#)

TensorFlow is a toolkit for training and running machine learning models.

If you know how to create your own machine learning model with TensorFlow, click the button above to use it in Scratch.

You can build your own model, using programming languages like Python.

Or you can use tools like Teachable Machine to easily train a TensorFlow model, and then make something with it in Scratch here.

[More...](#)

(Only image classifiers are supported today, but support for more types of machine learning model is coming soon!)

## Paste the URL

The training data used for this model came from two-million user-generated comments posted on news articles.

It has been trained to recognize photos of one-thousand common objects. The machine learning model is based on MobileNet (a ML model designed for mobile devices, so it doesn't need much computing power).

It is a type of machine learning model called BERT which is useful for projects with text.

It has been trained using a set of questions and answers from Wikipedia articles collected by Stanford University called 'SQuAD'.

This is a new, experimental feature. Not all TensorFlow models work with Scratch here today, so if you have a model that doesn't work, please [let me know](#).

Where is the TensorFlow model?

What type of model is it?  
Teachable Machine (image or pose)

[OPEN SCRATCH](#) [CANCEL](#)

TensorFlow is a toolkit for training and running machine learning models.

If you know how to create your own model, click the button above to use it in Scratch.

You can build your own model, using programming languages like Python.

Or you can use tools like Teachable Machine to easily train a TensorFlow model, and then make something with it in Scratch here.

[More...](#)

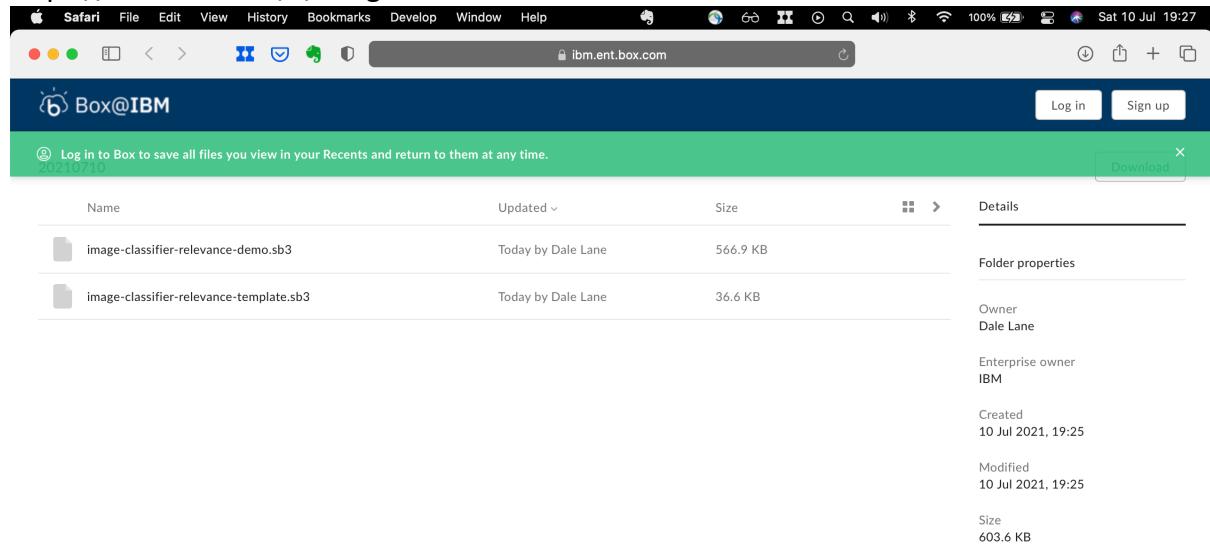
(Only image classifiers are supported today, but support for more types of machine learning model is coming soon!)

Click on Open Scratch



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Download **image-classifier-relevance-template.sb3** from  
<https://ibm.box.com/v/image-classifier-visualisation>



Name Updated Size Details

image-classifier-relevance-demo.sb3 Today by Dale Lane 566.9 KB

image-classifier-relevance-template.sb3 Today by Dale Lane 36.6 KB

Folder properties

Owner Dale Lane

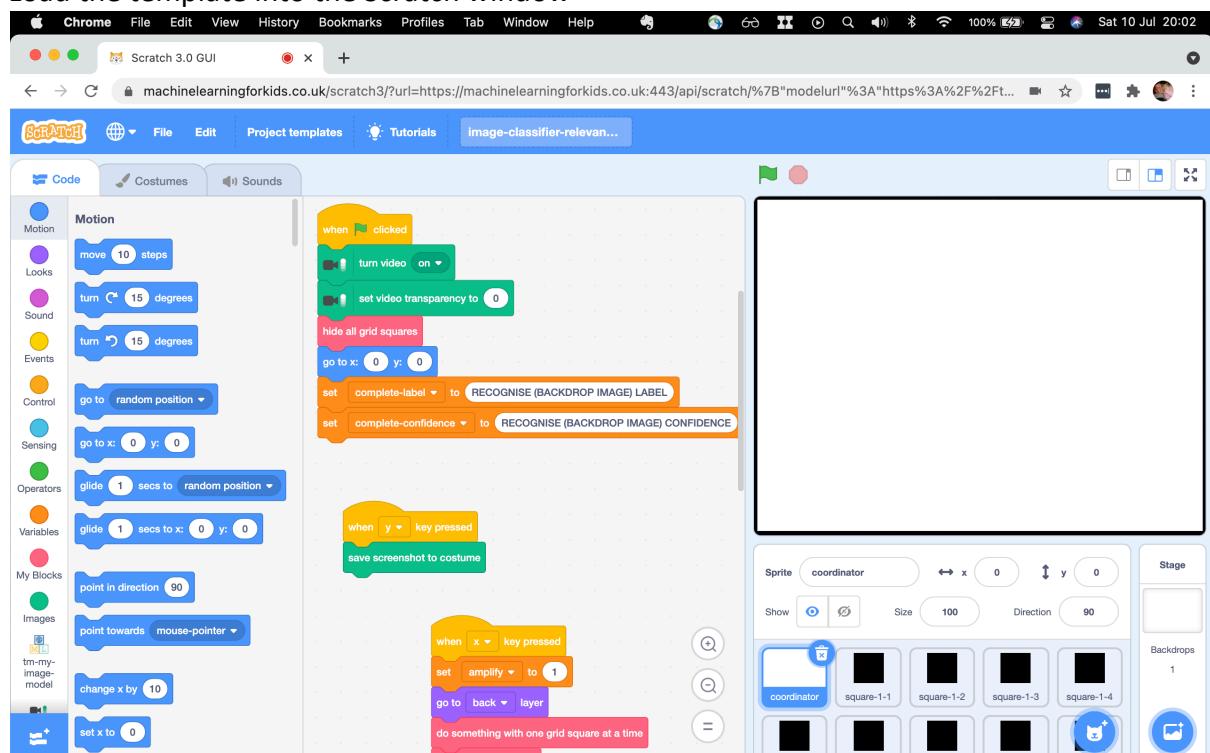
Enterprise owner IBM

Created 10 Jul 2021, 19:25

Modified 10 Jul 2021, 19:25

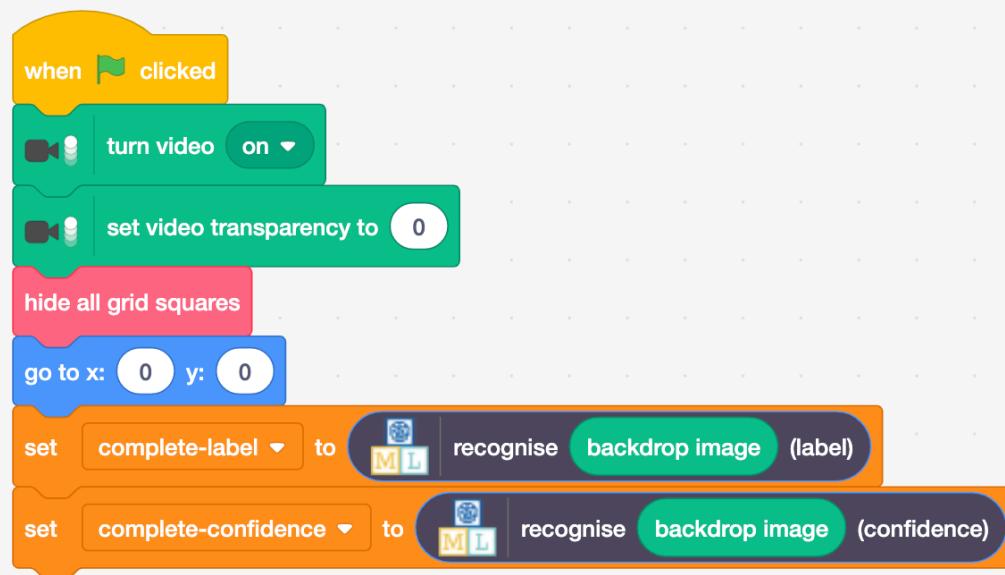
Size 603.6 KB

Load the template into the Scratch window

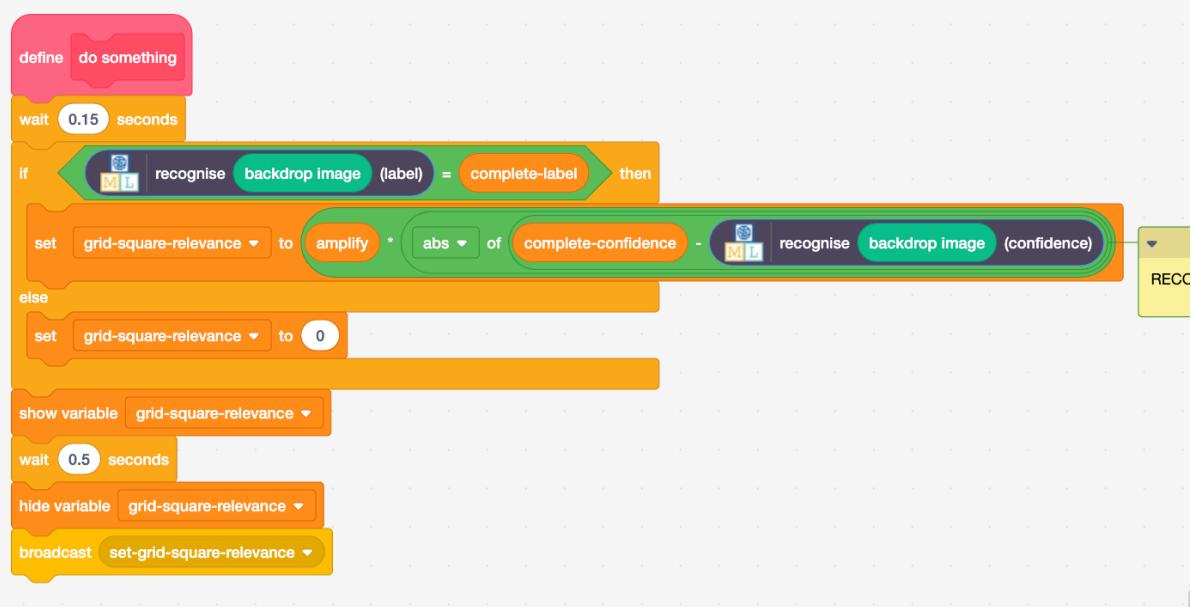


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## Update the Green Flag script



## Update the “do something” script

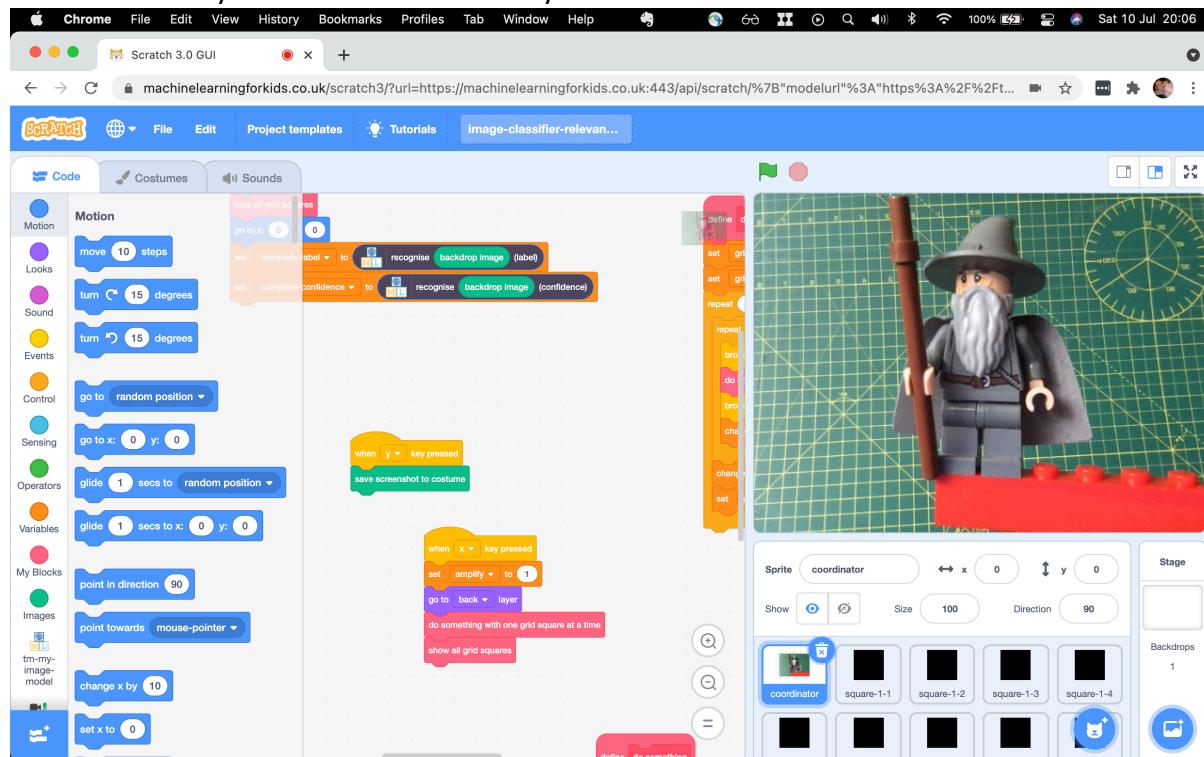


Click on the Green Flag



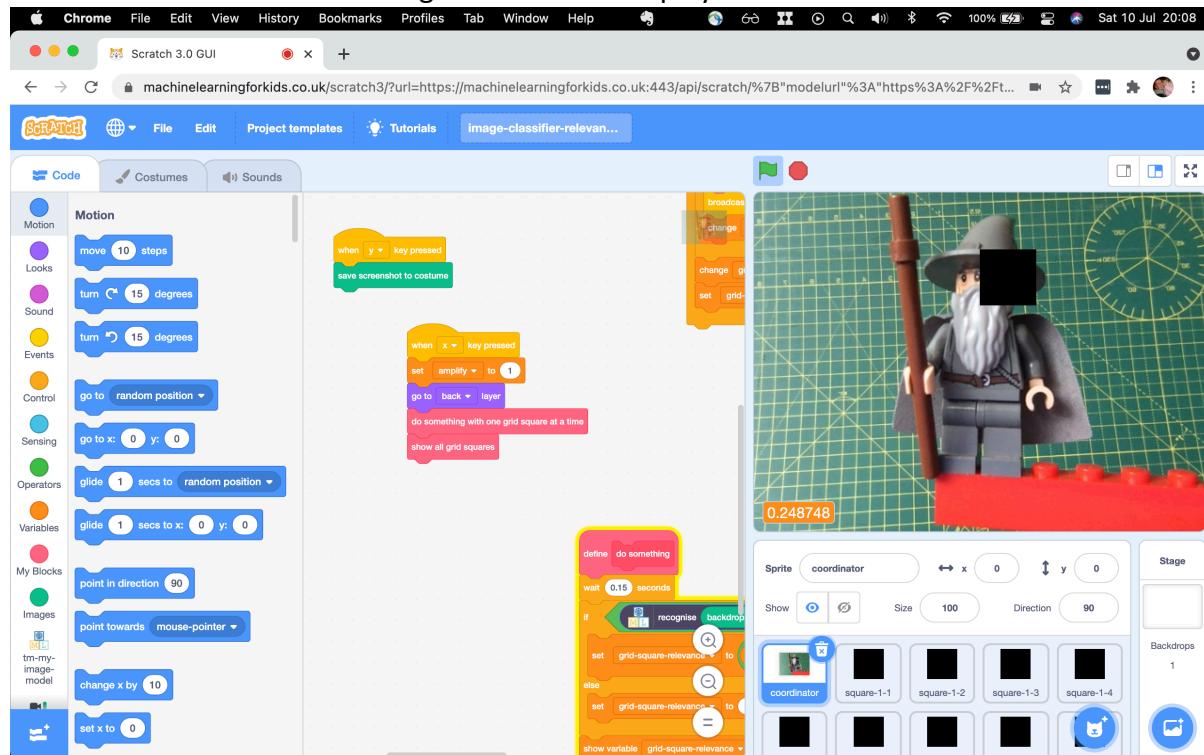
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Press the “Y” key to take a screenshot of your webcam view



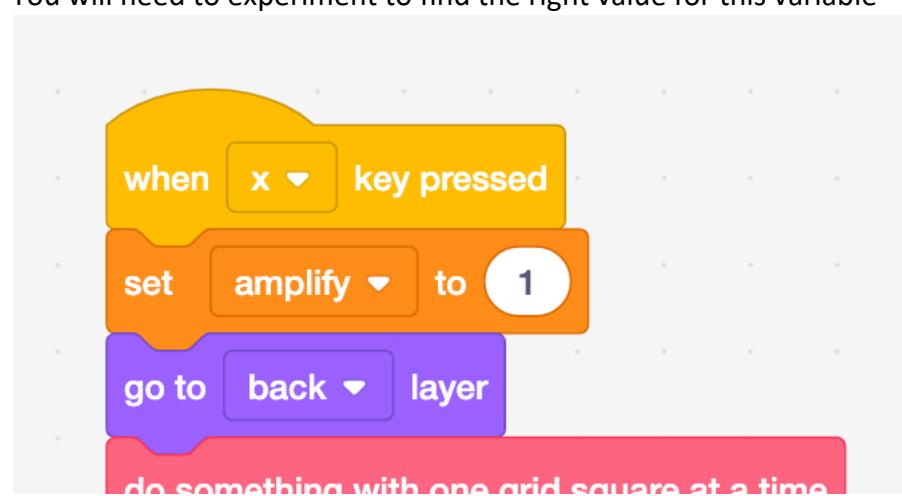
Click on the Green Flag then press the “X” key

The square will be shown in each location in turn, and the difference it makes to the confidence the machine learning model will be displayed



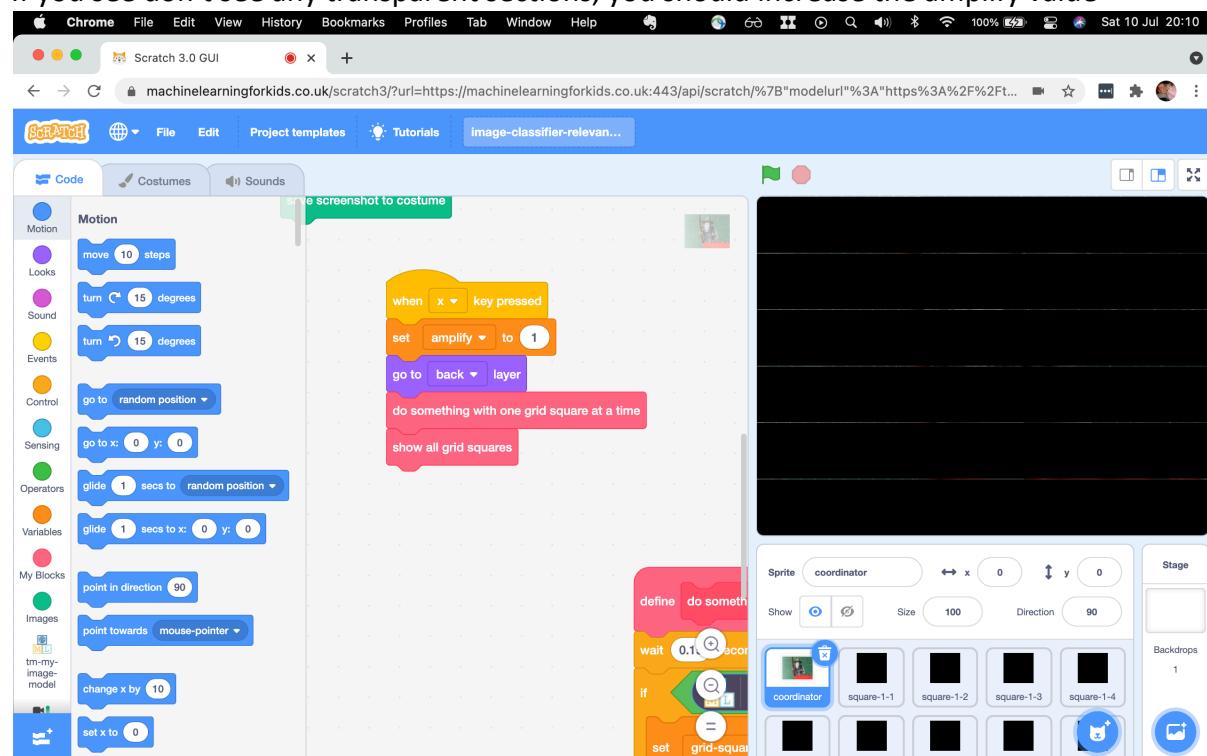
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Find the code where the “amplify” variable is set  
You will need to experiment to find the right value for this variable



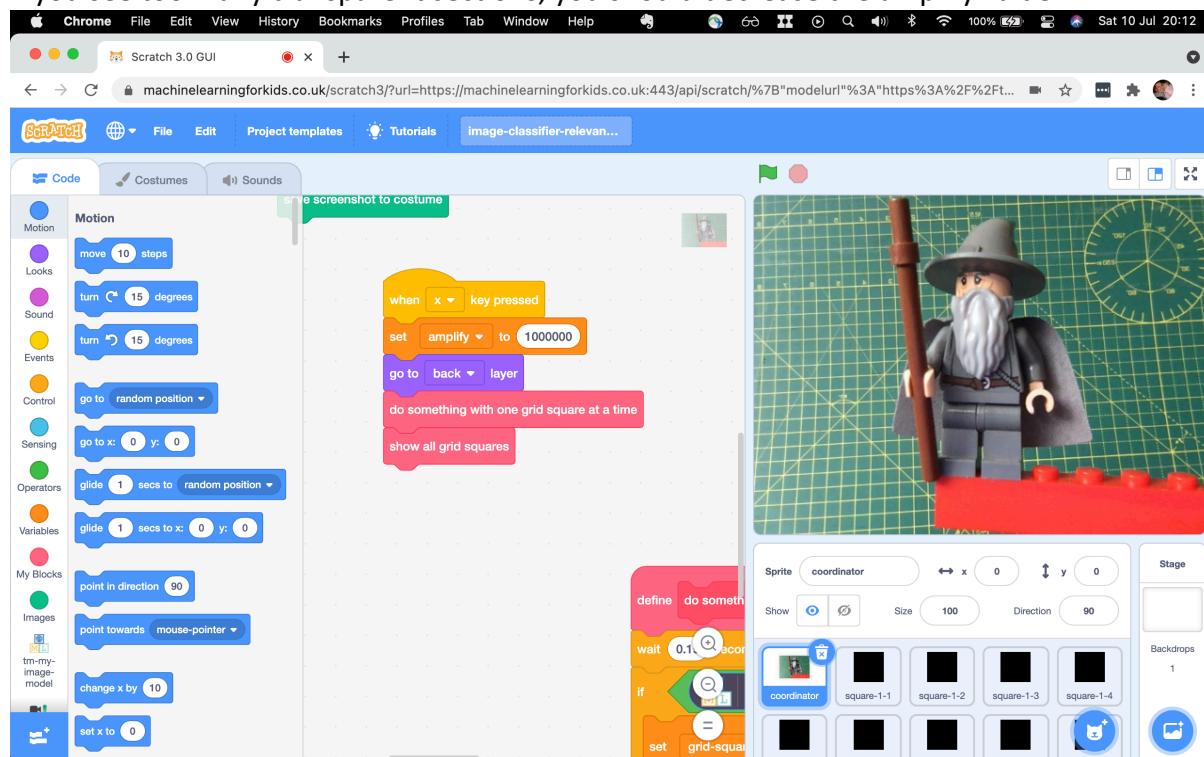
After each time you change the amplify value, you will need to re-run the test:  
Click on the Green Flag then press the “X” key

If you see don't see any transparent sections, you should increase the amplify value



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If you see too many transparent sections, you should decrease the amplify value



Adjusting amplify to the right value should highlight the significant areas of the webcam

