

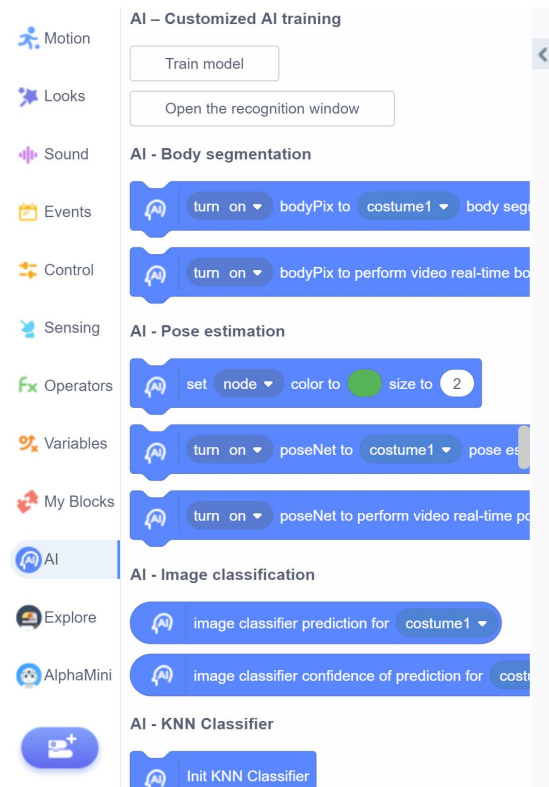
Topic: Machine Learning

Short Description: In this lesson, you will train a machine learning model to distinguish between two objects and build a short program to interact with your computer.

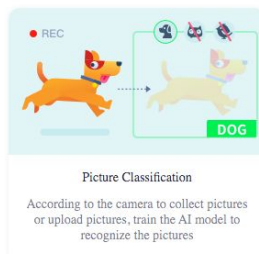
Steps:

1. Go to [uCode](#) and select **Train model** in the **AI** drawer under AI - Customized AI training.

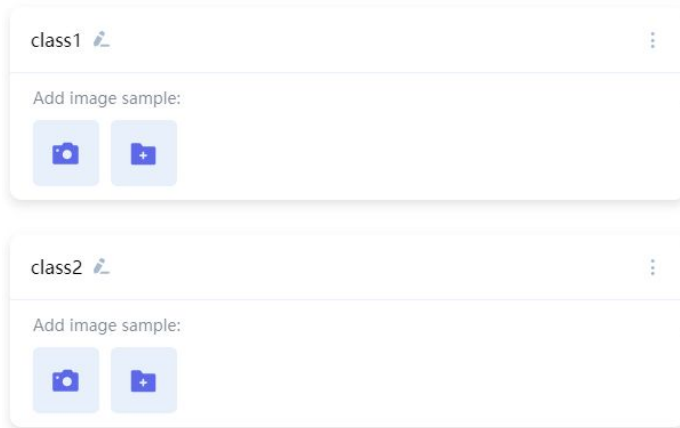
Note: If you do not have access to these blocks, you can add them by clicking the **Add Extension** button in the lower-left corner of your screen.



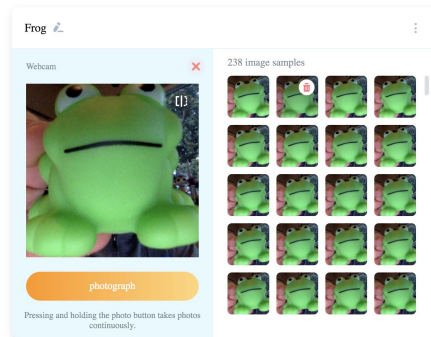
2. Select **Picture Classification**.



- Let's start by labeling the objects you are going to classify. To do this, click the image of the pencil that is located to the right of the current labels: class1 and class2. Replace the current label with the name of the object you plan to use.



- Next, click the camera button located below the label you just updated. Place your first object close to the camera and click and hold the photograph button. This will allow the webcam to start taking pictures quickly.

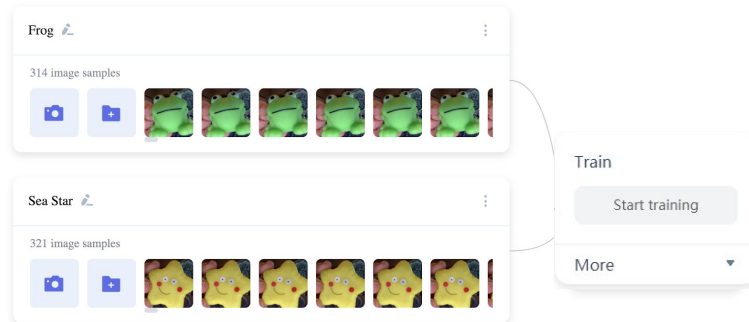


Here are a few tips:

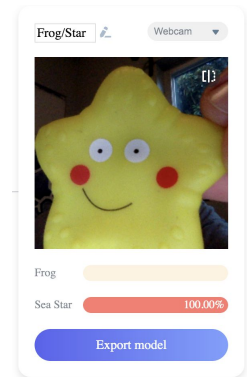
- Take as many pictures as possible – a minimum of 200 is desirable.
- Try to limit the number of distractions in the background. If possible, put a white sheet of paper behind your object.
- Turn your object to get images of all sides.

Once you have a fair amount of images, do the same thing for the other object.

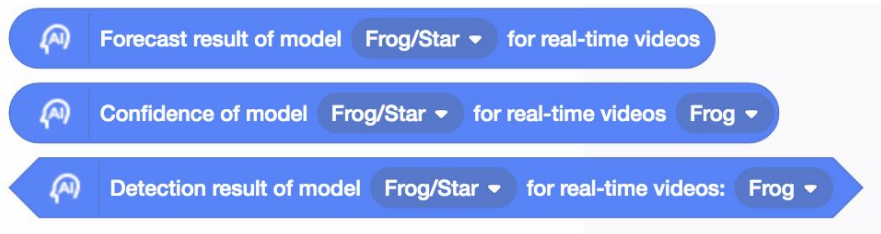
5. Click **Start training**. Training may take up to a minute, depending on the number of images. It is recommended that you do not open other windows during training.



6. Test your model:
 - a. Hold up one of the objects to see if the model recognizes the object.
 - b. The computer will give a confidence score. Try to have a model that is as confident as possible. If it isn't identifying the objects correctly, try to retrain with better images.



Once you're happy with the confidence scores, export your model. Be sure to name your model. You'll now have a few new blocks to use!



- To get started using your newly created machine learning model, write a simple code to get our sprite to recognize the difference between the two objects. Here is a sample code for you to use:

```

when clicked
  turn video on
  forever
    if (Detection result of model Frog/Star for real-time videos: Frog or Detection result of model Frog/Star for real-time videos: Sea Star) then
      think I'm pretty sure.. for 2 seconds
      say join That is.. Forecast result of model Frog/Star for real-time videos for 2 seconds
    else
      say I bet I can guess your toy! for 2 seconds
  
```

Note: You might need to add **Video Sensing** controls by clicking the **Add Extension** button in the lower-left corner of your screen.



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