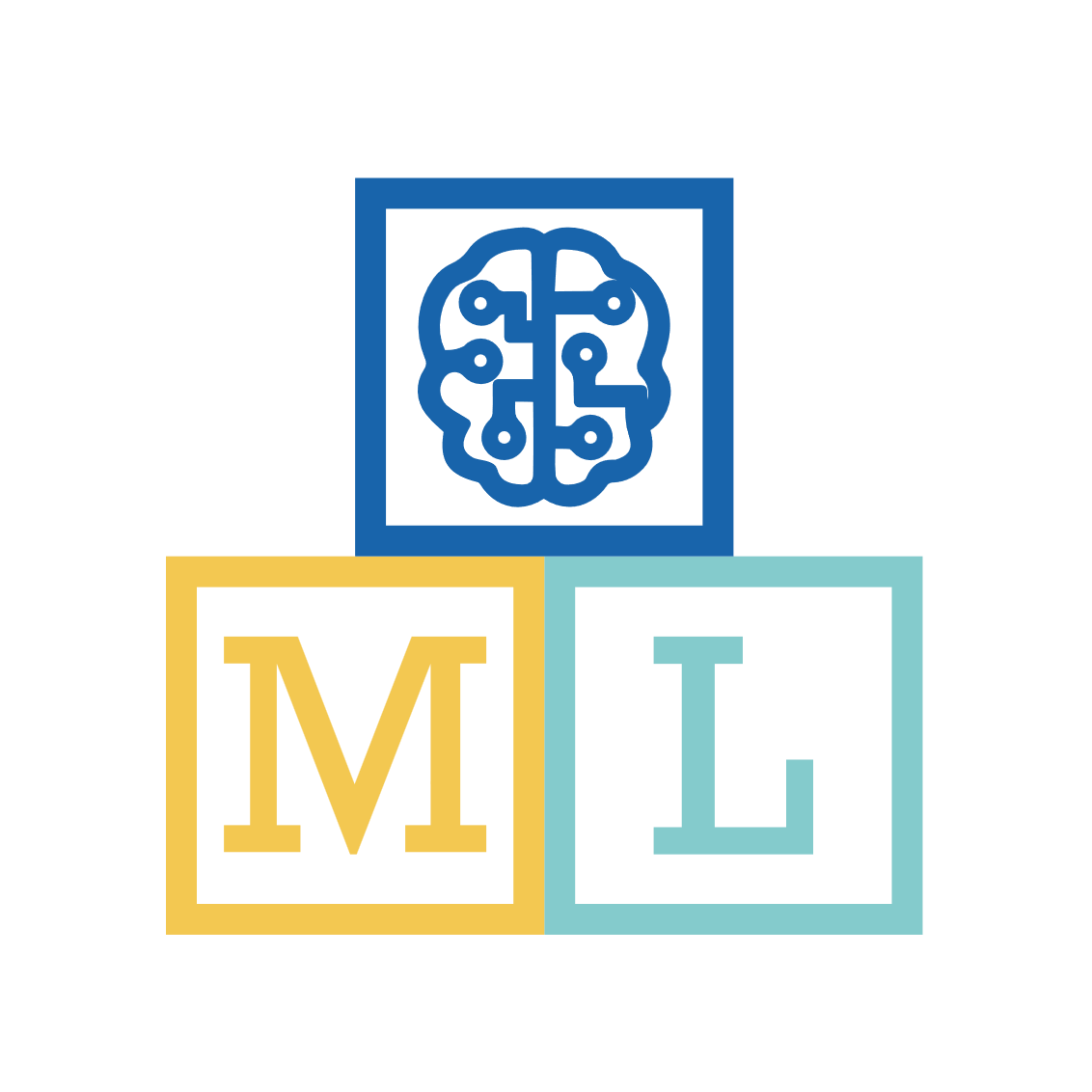
Midge – Biting or Non-Biting?



In this project you will make a Scratch project that learns to classify images of midges as either **biting** or **non-biting**.

You will train the computer to be able to recognise biting and non-biting midges and your project will report how confident the model is in its classification.

A black and white bug with wings

AI-generated content may be incorrect.

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1. Go to <https://machinelearningforkids.co.uk/>
2. Click on “**Get started**”
3. If you have an account, click on “**Log In**” and type in your username and password  
   *If you don’t have an account you can Try it now with registering.*
4. Click on “**Projects**” on the top menu bar
5. Click the **“+ Add a new project**” button.
6. Name your project “Midge Project - Images” and set it to learn how to recognise “**images**”. Choose to store “In your web browser”.

A screenshot of a computer

AI-generated content may be incorrect.

1. Click the “**Create**” button

1. You should now see “**Midge Project - Images**” in the list of your projects. Click on it.

A close-up of a white background

AI-generated content may be incorrect.

1. Click the “**Train**” button to start collecting examples.  
   
2. Click on **“+ Add new label**” and call it “biting”.   
   Do that again, and create a second bucket called “non-biting”

A screenshot of a computer

AI-generated content may be incorrect.

1. In the “biting” bucket, click on “file”.
2. Locate your 16 images of **biting** midges and upload them.
3. Repeat the process to upload 16 images of non-biting midges.

A screenshot of a computer

AI-generated content may be incorrect.

1. Click the “**< Back to project**” link.
2. Click the “**Learn & Test**” button A white square with black text and blue text

   AI-generated content may be incorrect.
3. Click the “**Train new machine learning model**” button

A screenshot of a computer

AI-generated content may be incorrect.

1. Wait for the training to complete. A screenshot of a computer

   AI-generated content may be incorrect.

**What have you done so far?**

You’ve started to train a computer to recognise pictures of biting and non-biting midges. Instead of writing rules to do this, you are doing it by collecting examples. These examples are being used to train a machine learning “model”.

This is called “supervised learning” because of the way you are supervising the computer’s training.

The computer will learn from patterns in the example images that you have uploaded, such as the features and colour (black or white). These will be used to be able to recognise new midge images.

1. Click the **“< Back to project**” link
2. Click the “**Make**” button, and then the “**Scratch 3**” button.
3. Click the “**Open in Scratch 3**” button
4. Click on the Cat sprite (Sprite1) and select Costumes tab.
5. Click on Choose a Costume > Upload Costume

*A screenshot of a computer

AI-generated content may be incorrect.*

1. Locate and upload test images 1.png, 2.png, 3.png, 4.png
2. Delete cat costumes costume1 and costume2

A screenshot of a computer

AI-generated content may be incorrect.

1. Click on Code tab and make 2 variables called “Midge Type” and “Confidence”

A screenshot of a phone

AI-generated content may be incorrect.

1. Add the following code to Sprite1

A screenshot of a computer

AI-generated content may be incorrect.

1. Now test your model! Press the space bar to see if your model can recognise biting vs. non-biting midges.

A screenshot of a computer screen

AI-generated content may be incorrect.



**What have you done?**

You’ve used machine learning to create a midge image classification model.

Training the computer to be able to recognise images for itself is much, much quicker than trying to sort thousands of images manually.

The more examples you can give it, the better it should get at recognising images correctly.

How does your model compare to results below?

A screenshot of a computer screen

AI-generated content may be incorrect. A black and white bug with wings

AI-generated content may be incorrect.

A screenshot of a cartoon bug

AI-generated content may be incorrect. A black insect with a star on it

AI-generated content may be incorrect.