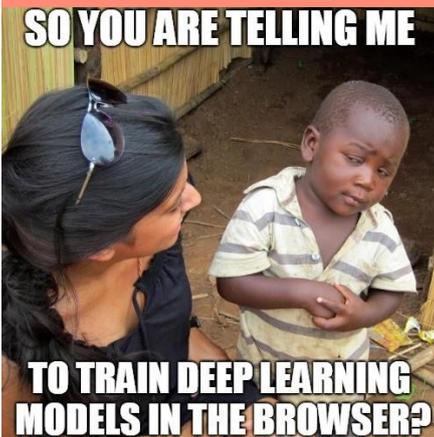




“Open Sesame” with
Teachable Machine & Scratch:



Worksheet: Warm-up activities

Team Name:

Date:

Student1 name:

Student2 name:

Student3: name

Activities

Activity 1: How to solve real-life problems with Technology and Artificial Intelligence?



- How Machine Learning could be used to clear the Ocean? Let's find out with "AI for Oceans" on code.org website <https://code.org/oceans>



Worksheet : Brainstorming

Follow the instructions of your teacher and try to answer to those questions, with your team first and in plenary.

Team Name:

Date:

Student1 name:

Student2 name:

Student3: name

Questions

1. Can you explain what Artificial Intelligence is?

Answer:

2. Can you explain what Machine Learning is?

Answer:

3. Do you know examples of Computer Vision?

Answer:

4. Can you think of a relation between wearing Covid19 masks and the goal for "Good Health and well-being"?

Answer:

5. How can you teach a little child what a mask is?

Answer:

6. How can you teach a machine how to recognize if you are wearing or not a mask on your face?

Answer:

7. Can you describe some automation in your home?

Answer:

8. How can a machine detect if a person is wearing a face-mask or not?

Answer:

9. How could you create a smart device to open only if you are wearing your Covid19 mask?

Answer:

1: call Teachable Machine in Browser

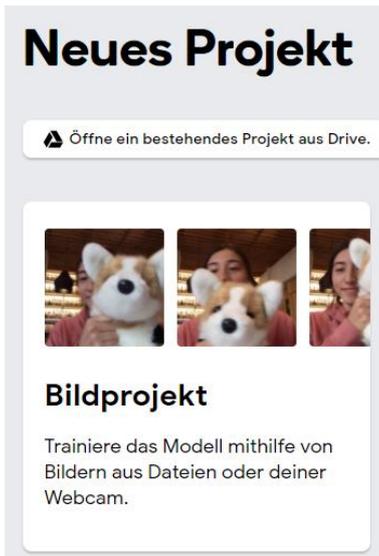
<https://teachablemachine.withgoogle.com/>



2. create a new image project

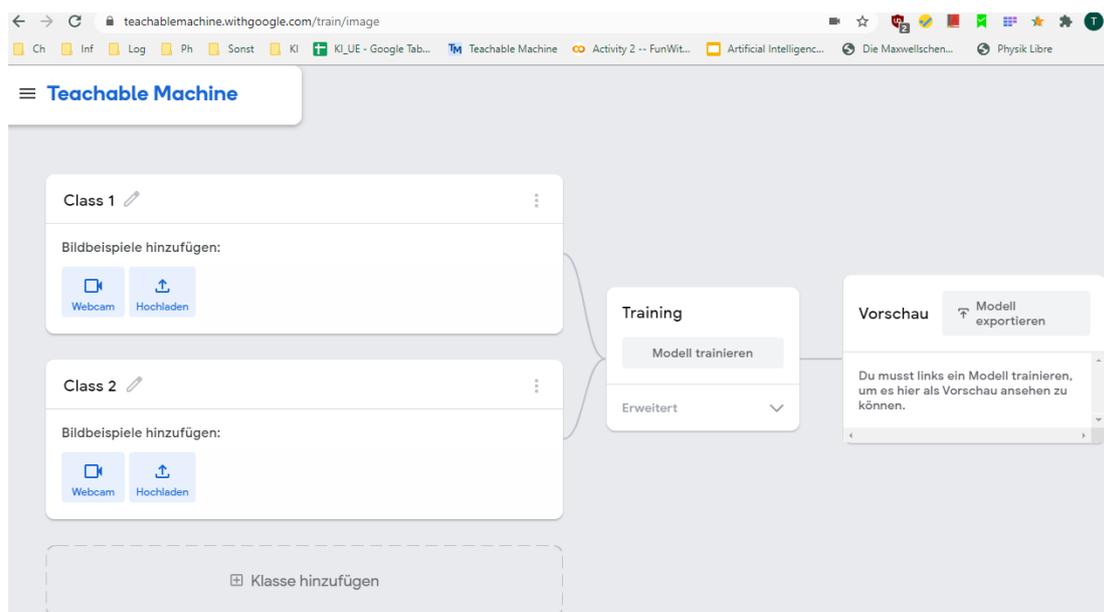
<https://teachablemachine.withgoogle.com/train/image>

There are different possibilities to choose from – we want to train a model for object classification.



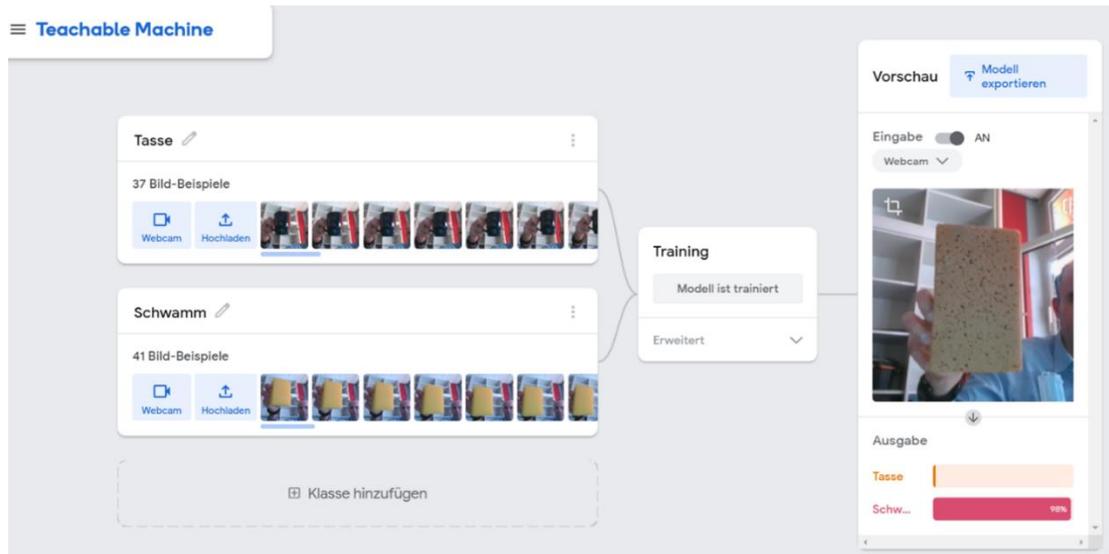
3. record your training data

To do this, click the webcam icon, start the camera, and keep any object in front of it. While holding the mouse button, several images can be taken. You can hold any number of object classes.



4. Make your model

you train the neural network and test:



5. Test the accuracy

test your model on the preview pane, and answer by “yes/no/to some extent” if you are satisfied by the results in each of the cases below:

- | | |
|--|-----------------------|
| a) use different Covid19-masks | yes/no/to some extent |
| b) try the model with students that didn't participate to the training data | yes/no/to some extent |
| c) position yourself in different distances from the web camera | yes/no/to some extent |
| d) try different facial positions | yes/no/to some extent |

If you are satisfied with the accuracy of your model, move to Step 6, otherwise go back to Step 3 and gather new data or correct the data from your training data set.

6. Export your model

Step 6:

Export your Machine Learning Model in order to use it within other applications.

- Click on **Preview** 
- Choose (default) **“Upload (shareable link)”** and click on **“Upload my model”**
- When the model is uploaded, a **shareable link** will appear

Export your model:

Upload (shareable link) Download

Your shareable link:

<https://teachablemachine.withgoogle.com/models/grxvYZnDr/>

below. When you upload your model, Teachable Machine hosts it at this link for free. (FAQ: [Who can use my model?](#))

- Click on the **“copy”** button and **save this link (follow the instructions of your teacher)**

STEP 7:

👉 If the training data had a lot of photos that did not clearly show facial features, would your ML model be able to make the correct prediction?

Answer:

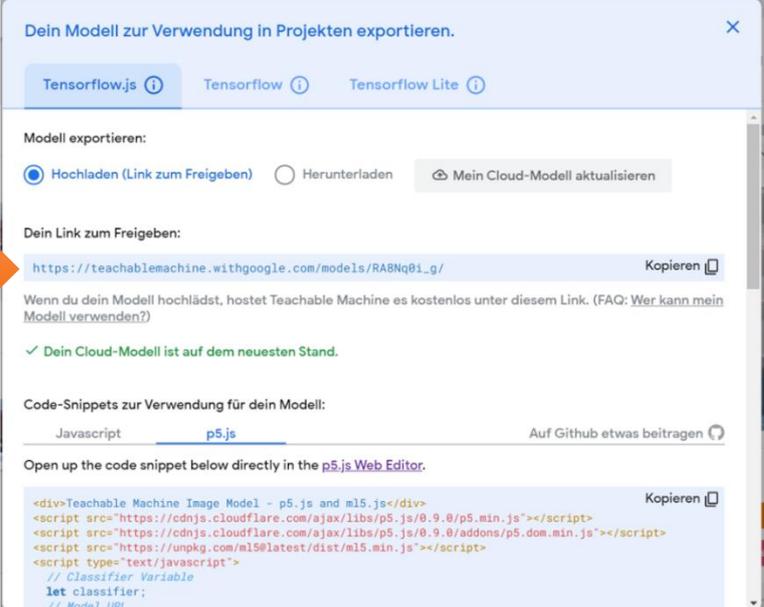
👉 Did you find any weaknesses or failures in your model? What were they? Describe briefly.

Answer:

If you export the model, you should save it under the **default link** from Google:

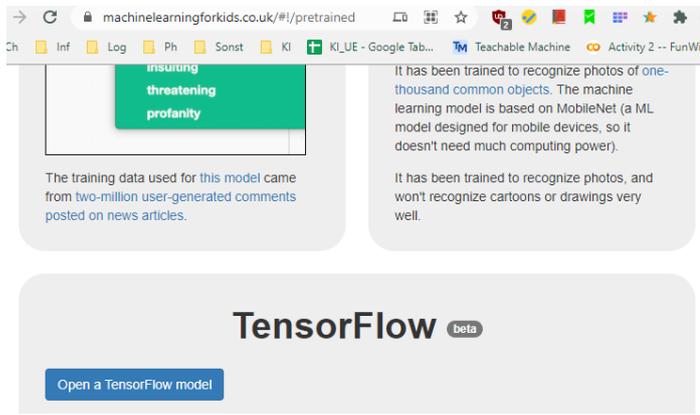
Copy the link and:

**DON'T FORGET IT,
MAKE A BOOKMARK 😊**



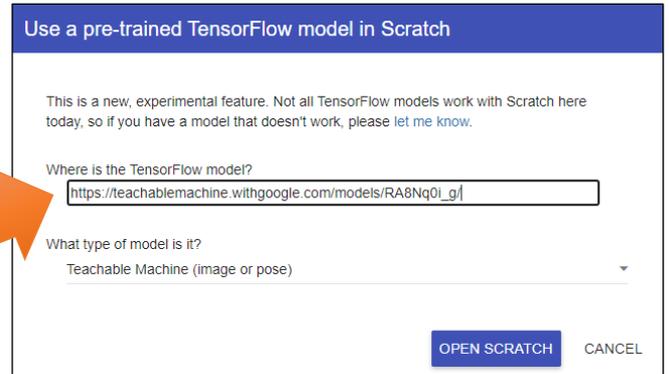
The screenshot shows the 'Dein Modell zur Verwendung in Projekten exportieren.' dialog box. It has three tabs: 'Tensorflow.js', 'Tensorflow', and 'Tensorflow Lite'. Under 'Modell exportieren:', there are three options: 'Hochladen (Link zum Freigeben)' (selected), 'Herunterladen', and 'Mein Cloud-Modell aktualisieren'. Below this, 'Dein Link zum Freigeben:' shows the URL 'https://teachablemachine.withgoogle.com/models/RA8Nq0i_g/' with a 'Kopieren' button. A note says 'Wenn du dein Modell hochlädst, hostet Teachable Machine es kostenlos unter diesem Link. (FAQ: Wer kann mein Modell verwenden?)'. A green checkmark indicates 'Dein Cloud-Modell ist auf dem neuesten Stand.'. Under 'Code-Snippets zur Verwendung für dein Modell:', there are 'Javascript' and 'p5.js' tabs, with 'p5.js' selected. A 'Kopieren' button is next to the code snippet. The code snippet is:

```
<div>Teachable Machine Image Model - p5.js and ml5.js</div>
<script src="https://cdnjs.cloudflare.com/ajax/libs/p5.js/0.9.0/p5.min.js"></script>
<script src="https://cdnjs.cloudflare.com/ajax/libs/p5.js/0.9.0/addons/p5.dom.min.js"></script>
<script src="https://unpkg.com/ml5@latest/dist/ml5.min.js"></script>
<script type="text/javascript">
  // Classifier Variable
  let classifier;
  // Model URL
```

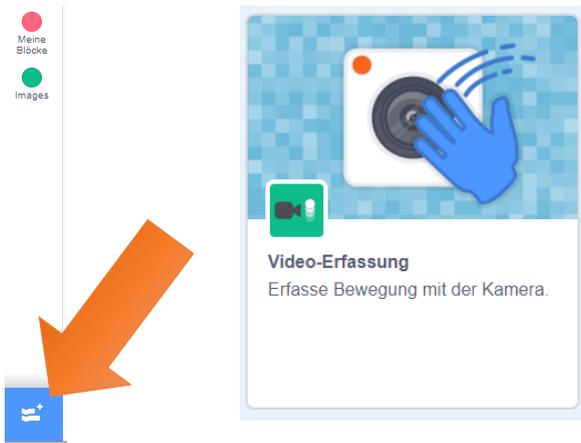


7. You can import the model in scratch
<https://machinelearningforkids.co.uk/#!/pretrained>

Then you enter the URL of your TeachableMachine model.
 This will be loaded into Scratch

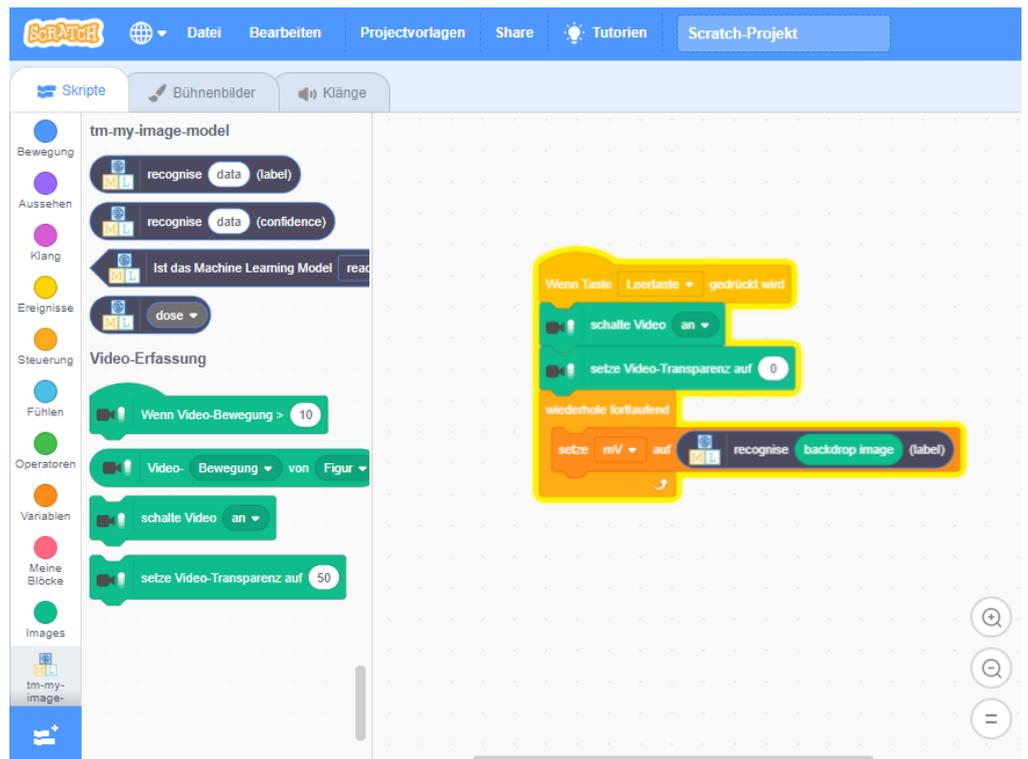


Now you need the image acquisition as a plugin, then you can start:



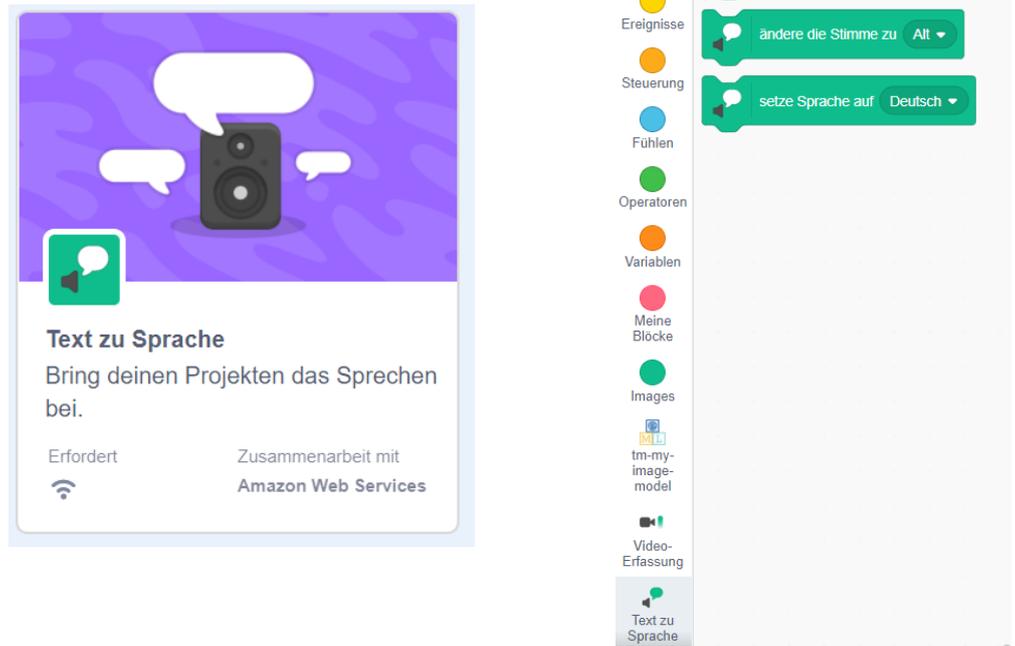
8. Here is a simple but working example program.

Test your model using the camera in your webbrowser.



9. Play with additional plugins

You can experiment with the text-to-speech-plugin. This will make your computer talk in natural language.



The image shows a Scratch project titled "Text zu Sprache". On the left is a project card with a purple background, a speaker icon, and the text "Text zu Sprache", "Bring deinen Projekten das Sprechen bei.", "Erfordert", and "Zusammenarbeit mit Amazon Web Services". On the right is the Scratch script area, which contains three green "say" blocks: "sage Hallo", "ändere die Stimme zu Alt", and "setze Sprache auf Deutsch". A vertical toolbar on the left side of the script area lists various Scratch categories: Aussehen, Klang, Ereignisse, Steuerung, Fühlen, Operatoren, Variablen, Meine Blöcke, Images, tm-my-image-model, Video-Erfassung, and Text zu Sprache.

Now you can form an application that can be used to give a person friendly advice on what they should do.

10. Please fill in the following Form:

<https://mbox1.belwue.de/SRedirect/6163A97A/forms.gle/sC6e8d8jfrJgaApJ7>

Thank you 😊