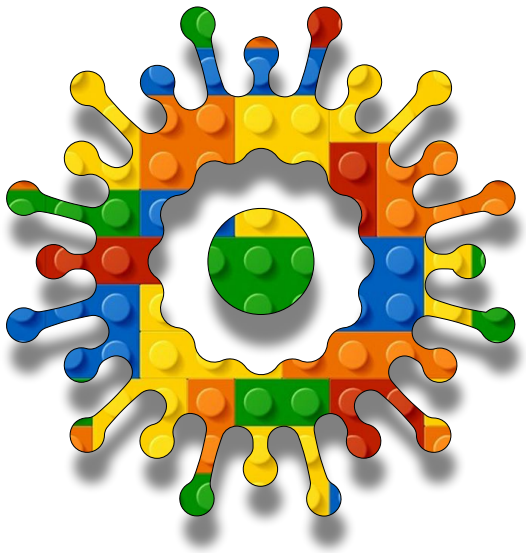
Algorithmic Intelligence Module C Unit #2 transformer image classifier



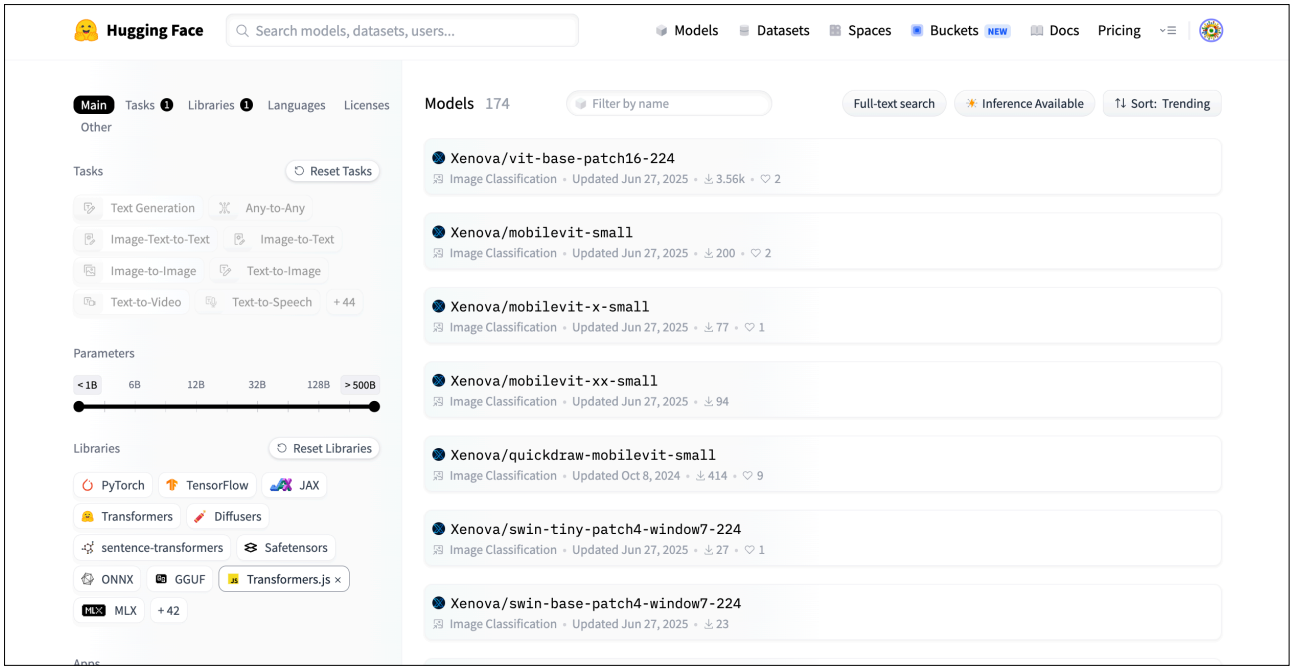
Content

Module C Unit #2 transformer image classifier

Introduction to transformer image classification

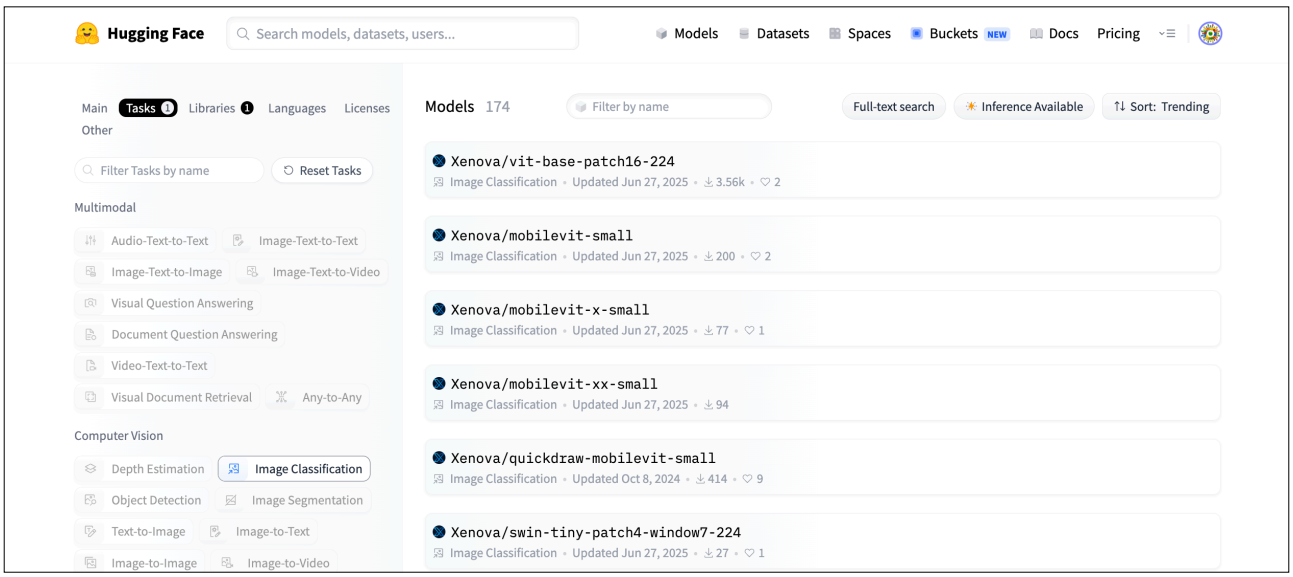
In this example from Hugging Face, we make use of an image classifier. First, we select `transformers.js` from the main tab.

Figure 1: main tab - transformers.js



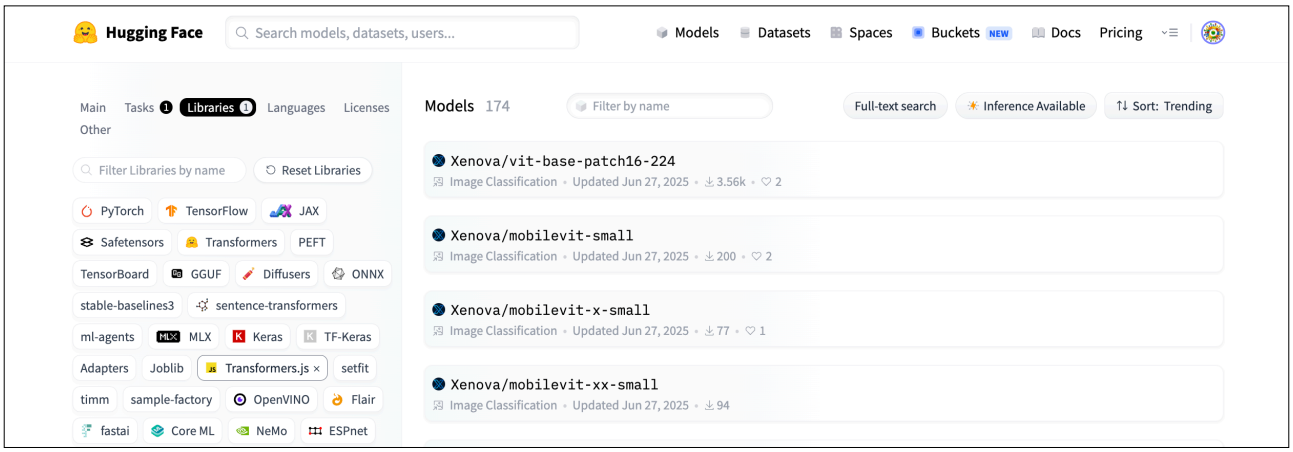
From the task tab, we select image classification.

Figure 2: image classifier task



In case you didn't select the library, we can do that from the library tab and select `transformers.js`.

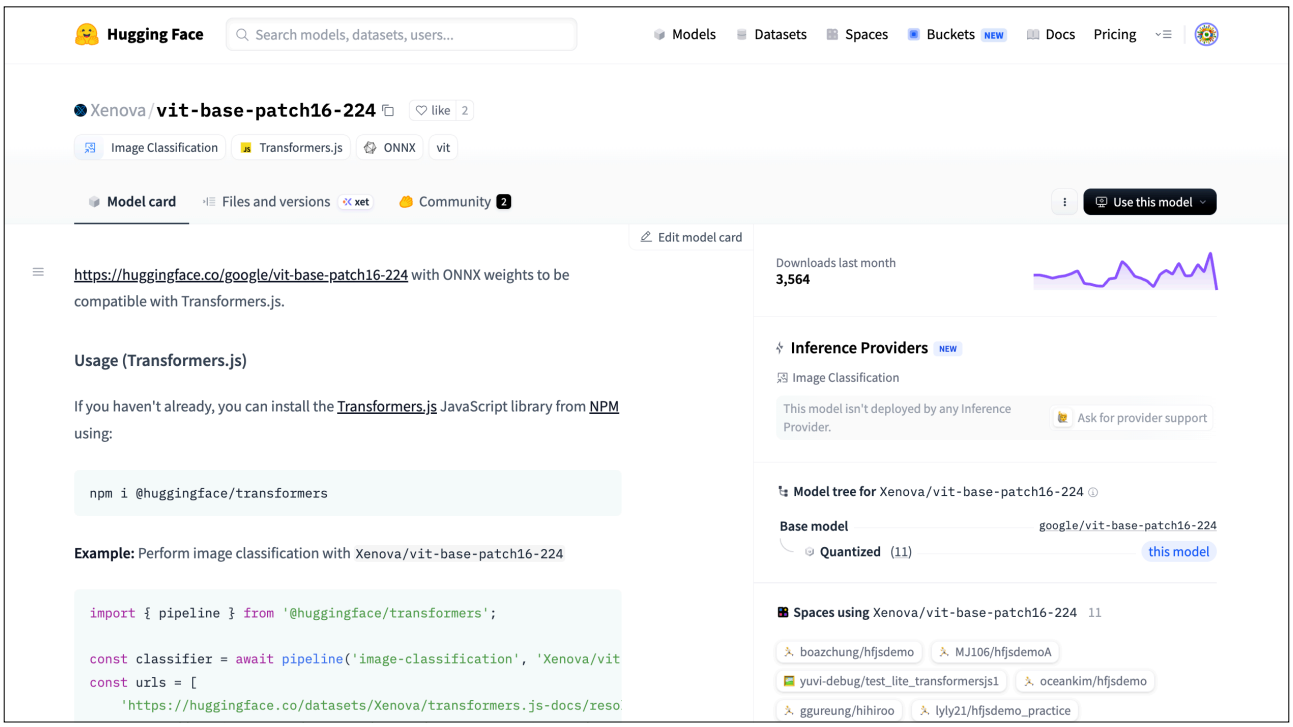
Figure 3: task tab keck



Select one

We select the top one, and we get the web page that corresponds to it.

Figure 4: corresponding web page



We want some help in getting started. First off, we click on the `use this model` tab, which will ask us to use the `transformers.js` library. Click on that, and you get the following information, which is what we need to insert into our code.

```
import { pipeline } from '@huggingface/transformers';

const pipe = await pipeline('image-classification', 'Xenova/vit-base-patch16-224');
```

The bit we want is highlighted in blue. We put it inside the speech marks inside the pipeline as before.

Their example

However, that is not all; we want to use an image. To help us, we can look at their example on the left-hand side of the page. We can copy it as such:

```
import { pipeline } from '@huggingface/transformers';

const classifier = await pipeline('image-classification', 'Xenova/
vit-base-patch16-224');
const urls = [
      'https://huggingface.co/datasets/Xenova/transformers.js-docs/
resolve/main/tiger.jpg',
      'https://huggingface.co/datasets/Xenova/transformers.js-docs/
resolve/main/cats.jpg',
];
const output = await classifier(urls);
// [
//       { label: 'tiger, Panthera tigris', score:
0.6074584722518921 },
//   { label: 'Egyptian cat', score: 0.8246098756790161 }
// ]
```

The bit that we are interested in is highlighted in blue. Instead of a URL, we can upload an image and call that image directly. It will load the image and classify it. We will also display it on the canvas.

Upload the dog

Upload the dog image (as we have done many times before). You can use your own image or click on the button for one provided. We just call it dog (remember to rename it in the file).

Figure 5: download dog image

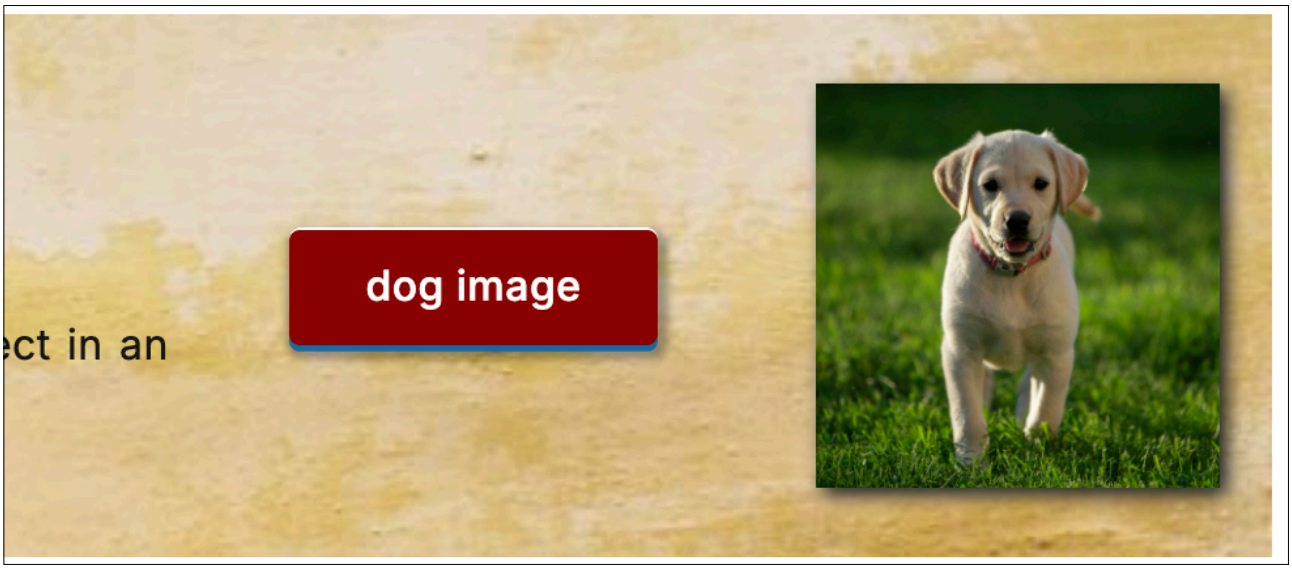
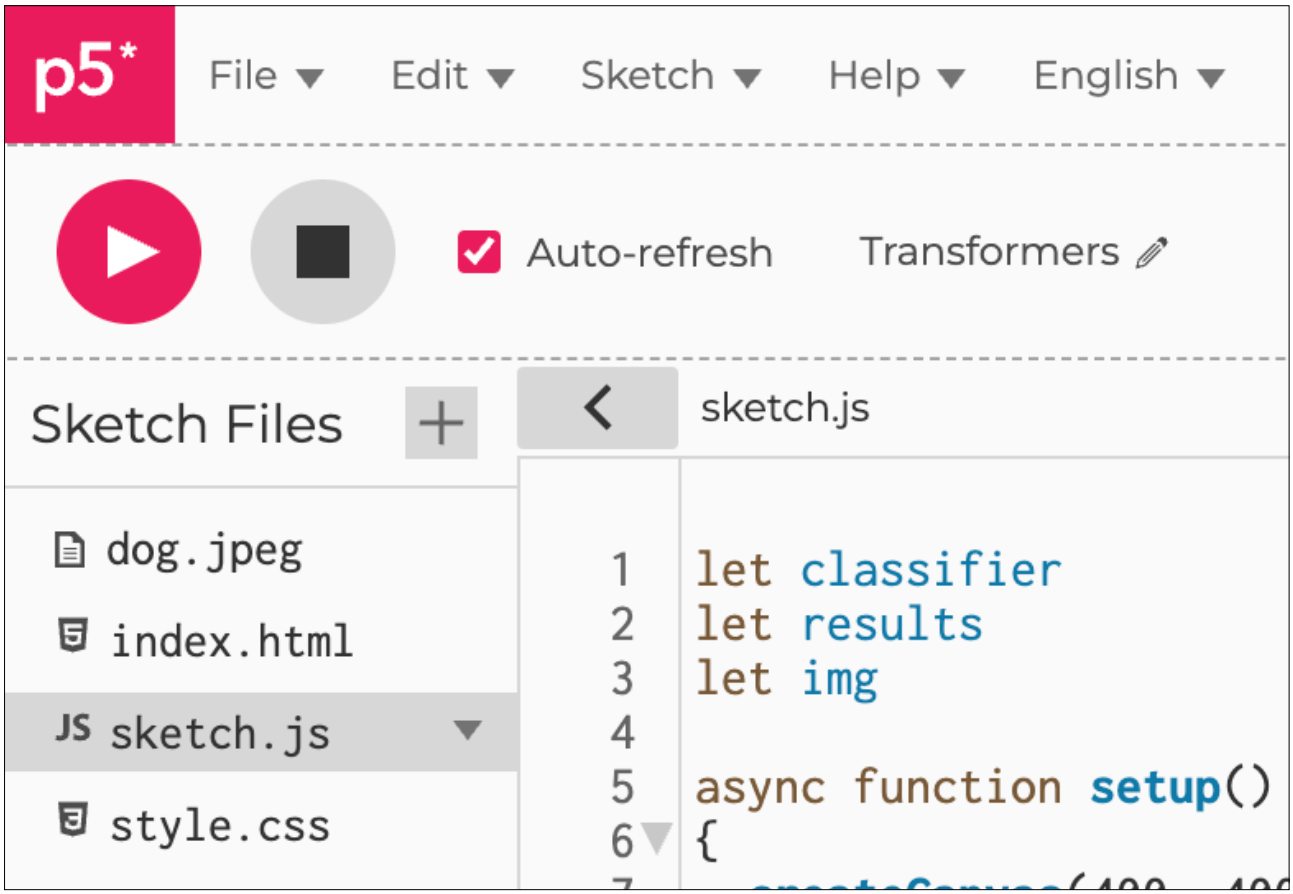


Figure 6: our canine friend

Figure 7: Sketch File (dog added)



Sketch C2.1 the code

This is virtually the same code.

❗ Remove reference to the button and the text box and text.

```
let classifier
let results
let img


async function setup()
{
  createCanvas(400, 400)
  background(220)
  img = await loadImage('dog.jpeg')
  image(img, 0, 0, 400, 400)
  let { pipeline } = await import('https://cdn.jsdelivr.net/npm/@huggingface/transformers')
  classifier = await pipeline('image-classification', 'Xenova/vit-base-patch16-224')
  results = await classifier('dog.jpeg')
  fill('white')
  let { label, score } = results[0]
  textSize(20)
  text(label, 10, 350)
  text(floor(score * 100) + '%', 10, 380)
}
```

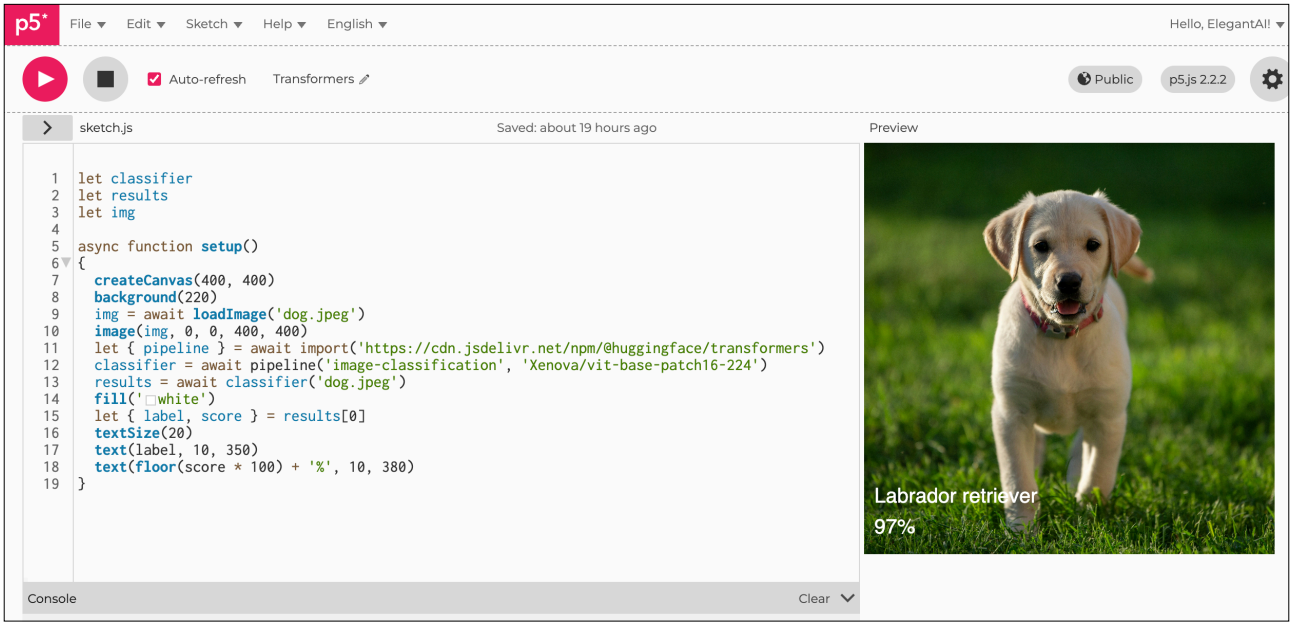
🗒️ Notes

You can see from the results that we have a good match.

🌻 Challenge

Try other animals or objects.

Figure C2.1


p5*
File
Edit
Sketch
Help
English
Hello, ElegantAI!
Auto-refresh
Transformers
Public
p5.js 2.2.2
sketch.js
Saved: about 19 hours ago
Preview
let classifier
let results
let img
async function setup()
{
createCanvas(400, 400)
background(220)
img = await loadImage('dog.jpeg')
image(img, 0, 0, 400, 400)
let { pipeline } = await import('https://cdn.jsdelivr.net/npm/@huggingface/transformers')
classifier = await pipeline('image-classification', 'Xenova/vit-base-patch16-224')
results = await classifier('dog.jpeg')
fill('white')
let { label, score } = results[0]
textSize(20)
text(label, 10, 350)
text(floor(score * 100) + '%', 10, 380)
}
Labrador retriever
97%
Console
Clear