

gradio: doing inference

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Does a **high test accuracy** == a **good model**?

Good for whom?



**Machine Learning
Developers**



Collaborators/End Users

State of the art image classifiers trained on ImageNet:

bride, dress, woman

performance, costume



Google Translate, until recently:

Malay - detected ▼  	English ▼  
Henry ialah seorang lelaki. Dia bekerja sebagai jururawat.	Henry is a man. She works as a nurse.
Jecelyn ialah seorang perempuan. Dia bekerja sebagai pengaturcara. Edit	Jecelyn is a woman. He works as a programmer.



February 18, 2019

Machine learning is contributing to a “reproducibility crisis” within science

Scientific discoveries made using machine learning cannot be automatically trusted, a statistician from Rice University has warned.

Why are many models **not reliable in the wild**?

Difficult for end users to access models



**Machine Learning
Developer**



Collaborators/End Users

Interacting with ML models requires coding...

```
▶ In [2]: 1 model = tf.keras.applications.inception_v3.InceptionV3()
```

```
▶ In [3]: 1 from PIL import Image
2 import requests
3 from io import BytesIO
4
5 url = 'https://nationalzoo.si.edu/sites/default/files/animals/cheetah-004.jpg'
6
7 response = requests.get(url)
8 img = Image.open(BytesIO(response.content))
9
10 # resize the image into an array that the model can accept
11 img = np.array(img.resize((299, 299))).reshape((1, 299, 299, 3))
12
13 # scale the image and do other preprocessing
14 img = img/255
```

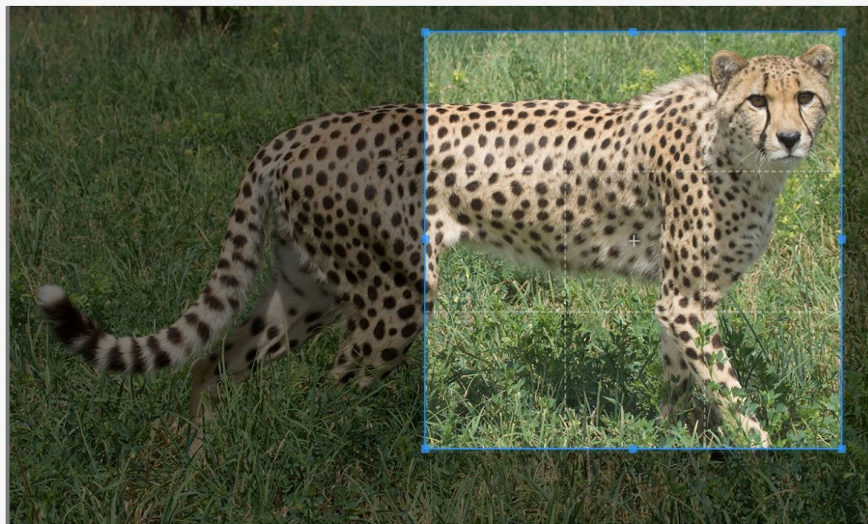
```
▶ In [4]: 1 model.predict(img)
```

With gradio:

← → ↻ 🌐 localhost:7860



INPUT



SUBMIT

CLEAR

OUTPUT

0.46s

cheetah,

cheetah,	89%
leopard,	0%
jaguar,	0%
lynx, ca	0%
gazelle	0%

FLAG

gradio (gradient interface output)

gradio allows you to:

- rapidly create visual interfaces on top of your model

gradio (gradient interface output)

gradio allows you to:

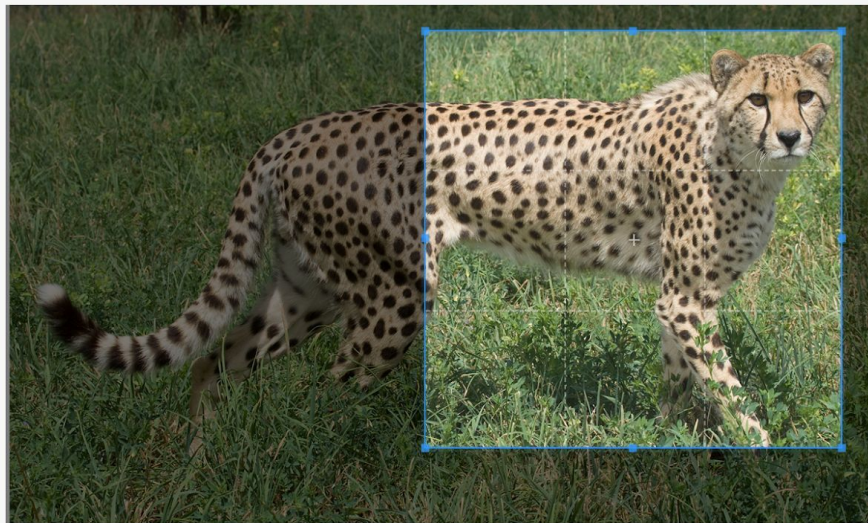
- rapidly create visual interfaces on top of your model
- share them with others without dealing with hosting

Example Usage

← → ↻ <https://share.gradio.app/c5d7ed71>



INPUT



SUBMIT

CLEAR

OUTPUT

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FLAG

gradio (gradient input output)

gradio allows you to:

- rapidly create visual interfaces on top of your model
- share them with others without dealing with hosting
- get feedback

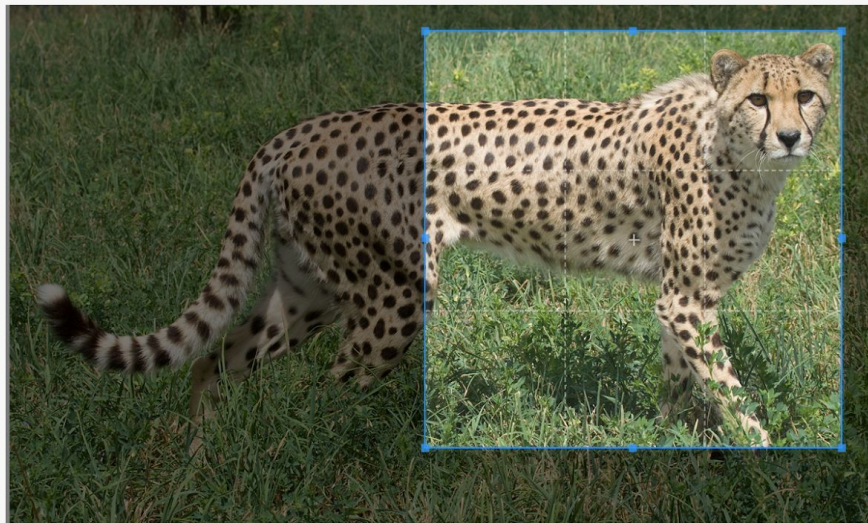


Example Usage

← → ↻ <https://share.gradio.app/c5d7ed71>



INPUT



SUBMIT

CLEAR

OUTPUT

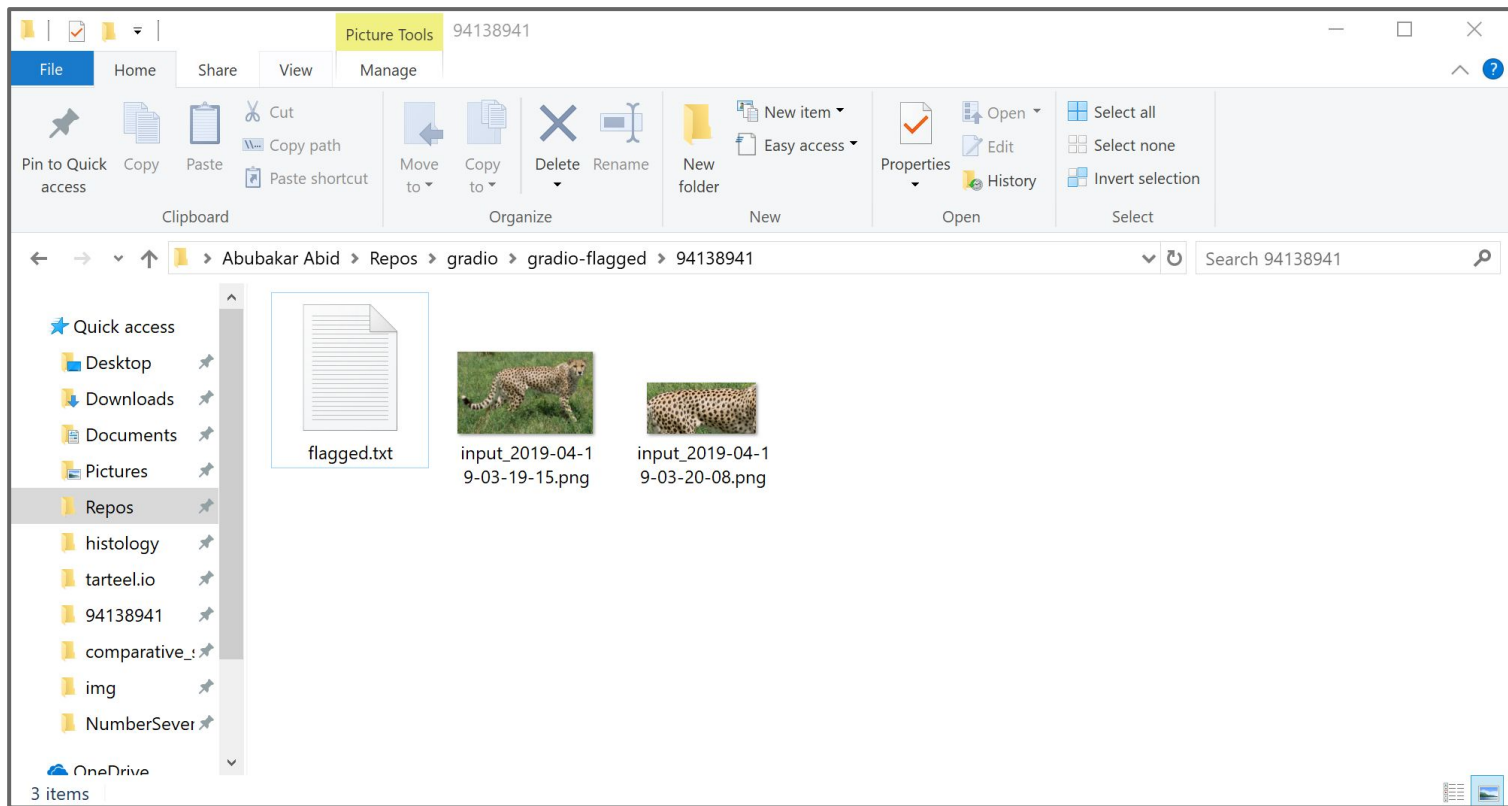
0.46s

cheetah,

cheetah,	89%
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FLAG

Saves the flagged input to developer's machine



Other nice features: embedding

```
In [14]: 1 io.launch(inline=True, inbrowser=True, share=True, validate=False);
```

Closing existing server...

NOTE: Gradio is in beta stage, please report all bugs to: a12d@stanford.edu

Model is running locally at: <http://localhost:7860/interface.html>

Model available publicly for 8 hours at: <http://4cb0108b.ngrok.io/interface.html>



INPUT

Drop Image Here

- or -

Click to Upload

OUTPUT

SUBMIT

CLEAR

FLAG

DEMO

```
pip install gradio
```

Documentation: www.gradio.app

Takeaways

- **gradio** is library for **interacting** with trained machine learn models and **sharing** them.
- We hope it can help more **reliable** models
- To use it, simply: `pip install gradio`

www.gradio.app

(sign up for email updates)