

Using Amazon SageMaker

SageMaker services

- Let's review the SageMaker console and see what we can do with SageMaker

Creating the first Jupyter Instance in SageMaker

AWS Academy Virginia

Creating first Notebook Instance

- Create a new Notebook instance in SageMaker
- Upload the `firstnotbook.ipynb`
- Read and run the cells in that notebook
 - In the notebook you get familiar with notebook magical commands
 - Using SageMaker SDK inside the notebook
 - Running OS commands from inside notebook
 - Using boto3 from inside a notebook
 - Using AWS CLI from inside a notebook
 - Opening a file from inside a notebook
 - Upload file to S3 bucket from notebook

Using SageMaker Marketplace Model

From SageMaker console

▼ AWS Marketplace

Model packages









Models that are already trained and we can just start using them

Algorithms

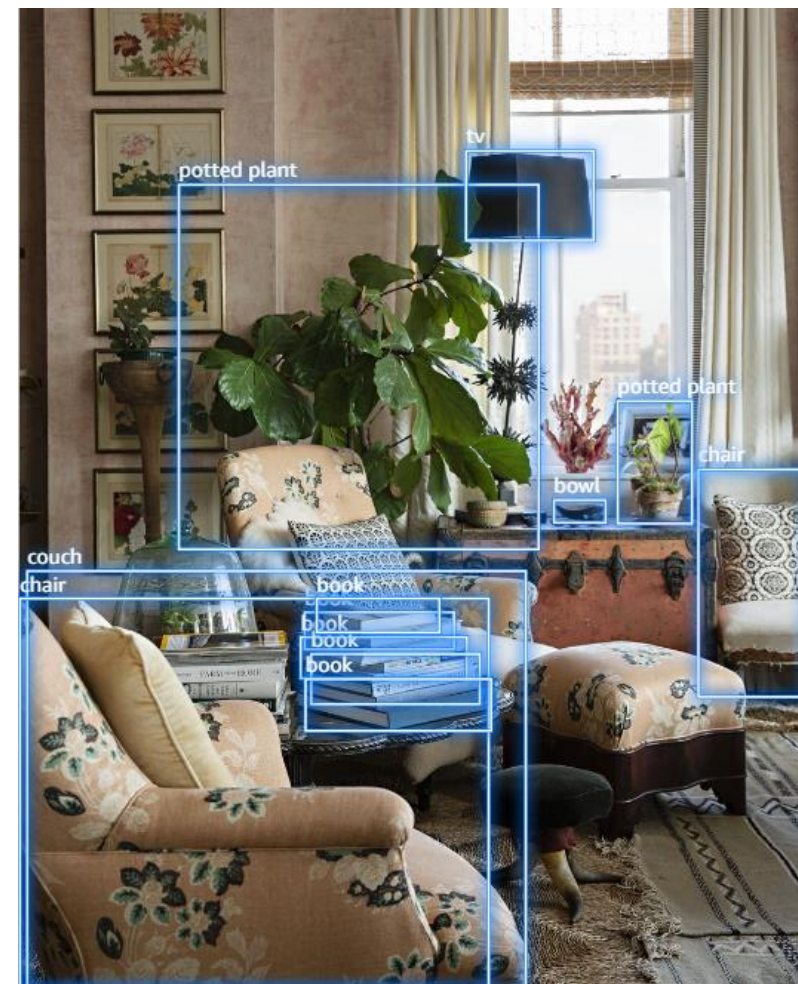
AWS Data Exchange

All products

Model Packages

 <p>GluonCV YOLOv3 Object Detector By Amazon Web Services Ver 1.1 ★★★★★ 2</p> <p>YOLOv3 is a powerful network for fast and accurate object detection, powered by GluonCV.</p> <p>View product</p>	 <p>License Plate Detection and Recognition By Quantiphi Ver 3.0</p> <p>Automatic Detection & Recognition of Vehicle License Plate from an image using Deep Learning ML Models</p> <p>View product</p>	 <p>Face and License Plate Anonymizer By NavInfo Europe B.V. Ver 4.0.0 Free Trial</p> <p>Detection and blurring of faces and license plates.</p> <p>View product</p>
 <p>Passport Data Page Detection By Gtriip Ver 1.0.1 Free Trial</p> <p>Passport Data Page Detection allows you to detect if a passport data page photo is a valid photo for identity use.</p> <p>View product</p>	 <p>Vehicle Damage Inspection By Persistent Systems Ver 0.1</p> <p>Classifies vehicle damage images in multiple types</p> <p>View product</p>	 <p>Mphasis DeepInsights Text Summarizer By Mphasis Ver 3.2</p> <p>Mphasis DeepInsights Text Summarizer helps in summarizing text documents.</p> <p>View product</p>

Try GluonCV YOLOv3 Object Detector



Try one of the following models

- Vehicle Damage Inspection
- License Plate Detection and Recognition

SageMaker GroundTruth

Creating a labelling job by SageMaker GroundTruth

- Create a **bucket** in S3 and upload the fashion data into it (The repository to get the fashion data is: <https://github.com/zalandoresearch/fashion-mnist>)
- Create an “**output**” folder in that bucket
- Set those locations in the labelling job in SageMaker GroundTruth
- Set the Labrole ARN in the IAM role :

`arn:aws:iam::YourAccountID:role/LabRole`

Data setup

S3 location for input datasets [Info](#)
This is the location in S3 where your dataset objects are stored. Ground Truth will use all data objects in this location for your labeling job.

S3 location for output datasets [Info](#)
This is the location in S3 where your labeling job output data is stored.

☐ Same location as input dataset
☒ Specify a new location

Data type

Supported formats are .jpg, .jpeg, and .png.

IAM Role [Info](#)
Provide the ID or ARN for your own AWS KMS encryption key for Amazon SageMaker to access your S3 bucket. Choose a role or let us create a role with the [AmazonSageMakerFullAccess](#) IAM policy attached.

Custom IAM role ARN

Create manifest file

Click on Complete Data Setup

001.JPG
002.JPG
003.JPG
010.jpg
011.jpg
012.jpg
019.jpg
020.jpg
dataset-20221111T141328.manifest
index/
output/

```
1 {"source-ref": "s3://mk-fasion/001.JPG"}
2 {"source-ref": "s3://mk-fasion/002.JPG"}
3 {"source-ref": "s3://mk-fasion/003.JPG"}
4 {"source-ref": "s3://mk-fasion/010.jpg"}
5 {"source-ref": "s3://mk-fasion/011.jpg"}
6 {"source-ref": "s3://mk-fasion/012.jpg"}
7 {"source-ref": "s3://mk-fasion/019.jpg"}
8 {"source-ref": "s3://mk-fasion/020.jpg"}
9
```

Task Selection

- Task selection → bounding box
- Select Mechanical Turk
- Select 1 worker in **additional configuration**

 **Bounding box**
Get workers to draw bounding boxes around specified objects in your images. [Info](#)



Output file looks like this

- Open file “output.manifest” to see an example


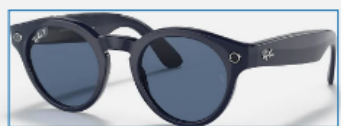






```
1 ref:"s3://mk-fasion/001.JPG", "morteza-fasion":{"image_size":[{"width":838,"height":344,"depth":3}], "annotations":[{"class_id":
2 ref:"s3://mk-fasion/002.JPG", "morteza-fasion":{"image_size":[{"width":901,"height":327,"depth":3}], "annotations":[{"class_id":
3 ref:"s3://mk-fasion/003.JPG", "morteza-fasion":{"image_size":[{"width":918,"height":335,"depth":3}], "annotations":[{"class_id":
4 ref:"s3://mk-fasion/010.jpg", "morteza-fasion":{"image_size":[{"width":60,"height":80,"depth":3}], "annotations":[{"class_id":
5 ref:"s3://mk-fasion/011.jpg", "morteza-fasion":{"image_size":[{"width":60,"height":80,"depth":3}], "annotations":[{"class_id":
6 ref:"s3://mk-fasion/012.jpg", "morteza-fasion":{"image_size":[{"width":60,"height":80,"depth":3}], "annotations":[{"class_id":
7 ref:"s3://mk-fasion/019.jpg", "morteza-fasion":{"image_size":[{"width":60,"height":80,"depth":3}], "annotations":[{"class_id":
8 ref:"s3://mk-fasion/020.jpg", "morteza-fasion":{"image_size":[{"width":60,"height":80,"depth":3}], "annotations":[{"class_id":
9
```

A completed job

Labeled dataset objects (8)

Query output

< 1 ... > ⚙

 001.JPG	 002.JPG	 003.JPG	 010.jpg	 011.jpg
				

Assignment

- Let's say we have a series of customer feedbacks stored in a **customer_feedback.csv** file (upload it in a bucket). In that bucket create a folder for the output location
- Create a labeling job in SageMaker GroundTruth
- Specify the source and destination buckets
- Specify the role and data type
- Click on complete data setup

Data setup

S3 location for input datasets [Info](#)

This is the location in S3 where your dataset objects are stored. Ground Truth will use all data objects in this location for your labeling job.

🔍 s3://m4-mk/text-gt-mk/ ✕

[Browse S3](#)

S3 location for output datasets [Info](#)

This is the location in S3 where your labeling job output data is stored.

☐ Same location as input dataset

☒ Specify a new location

🔍 s3://m4-mk/text-gt-mk/output/ ✕

[Browse S3](#)

Data type

Text

Supported formats are .txt and .csv.

IAM Role [Info](#)

Provide the ID or ARN for your own AWS KMS encryption key for Amazon SageMaker to access your S3 bucket. Choose a role or let us create a role with the [AmazonSageMakerFullAccess](#) IAM policy attached.

Enter a custom IAM role ARN

Custom IAM role ARN

arn:aws:iam::330086343754:role/LabRole

Assignment (contd.)

- Review the manifest file
- Select **Text Classification (Single Label)**
- Select a **private group**, add a group name, add your email address and invite **yourself** to label the jobs
- You will receive an email with a temporary password. You need to change that password and log out and login again. You should be able to see your email as confirmed in the **Labeling workforce**

SageMaker dashboard

Images

Lifecycle configurations

Search

▼ Ground Truth

Labeling jobs

Labeling datasets

Labeling workforces

Private teams (1) [Info](#)

A team of workers from your private workforce. Only one team can work on a labeling job or review task (jobs). Each team can be

Delete

Create private team

🔍 Search private teams by name

	Name ▼	ARN
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<input type="radio"/>	myteam	arn:aws:sagemaker:us-west-2:330086343754:workteam/private-crowd/myteam
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Assignment (contd.)

- After you login, you may not see the labeling job but in 10 minutes or so you will see that

Jobs (1)				Start working
<input type="text"/>				< 1 >
Task title	Customer ID	Status	Creation time	
Text Classification (Single Label): Label	330086343754	Available	December 25, 2022 1:49:58 UTC	

- Label the semantic of the customer feedbacks
- See them in S3 bucket and in console

Text	Label
Love my Echo!...	Positive
"It's like Siri, in fact, Siri answers m...	Positive
Sound is terrible if u want good music t...	Negative
Loved it!...	Positive
"Stopped working after 2 weeks ,didn't f...	Positive
"I have had a lot of fun with this thing...	Positive
I love it! Learning knew things with it ...	Positive
"I purchased this for my mother who is h...	Negative
"Love, Love, Love!!"...	Positive
"I love it, wife hates it."...	Positive