# Assignment 2

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March 10, 2021

SJSU – CMPE258

# AutoML Image – Flowers

automl-icn-dataset1 automl-icn-dataset1_icn

IMPORT BROWSE ANALYZE

| | |
|---|---|
| All | 3,667 |
| Labeled | 3,667 |
| Unlabeled | 0 |

Filter Filter labels +

| | |
|---|---|
| daisy | 633 |
| dandelion | 898 |
| roses | 640 |
| sunflowers | 697 |
| tulips | 799 |

ADD NEW LABEL

Filter Filter items

Unable to import data due to errors. DETAILS DISMISS

Select all


roses


daisy


tulips


daisy


sunflowers


dandelion


roses


sunflowers


roses


daisy

Items per page: 10 1 – 10 of many

Training jobs and models

automl-icn-dataset1_202131019435
Model type: Image classification
Resume Training

TRAIN NEW MODEL

Labeling tasks

If your data still needs to be labeled, create a labeling task to have others label it for you

CREATE LABELING TASK

automl-icn-dataset1 automl-icn-dataset1_icn

IMPORT BROWSE ANALYZE

## You're ready to train

Your dataset meets the recommendation of 100 images assigned to each label. Learn more

| Labels | Images |
|---|---|
| daisy | 633 |
| dandelion | 898 |
| roses | 640 |
| sunflowers | 697 |
| tulips | 799 |

Custom data split

You currently don't have any items assigned to Training, Validation, or Test sets. Don't worry, when you train a model, your items will be randomly divided into these sets, using recommended machine learning practices. Learn more

## Properties

| | |
|---|---|
| **Annotation set** | automl-icn-dataset1_icn |
| **Objective** | Image classification (Single-label) |
| **Items** | 3667 |
| **Created** | Mar 10, 2021, 10:43:57 AM |
| **Last updated** | Mar 10, 2021, 10:59:00 AM |
| **Region** | us-central1 |
| **Encryption type** | Google-managed key |

### Training jobs and models

automl-icn-dataset1_202131019435
Model type: Image classification
Resume Training

TRAIN NEW MODEL

### Labeling tasks

If your data still needs to be labeled, create a labeling task to have others label it for you

CREATE LABELING TASK

automl-icn-dataset1_202131019435 VIEW DATASET

EVALUATE DEPLOY & TEST BATCH PREDICTIONS MODEL PROPERTIES

Filter Filter labels

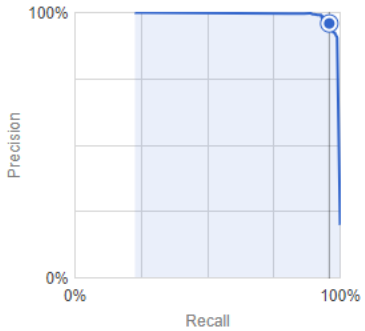
| | |
|---|---|
| All labels | 0 |
| dandelion | 1 |
| daisy | 0.99950 |
| sunflowers | 0.99772 |
| tulips | 0.98957 |
| roses | 0.98639 |

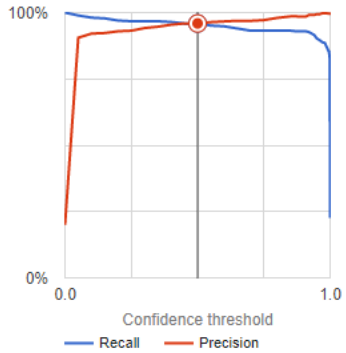
Confidence threshold 0.5

## All labels

| | |
|---|---|
| **Average precision** | 0.994 |
| **Precision** | 95.9% |
| **Recall** | 95.9% |
| **Created** | Mar 10, 2021, 11:35:44 AM |
| **Total images** | 3,667 |
| **Training images** | 2,933 |
| **Validation images** | 367 |
| **Test images** | 367 |

Use the slider to see which score threshold works best for your model on the precision-recall tradeoff curve. Learn more about these metrics and graphs




## Confusion matrix

Item counts

This table shows how often the model classified each label correctly (in blue), and which labels were most often confused for that label (in gray). **Note that this table is limited to the 10 most confused labels.** You can download the entire confusion matrix as a CSV file.

| True label \ Predicted label | roses | sunflowers | tulips | dandelion | daisy |
|---|---|---|---|---|---|
| roses | 98% | – | 2% | – | – |
| sunflowers | 3% | 93% | 3% | 1% | – |
| tulips | 8% | – | 93% | – | – |
| dandelion | – | – | – | 100% | – |
| daisy | – | – | – | 5% | 95% |

# automl-icn-dataset1_202131019435

VIEW DATASET

EVALUATE | DEPLOY & TEST | BATCH PREDICTIONS | MODEL PROPERTIES

This model finished training on Mar 10, 2021, 11:36:01 AM.

| | |
|---|---|
| **Status** | Succeeded |
| **Model ID** | 4220875605450686464 |
| **Training pipeline ID** | 7810517187348660224 |
| **Created** | Mar 10, 2021, 11:06:36 AM |
| **Budget (original)** | 8 node hours |
| **Budget (actual)** | 8 node hours |
| **Training time** | 29 min 24 sec |
| **Region** | us-central1 |
| **Encryption type** | Google-managed key |

| | |
|---|---|
| **Dataset** | automl-icn-dataset1 |
| **Dataset ID** | 5298150710066544640 |
| **Annotation set** | automl-icn-dataset1_icn |
| **Data split** | Randomly assigned (80/10/10) |
| **Total items** | 3,667 |
| **Training items** | 2,933 (80.0%) |
| **Validation items** | 367 (10.0%) |
| **Test items** | 367 (10.0%) |

| | |
|---|---|
| **Algorithm** | AutoML |
| **Objective** | Image classification (Single-label) |

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AI Platform (Unified)

- Dashboard
- Datasets
- Labeling tasks
- Notebooks
- Training
- Models
- Endpoints
- Batch predictions

automl-icn-dataset1_202131019435 VIEW DATASET

EVALUATE DEPLOY & TEST BATCH PREDICTIONS MODEL PROPERTIES

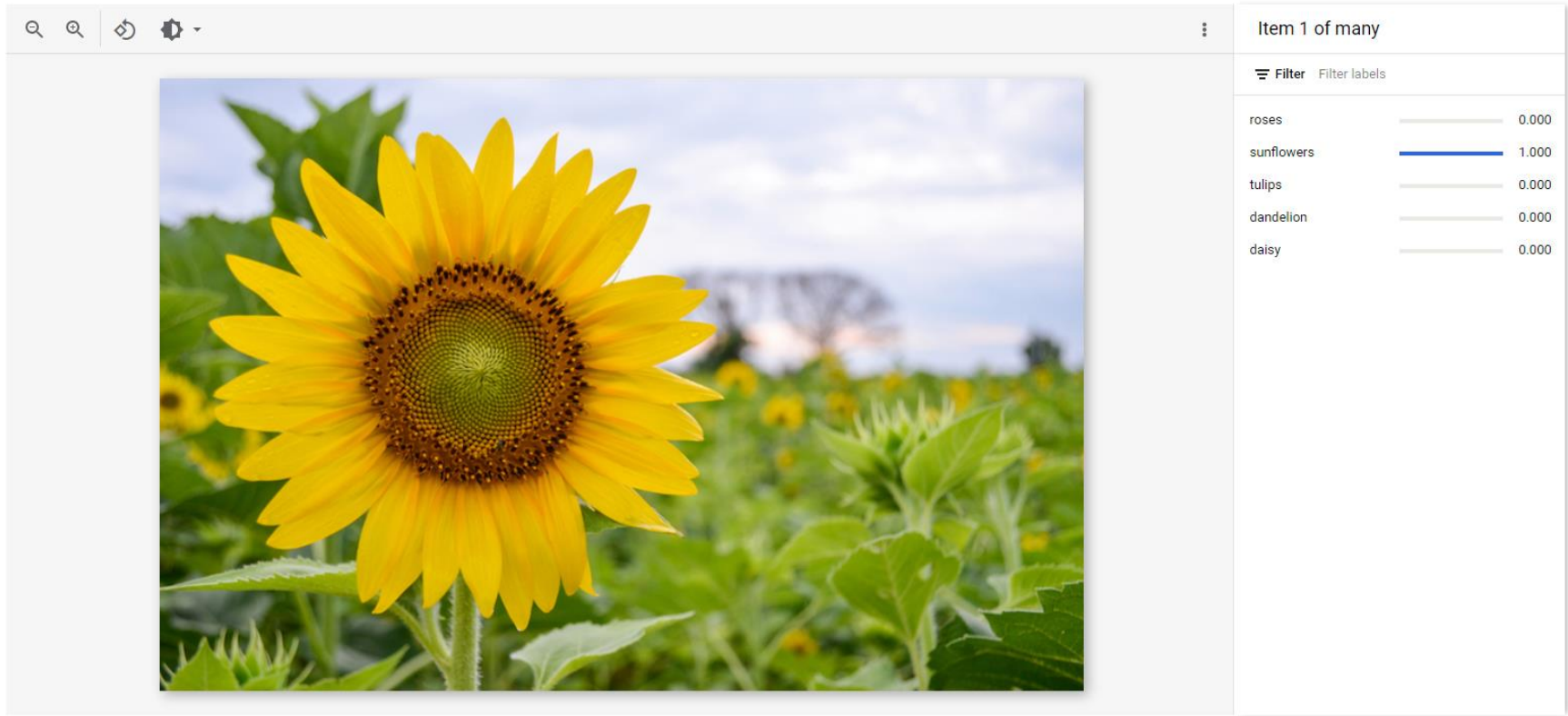
## Deploy your model

Endpoints are machine learning models made available for online prediction requests. Endpoints are useful for timely predictions from many users (for example, in response to an application request). You can also request batch predictions if you don't need immediate results.

DEPLOY TO ENDPOINT

| | Name | ID | Models | Region | Last updated | API | Notification | Metadata | Encryption |
|---|---|---|---|---|---|---|---|---|---|
| ✓ | hello_automl_image | 7887456613013913600 | 1 | us-central1 | Mar 10, 2021, 11:56:07 AM | Sample request | | | Google-managed key |

## Test your model PREVIEW




UPLOAD IMAGE

automl-icn-dataset1_202131019435 VIEW DATASET

EVALUATE DEPLOY & TEST BATCH PREDICTIONS MODEL PROPERTIES

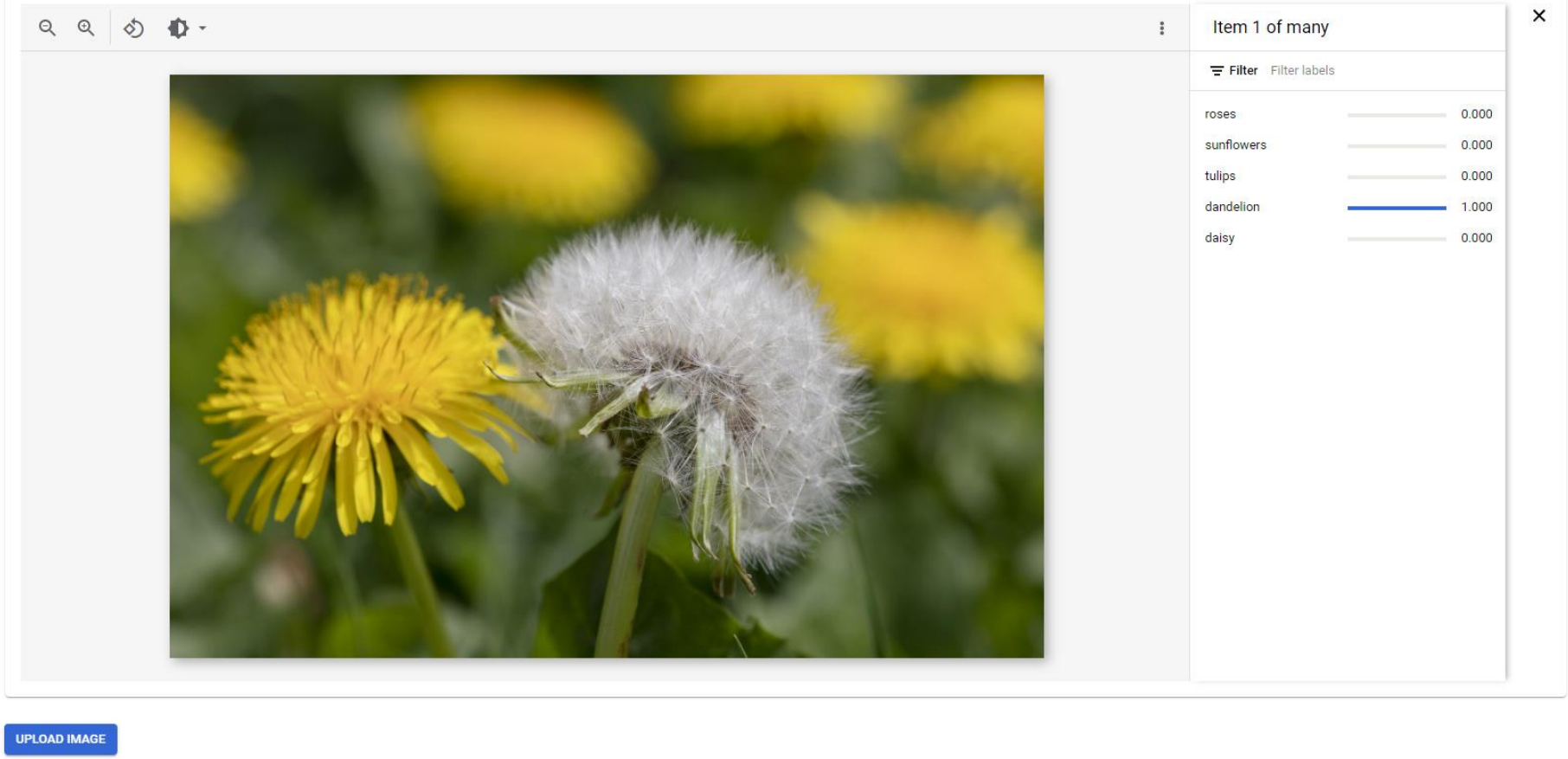
## Deploy your model

Endpoints are machine learning models made available for online prediction requests. Endpoints are useful for timely predictions from many users (for example, in response to an application request). You can also request batch predictions if you don't need immediate results.

DEPLOY TO ENDPOINT

| Name | ID | Models | Region | Last updated | API | Notification | Metadata | Encryption |
|---|---|---|---|---|---|---|---|---|
| hello_automl_image | 7887456613013913600 | 1 | us-central1 | Mar 10, 2021, 11:56:07 AM | Sample request | | | Google-managed key |

## Test your model PREVIEW




UPLOAD IMAGE

# AutoML Text – Drug Reviews

drug_review_dataset | drug_review_dataset_tcn

IMPORT | BROWSE | ANALYZE

| | |
|---|---|
| All | 4,940 |
| Labeled | 4,940 |
| Unlabeled | 0 |

Filter Filter labels +

| | |
|---|---|
| 1 | 654 |
| 10 | 1,609 |
| 2 | 218 |
| 3 | 199 |
| 4 | 165 |
| 5 | 245 |
| 6 | 206 |
| 7 | 276 |
| 8 | 547 |
| 9 | 821 |

ADD NEW LABEL

Filter Filter items

| Text | Labels |
|---|---|
| Have been on a lot of different antidepressants for anxiety. Most meds made m... | 8 |
| I have been taking Levora for a year and a half. For the first year, maybe a little l... | 7 |
| I have been on birth control for over 16 years now. I started with pills at 18 then ... | 3 |
| Simply the best. Doesn't build up in the body, works quickly. Unfortunatel... | 10 |
| I get reoccurring Bacterial Vaginitis. This medication is the only one that works. ... | 10 |
| This week I started off on of 5 mg and then went up to 10mg. I've been d... | 5 |
| I just wanted to start taking this BC because I have a bf. But this pill is giving me... | 1 |
| I dislocated my shoulder. The ER doctor gave me this and when I came to a few ... | 10 |
| Had my left eye destroyed by a broomstick in a fight. Doctor gave me percocet! ... | 10 |
| I should be in a medical Journal compared to some of the other triglyceride leve... | 9 |

Items per page: 10 1 – 10 of many

### Training jobs and models

drug_review_dataset_20213102158
Model type: Text classification

TRAIN NEW MODEL

### Labeling tasks

If your data still needs to be labeled, create a labeling task to have others label it for you

CREATE LABELING TASK

drug_review_dataset | drug_review_dataset_tcn

IMPORT BROWSE ANALYZE

## You're ready to train

Your dataset meets the recommendation of 100 text items assigned to each label. Learn more

| Labels | Text items |
|---|---|
| 1 | 654 |
| 10 | 1609 |
| 2 | 218 |
| 3 | 199 |
| 4 | 165 |
| 5 | 245 |
| 6 | 206 |
| 7 | 276 |
| 8 | 547 |
| 9 | 821 |

Custom data split

You currently don't have any items assigned to Training, Validation, or Test sets. Don't worry, when you train a model, your items will be randomly divided into these sets, using recommended machine learning practices. Learn more

## Properties

| | |
|---|---|
| **Annotation set** | drug_review_dataset_tcn |
| **Objective** | Text classification (Single-label) |
| **Items** | 4940 |
| **Created** | Mar 10, 2021, 12:44:00 PM |
| **Last updated** | Mar 10, 2021, 12:55:02 PM |
| **Region** | us-central1 |
| **Encryption type** | Google-managed key |

### Training jobs and models

drug_review_dataset_20213102158
Model type: Text classification

TRAIN NEW MODEL

### Labeling tasks

If your data still needs to be labeled, create a labeling task to have others label it for you

CREATE LABELING TASK

drug_review_dataset_20213102158 VIEW DATASET

EVALUATE DEPLOY & TEST BATCH PREDICTIONS MODEL PROPERTIES

Filter Filter labels

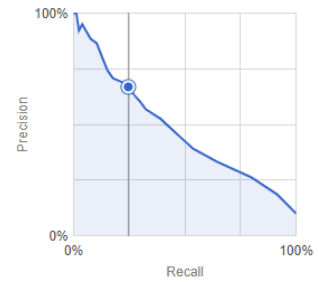
| | |
|---|---|
| All labels | 0 |
| 10 | 0.70616 |
| 1 | 0.63091 |
| 9 | 0.31950 |
| 8 | 0.28815 |
| 2 | 0.21884 |
| 7 | 0.20017 |
| 3 | 0.17719 |
| 5 | 0.16594 |
| 4 | 0.16440 |
| 6 | 0.13177 |

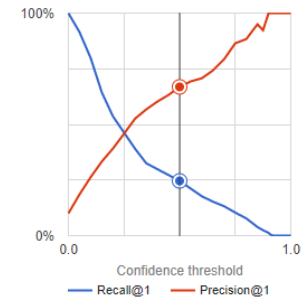
Confidence threshold 0.5

## All labels

| | |
|---|---|
| Average precision | 0.477 |
| Precision | 66.9% |
| Recall | 24.6% |
| Created | Mar 10, 2021, 5:14:21 PM |
| Total items | 4,940 |
| Training items | 3,951 |
| Validation items | 497 |
| Test items | 492 |

Use the slider to see which score threshold works best for your model on the precision-recall tradeoff curve. Learn more about these metrics and graphs




## Confusion matrix

Item counts

This table shows how often the model classified each label correctly (in blue), and which labels were most often confused for that label (in gray). **Note that this table is limited to the 10 most confused labels.** You can download the entire confusion matrix as a CSV file.

| True label \ Predicted label | 7 | 3 | 1 | 9 | 5 | 8 | 4 | 2 | 10 | 6 |
|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 0% | – | 4% | 30% | 4% | 33% | – | – | 30% | – |
| 3 | – | 0% | 60% | 5% | 15% | – | – | – | 15% | 5% |
| 1 | – | – | 80% | 2% | 3% | – | – | – | 15% | – |
| 9 | 1% | – | 1% | 11% | 5% | 9% | – | – | 73% | – |
| 5 | 4% | 4% | 25% | 8% | 17% | 8% | 4% | – | 29% | – |
| 8 | 2% | – | 7% | 24% | 4% | 20% | 2% | – | 40% | 2% |
| 4 | – | – | 38% | 13% | 13% | 13% | 6% | – | 19% | – |
| 2 | – | 5% | 59% | 18% | 5% | – | – | 0% | 14% | – |
| 10 | – | – | 7% | 4% | 1% | 2% | – | – | 85% | – |
| 6 | – | – | 30% | 10% | 5% | 20% | 5% | – | 30% | 0% |

drug_review_dataset_20213102158 VIEW DATASET

EVALUATE DEPLOY & TEST BATCH PREDICTIONS MODEL PROPERTIES

This model finished training on Mar 10, 2021, 5:14:39 PM.

| | |
|---|---|
| **Status** | Succeeded |
| **Model ID** | 7315974449361059840 |
| **Training pipeline ID** | 2987161986434859008 |
| **Created** | Mar 10, 2021, 1:05:14 PM |
| **Training time** | 4 hr 9 min |
| **Region** | us-central1 |
| **Encryption type** | Google-managed key |

| | |
|---|---|
| **Dataset** | drug_review_dataset |
| **Dataset ID** | 1720040806120685568 |
| **Annotation set** | drug_review_dataset_tcn |
| **Data split** | Randomly assigned (80/10/10) |
| **Total items** | 4,940 |
| **Training items** | 3,951 (80.0%) |
| **Validation items** | 497 (10.1%) |
| **Test items** | 492 (10.0%) |

| | |
|---|---|
| **Algorithm** | AutoML |
| **Objective** | Text classification (Single-label) |

drug_review_dataset_20213102158 VIEW DATASET

EVALUATE | DEPLOY & TEST | BATCH PREDICTIONS | MODEL PROPERTIES

## Deploy your model

Endpoints are machine learning models made available for online prediction requests. Endpoints are useful for timely predictions from many users (for example, in response to an application request). You can also request batch predictions if you don't need immediate results.

DEPLOY TO ENDPOINT

| Name | ID | Models | Region | Last updated | API | Notification | Metadata | Encryption |
|---|---|---|---|---|---|---|---|---|
| drug_review_endpoint | 419362530926788608 | 1 | us-central1 | Mar 10, 2021, 5:57:39 PM | Sample request | | | Google-managed key |

## Test your model PREVIEW

gave me bad gas

PREDICT

Filter Filter labels

| | |
|---|---|
| 10 | 0.005 |
| 9 | 0.006 |
| 1 | 0.492 |
| 8 | 0.009 |
| 7 | 0.016 |
| 5 | 0.056 |
| 2 | 0.133 |
| 6 | 0.037 |
| 3 | 0.144 |
| 4 | 0.102 |

drug_review_dataset_20213102158 VIEW DATASET

EVALUATE DEPLOY & TEST BATCH PREDICTIONS MODEL PROPERTIES

## Deploy your model

Endpoints are machine learning models made available for online prediction requests. Endpoints are useful for timely predictions from many users (for example, in response to an application request). You can also request batch predictions if you don't need immediate results.

DEPLOY TO ENDPOINT

| Name | ID | Models | Region | Last updated | API | Notification | Metadata | Encryption |
|---|---|---|---|---|---|---|---|---|
| drug_review_endpoint | 419362530926788608 | 1 | us-central1 | Mar 10, 2021, 5:57:39 PM | Sample request | | | Google-managed key |

## Test your model PREVIEW

solved my pain

PREDICT

Filter Filter labels

| | |
|---|---|
| 10 | 0.712 |
| 9 | 0.195 |
| 1 | 0.001 |
| 8 | 0.071 |
| 7 | 0.012 |
| 5 | 0.002 |
| 2 | 0.001 |
| 6 | 0.005 |
| 3 | 0.001 |
| 4 | 0.001 |

# AutoML Video – Activities

# demo-data

demo-data_vcn

IMPORT | BROWSE | ANALYZE

All 500
Labeled 500
Unlabeled 0

Filter Filter labels +

Videos

cartwheel 100
golf 100
kick_ball 100
pullup 100
ride_horse 100

ADD NEW LABEL

Filter Filter items

Select all


kick_ball


pullup


golf


golf


ride_horse


pullup


cartwheel


cartwheel


cartwheel


kick_ball

Items per page: 10 1 – 10 of many

## Training jobs and models

demo-data_2021_03_07_model
Model type: Video classification

TRAIN NEW MODEL

## Labeling tasks

If your data still needs to be labeled, create a labeling task to have others label it for you

CREATE LABELING TASK

demo-data | demo-data_vcn

IMPORT | BROWSE | ANALYZE

## You're ready to train

Your dataset meets the recommendation of 100 videos assigned to each label. Learn more

| Labels | Videos |
|---|---|
| cartwheel | 100 |
| golf | 100 |
| kick_ball | 100 |
| pullup | 100 |
| ride_horse | 100 |

Custom data split

You currently don't have any items assigned to Training, Validation, or Test sets. Don't worry, when you train a model, your items will be randomly divided into these sets, using recommended machine learning practices. Learn more

## Properties

| | |
|---|---|
| **Annotation set** | demo-data_vcn |
| **Objective** | Video classification |
| **Items** | 500 |
| **Created** | Mar 7, 2021, 5:10:03 PM |
| **Last updated** | Mar 7, 2021, 5:13:08 PM |
| **Region** | us-central1 |
| **Encryption type** | Google-managed key |

### Training jobs and models

demo-data_2021_03_07_model
Model type: Video classification

TRAIN NEW MODEL

### Labeling tasks

If your data still needs to be labeled, create a labeling task to have others label it for you

CREATE LABELING TASK

# demo-data_2021_03_07_model

VIEW DATASET

EVALUATE | TEST | BATCH PREDICTIONS | MODEL PROPERTIES

Filter Filter labels

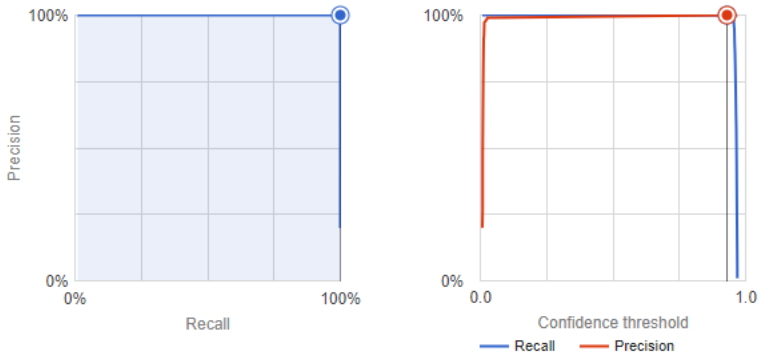
Confidence threshold 0.5

| | |
|---|---|
| All labels | 0 |
| golf | 1 |
| pullup | 1 |
| cartwheel | 1 |
| ride_horse | 1 |
| kick_ball | 1 |

## All labels

| | |
|---|---|
| **Average precision** | 1 |
| **Precision** | 100% |
| **Recall** | 100% |
| **Created** | Mar 7, 2021, 7:24:55 PM |
| **Training videos** | 400 |
| **Test videos** | 100 |

Use the slider to see which confidence threshold works best for your model on the precision-recall tradeoff curve. Learn more about these metrics and graphs




## Confusion matrix

Item counts

This table shows how often the model classified each label correctly (in blue), and which labels were most often confused for that label (in gray). **Note that this table is limited to the 10 most confused labels.** You can download the entire confusion matrix as a CSV file.

| True label \ Predicted label | pullup | kick_ball | cartwheel | ride_horse | golf |
|---|---|---|---|---|---|
| pullup | 100% | – | – | – | – |
| kick_ball | – | 100% | – | – | – |
| cartwheel | – | – | 100% | – | – |
| ride_horse | – | – | – | 100% | – |
| golf | – | – | – | – | 100% |

Dashboard
Datasets
Labeling tasks
Notebooks
Training
Models
Endpoints
Batch predictions

# demo-data_2021_03_07_batch-prediction

| | |
|---|---|
| **Model** | demo-data_2021_03_07_model |
| **Objective** | Video classification |
| **Import location** | gs://automl-video-demo-data/hmdb_split1_predict.jsonl |
| **Total items** | 5 |
| **Predicted items** | 5 |
| **Created** | Mar 07, 2021 at 07:42PM |
| **Updated** | Mar 07, 2021 at 07:44PM |
| **Elapsed time** | 1 min 25 sec |
| **Status** | Completed without errors |
| **Export location** | gs://cloud-ai-platform-183b1ee7-2b41-4278-8cfb-7b56f47dc88b/predicted-results/prediction-demo-data_2021_03_07_model-2021-03-08T03:42:37.073827Z |

VIEW RESULTS

Google Cloud Platform cmpe-258 Search products and resources 5

AI Platform (Unified)

gs://automl-video-demo-data/hmdb51/35_pull_ups_pullup_f_nm_np1_fr_goo_1.mp4 [0-2.633333]

- Dashboard
- Datasets
- Labeling tasks
- Notebooks
- Training
- Models
- Endpoints
- Batch predictions


Filter Filter labels

pullup (1)

0:00:00.00-0:00:02.62 0.967

Confidence threshold 0.80 Predict on: SHOT SEGMENT INTERVAL

AI Platform (Unified)

gs://automl-video-demo-data/hmdb51/CrossCountry_ride_horse_f_cm_np1_le_med_2.mp4 [0-2.366667]

- Dashboard
- Datasets
- Labeling tasks
- Notebooks
- Training
- Models
- Endpoints
- Batch predictions


Filter Filter labels

ride_horse (1)

0:00:00.00-0:00:02.35 0.968

Confidence threshold 0.80 Predict on: SHOT SEGMENT INTERVAL

gs://automl-video-demo-data/hmdb51/How_to_Shoot_Penalty_Kicks_kick_ball_f_cm_np1_ba_bad_4.mp4 [0-1.366667]


Filter Filter labels

kick_ball (1)

0:00:00.00-0:00:01.36 0.962

Confidence threshold 0.80 Predict on: SHOT SEGMENT INTERVAL

Google Cloud Platform cmpe-258 Search products and resources 5

AI Platform (Unified)

gs://automl-video-demo-data/hmdb51/how_to_do_a_cartwheel_cartwheel_f_cm_np1_ri_med_0.mp4 [0-3]

- Dashboard
- Datasets
- Labeling tasks
- Notebooks
- Training
- Models
- Endpoints
- Batch predictions


Filter Filter labels

cartwheel (1)

0:00:00.00-0:00:03.00 0.967

Confidence threshold 0.80 Predict on: SHOT SEGMENT INTERVAL

AI Platform (Unified)

gs://automl-video-demo-data/hmdb51/Michelle_Wie__Golf_Swing_golf_f_cm_np1_fr_med_0.mp4 [0-2.633333]

- Dashboard
- Datasets
- Labeling tasks
- Notebooks
- Training
- Models
- Endpoints
- Batch predictions


Filter Filter labels

golf (1)

0:00:00.00-0:00:02.62 0.968

Confidence threshold 0.80 Predict on: SHOT SEGMENT INTERVAL

# AutoML Tabular – Bank Marketing

# Structured_AutoML_Tutorial

SOURCE ANALYZE

## Dataset Info

Created: Mar 10, 2021 7:42 PM

Dataset format: CSV

Dataset location: gs://cloud-ml-.../bank-marketing.csv

## Summary

Total columns: 17

Total rows: 45,211

General statistics generated by Mar 10, 2021 7:53 PM GENERATE STATISTICS

Filter Enter property name or value

| Field Name | Missing % (count) | Distinct values |
|---|---|---|
| Age | - | 77 |
| Balance | - | 7168 |
| Campaign | - | 48 |
| Contact | - | 3 |
| Day | - | 31 |
| Default | - | 2 |
| Deposit | - | 2 |
| Duration | - | 1573 |
| Education | - | 4 |
| Housing | - | 2 |
| Job | - | 12 |
| Loan | - | 2 |
| MaritalStatus | - | 3 |
| Month | - | 12 |
| PDays | - | 559 |
| POutcome | - | 4 |
| Previous | - | 41 |

Rows per page: 50 1 – 17 of 17

## Training jobs and models

Structured_AutoML_Tutorial_202131135058
Model type: Tabular

TRAIN NEW MODEL

Google Cloud Platform | cmpe-258 | Search products and resources

AI Platform (Unified)

- Dashboard
- Datasets
- Labeling tasks
- Notebooks
- Training
- Models
- Endpoints
- Batch predictions

Structured_AutoML_Tutorial_202131135058 | VIEW DATASET | EXPORT

EVALUATE | DEPLOY & TEST | BATCH PREDICTIONS | MODEL PROPERTIES

Filter | Filter labels

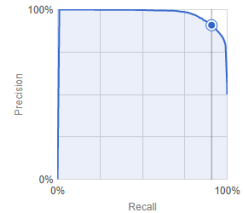
Confidence threshold 0.5

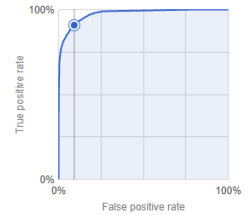
| | |
|---|---|
| All labels | 0 |
| 1 | 0.99093 |
| 2 | 0.59817 |

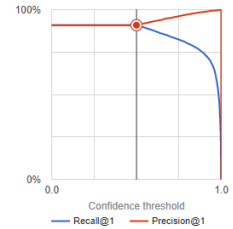
## All labels

| | |
|---|---|
| PR AUC | 0.977 |
| ROC AUC | 0.975 |
| Log loss | 0.196 |
| F1 score | 0.9082158 |
| Precision | 90.8% |
| Recall | 90.8% |
| Created | Mar 10, 2021, 8:49:26 PM |

Use the slider to see which confidence threshold works best for your model on the precision-recall tradeoff curve. Learn more about these metrics and graphs



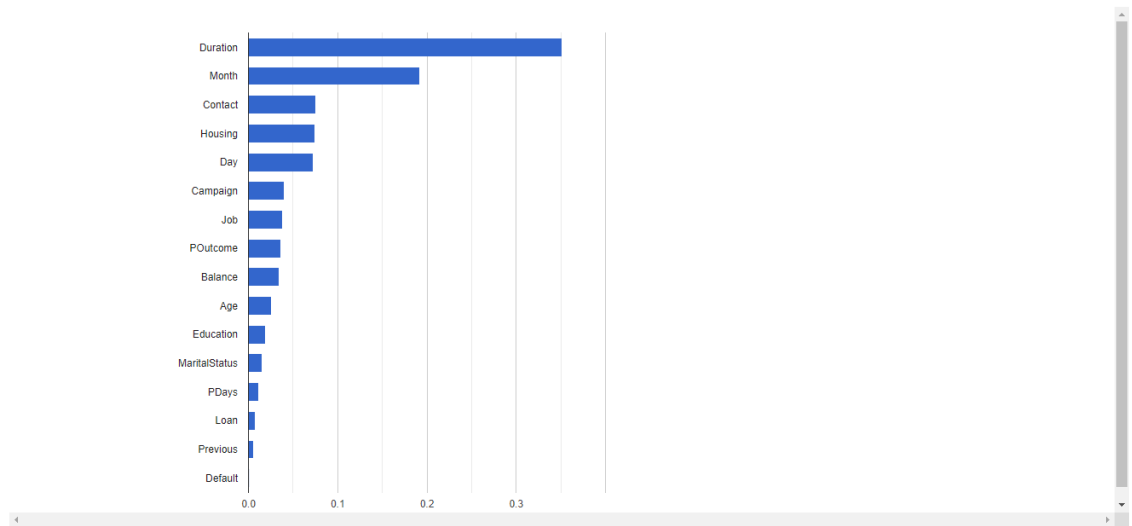

## Confusion matrix

Item counts

This table shows how often the model classified each label correctly (in blue), and which labels were most often confused for that label (in gray). **Note that this table is limited to the 10 most confused labels.** You can download the entire confusion matrix as a CSV file.

| True label \ Predicted label | 1 | 2 |
|---|---|---|
| 1 | 97% | 3% |
| 2 | 53% | 47% |

## Feature Importance



# Structured_AutoML_Tutorial_202131135058

VIEW DATASET EXPORT

EVALUATE DEPLOY & TEST BATCH PREDICTIONS MODEL PROPERTIES

This model finished training on Mar 10, 2021, 8:49:46 PM.

| | |
|---|---|
| **Status** | Succeeded |
| **Model ID** | 2389036457017737216 |
| **Training pipeline ID** | 1444679114060464128 |
| **Created** | Mar 10, 2021, 7:52:11 PM |
| **Budget (original)** | 1 node hours |
| **Training time** | 57 min 34 sec |
| **Region** | us-central1 |
| **Encryption type** | Google-managed key |

| | |
|---|---|
| **Dataset** | Structured_AutoML_Tutorial |
| **Dataset ID** | 3073372494145519616 |
| **Target column** | Deposit |
| **Data split** | Randomly assigned (80/10/10) |
| **Model hyperparameters** | Model Trials |
| **Transformation options** | View details |

| | |
|---|---|
| **Algorithm** | AutoML |
| **Objective** | Tabular classification |
| **Optimized for** | Log loss |

Structured_AutoML_Tutorial_202131135058 | VIEW DATASET | EXPORT

EVALUATE | DEPLOY & TEST | BATCH PREDICTIONS | MODEL PROPERTIES

## Use your edge-optimized model

**Container**

Export your model as a TF Saved Model to run on a Docker container.

## Deploy your model

Endpoints are machine learning models made available for online prediction requests. Endpoints are useful for timely predictions from many users (for example, in response to an application request). You can also request batch predictions if you don't need immediate results.

DEPLOY TO ENDPOINT

| Name | ID | Models | Region | Last updated | API | Notification | Metadata | Encryption |
|---|---|---|---|---|---|---|---|---|
| tabular_endpoint | 5064825546559455232 | 1 | us-central1 | Mar 10, 2021, 9:46:12 PM | Sample request | | | Google-managed key |

## Test your model PREVIEW

| Feature column name | Type | Required or optional | Value | Local feature importance |
|---|---|---|---|---|
| Age | Text | Required | 28 | -0.004177351792653401 |
| Balance | Text | Required | 447 | 0.0003493676582972209 |
| Campaign | Text | Required | 1 | -0.001564875245094299 |
| Contact | Text | Required | unknown | 0.01655279099941254 |
| Day | Text | Required | 5 | 0.0006326834360758463 |
| Default | Text | Required | no | 0 |
| Duration | Text | Required | 217 | -0.004475787281990051 |
| Education | Text | Required | tertiary | -0.00149327019850413 |
| Housing | Text | Required | yes | 0 |
| Job | Text | Required | management | -0.003106375535329183 |

Rows per page: 10 | 1 – 10 of 16

PREDICT | RESET

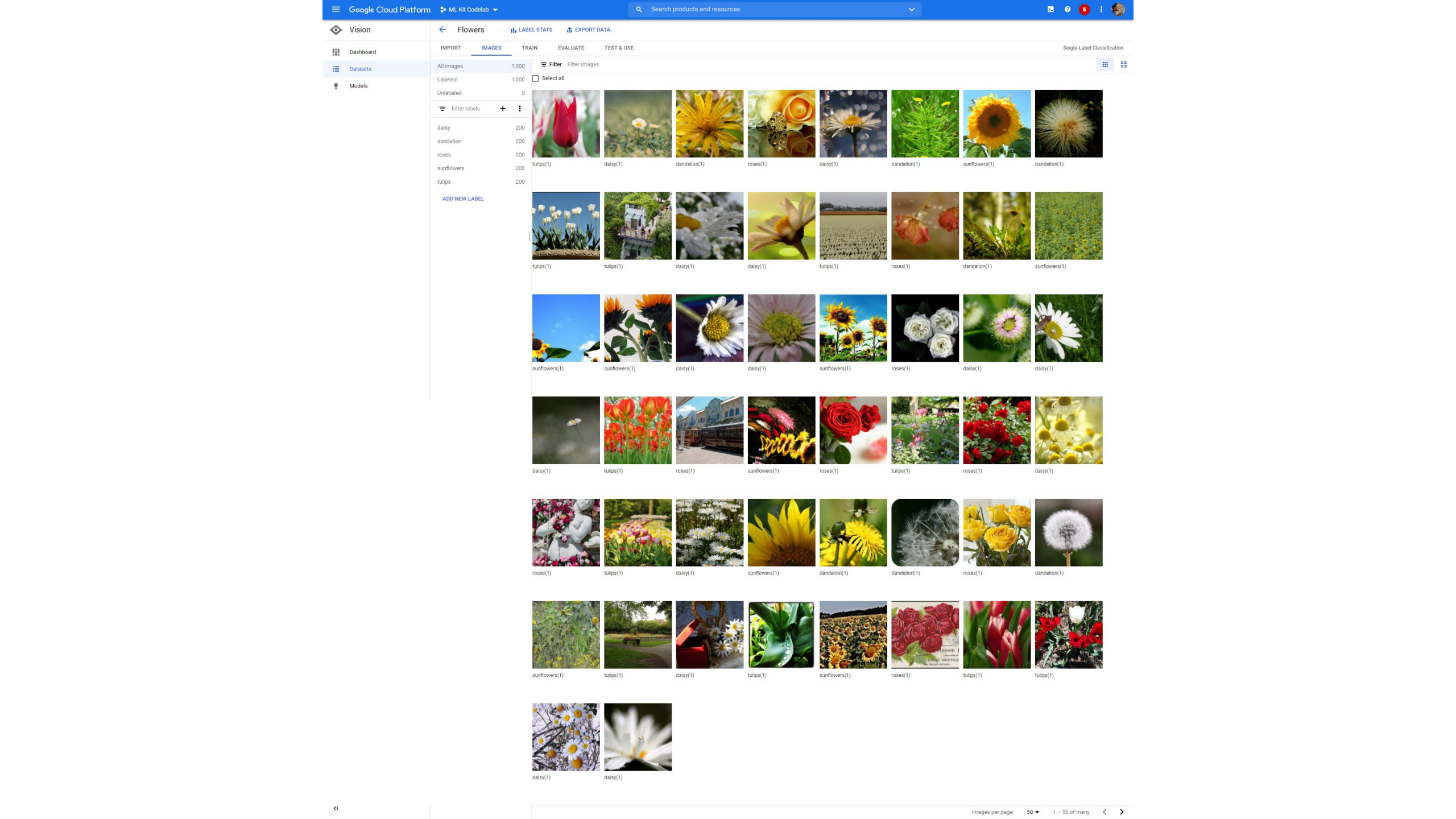
**Predict label**

**Prediction result**

1

Confidence score: 0.9973734617233276

# AutoML Vision Edge – Mobile


Google Cloud Platform
ML Kit Codelab
Search products and resources
Vision
Dashboard
Datasets
Models
Flowers
LABEL STATS
EXPORT DATA
IMPORT
IMAGES
TRAIN
EVALUATE
TEST & USE
Single-Label Classification
All images 1,000
Labeled 1,000
Unlabeled 0
Filter labels
daisy 200
dandelion 200
roses 200
sunflowers 200
tulips 200
ADD NEW LABEL
Filter
Filter images
Select all
tulips(1) daisy(1) dandelion(1) roses(1) daisy(1) dandelion(1) sunflowers(1) dandelion(1)
tulips(1) tulips(1) daisy(1) daisy(1) tulips(1) roses(1) dandelion(1) sunflowers(1)
sunflowers(1) sunflowers(1) daisy(1) daisy(1) sunflowers(1) roses(1) daisy(1) daisy(1)
daisy(1) tulips(1) roses(1) sunflowers(1) roses(1) tulips(1) roses(1) daisy(1)
roses(1) tulips(1) daisy(1) sunflowers(1) dandelion(1) dandelion(1) roses(1) dandelion(1)
sunflowers(1) tulips(1) daisy(1) tulips(1) sunflowers(1) roses(1) tulips(1) tulips(1)
daisy(1) daisy(1)
Images per page: 50
1 – 50 of many

# Models

TRAIN NEW MODEL

## Flowers_20210310064318

Average precision
0.98
Precision* 96.7%
Recall* 88%
* Using a score threshold of 0.5

| | |
|---|---|
| Model ID | ICN2849188670311759872 |
| Created | Mar 10, 2021, 6:43:46 PM |
| Base model | None |
| Data | 1,000 images |
| Model type | Mobile Best Trade-Off |
| Train cost | 0.97 node hours |
| Deployment state | Not deployed |

SEE FULL EVALUATION

RESUME TRAINING

Vision

- Dashboard
- Datasets
- Models

Flowers | LABEL STATS | EXPORT DATA

IMPORT | IMAGES | TRAIN | EVALUATE | TEST & USE | Single-Label Classification

Model: Flowers_20210310064318

Confidence threshold: 0.5

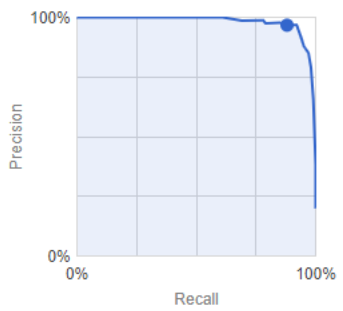
Filter labels

| | |
|---|---|
| All labels | 0.98009 |
| daisy | 0.98371 |
| dandelion | 0.99545 |
| roses | 0.97901 |
| sunflowers | 1 |
| tulips | 0.95694 |

## All labels

| | |
|---|---|
| Total images | 900 |
| Test items | 100 |
| Precision | 96.7% |
| Recall | 88% |

Use the slider to see which confidence threshold works best for your model on the precision-recall tradeoff curve.
Learn more about these metrics and graphs.



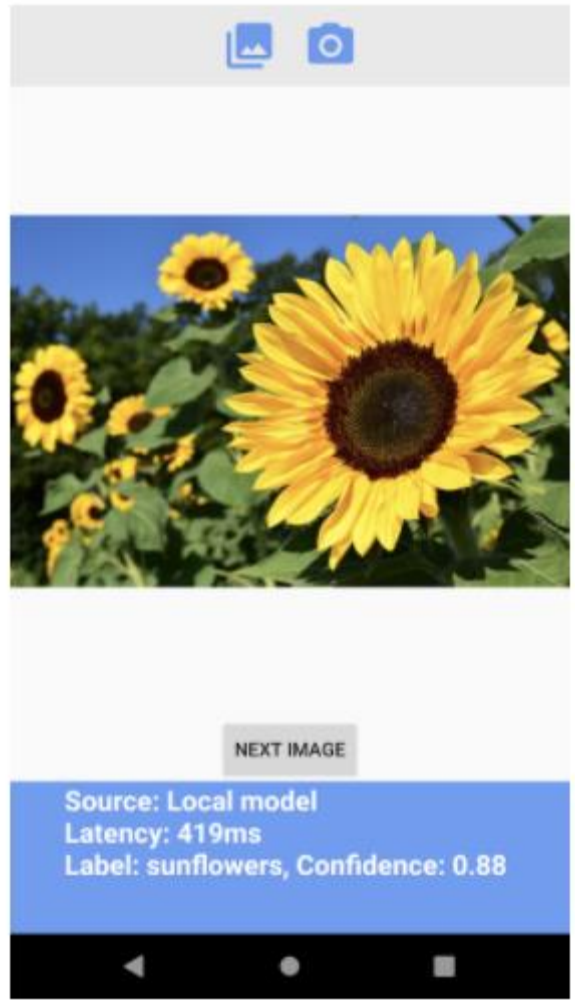


## Confusion matrix

Item counts

This table shows how often the model classified each label correctly (in blue), and which labels were most often confused for that label (in gray). **Note that this table is limited to the 10 most confused labels.** You can download the entire confusion matrix as a CSV file.

| True Label \ Predicted Label | dandelion | tulips | sunflowers | daisy | roses |
|---|---|---|---|---|---|
| dandelion | 95% | - | - | 5% | - |
| tulips | - | 90% | - | 5% | 5% |
| sunflowers | - | - | 100% | - | - |
| daisy | - | - | 5% | 95% | - |
| roses | - | 10% | - | 5% | 85% |


NEXT IMAGE
Source: Local model
Latency: 419ms
Label: sunflowers, Confidence: 0.88