

Topic 10

Cognitive Services

ST0249 (AIML) AI & MACHINE LEARNING

Learning Outcomes

- Cognitive Services
 - Understanding Cognitive Services
 - Apply Vision Cognitive Service

Understanding Cognitive Services

Cognitive Service

- A cognitive services is an implementation of an AI algorithm or Machine Learning algorithm as a web service
- As an application developer, you can call the web service API with the input data to obtain the output that you want
- There are many Cognitive Service APIs providers
 - Microsoft Cognitive Services
 - Amazon
 - Google
 - IBM Watson
 - etc

Activity

<https://deepai.org>

[] DeepAI

RESEARCHERS

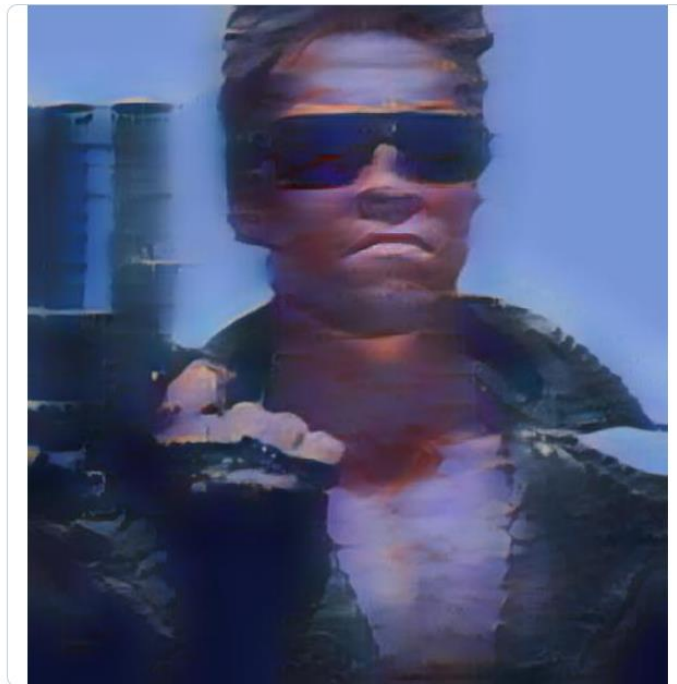
DEVELOP

AI

ENTERPRISE

PRICING

...



Neural Style API

by Justin Johnson · ❤️ 86 · ➦ share

Transfers the style from one image onto the content of another image.

⬆ Content ✓

⬆ Style ✓

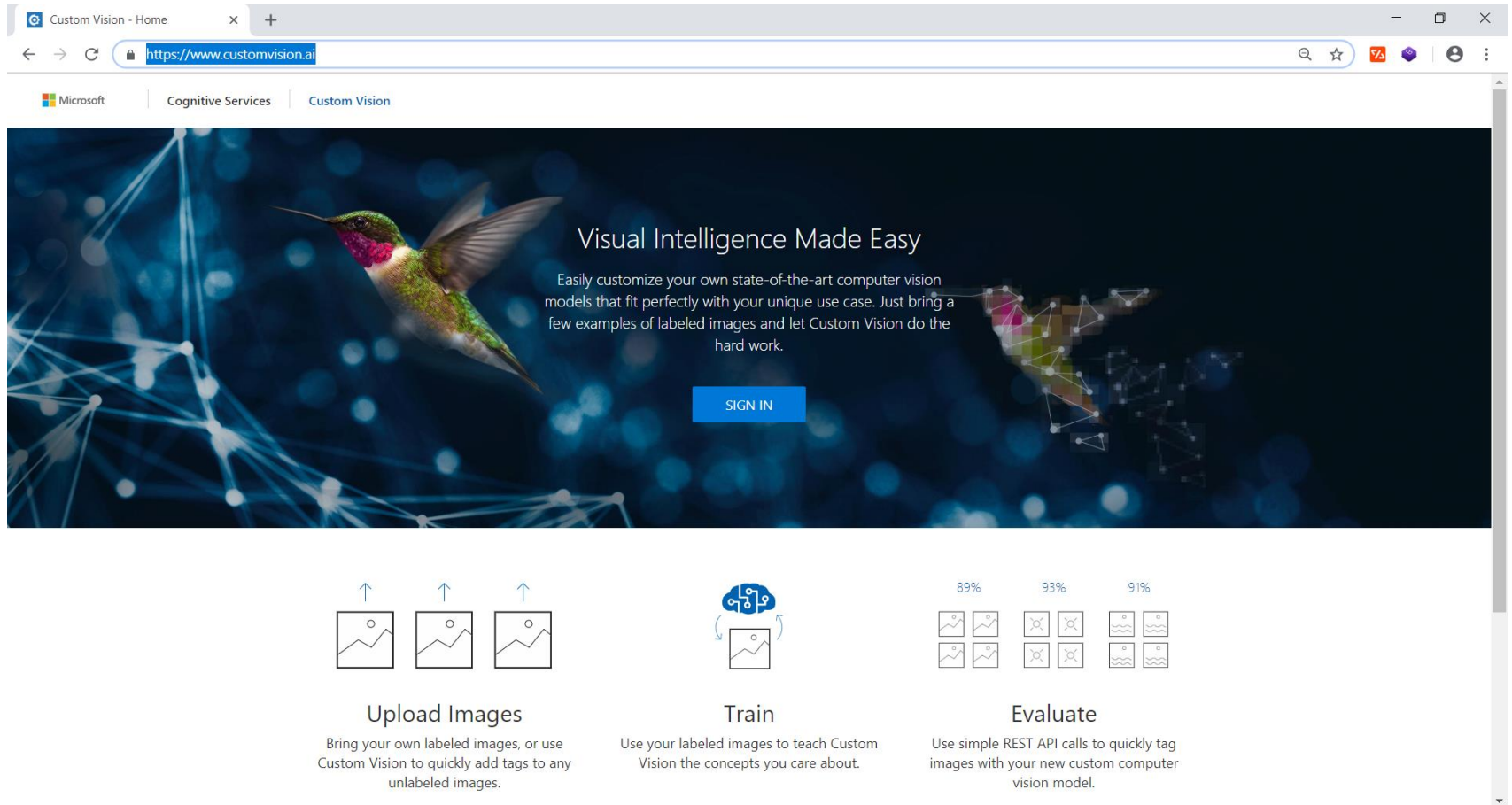
➦ url upload

API Docs



Applying Vision Cognitive Services

<https://www.customvision.ai/>



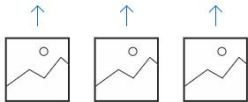
The screenshot shows the Custom Vision website homepage. The browser's address bar displays <https://www.customvision.ai/>. The page features a large hero section with a hummingbird and a neural network background. The main heading is "Visual Intelligence Made Easy", followed by a subheading: "Easily customize your own state-of-the-art computer vision models that fit perfectly with your unique use case. Just bring a few examples of labeled images and let Custom Vision do the hard work." A blue "SIGN IN" button is positioned below the text. The page is divided into three main steps: "Upload Images", "Train", and "Evaluate". Each step includes an icon, a title, and a brief description of the process.

Microsoft | Cognitive Services | Custom Vision

Visual Intelligence Made Easy


Easily customize your own state-of-the-art computer vision models that fit perfectly with your unique use case. Just bring a few examples of labeled images and let Custom Vision do the hard work.

[SIGN IN](#)



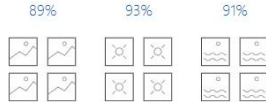
Upload Images

Bring your own labeled images, or use Custom Vision to quickly add tags to any unlabeled images.



Train

Use your labeled images to teach Custom Vision the concepts you care about.



Evaluate

Use simple REST API calls to quickly tag images with your new custom computer vision model.

Documentation

<https://docs.microsoft.com/en-us/azure/cognitive-services/custom-vision-service/>

Azure Custom Vision

<https://docs.microsoft.com/en-us/azure/cognitive-services/custom-vision-service/home>

Azure Custom Vision is a cognitive service that lets you build, deploy, and improve your own image classifiers. An image classifier is an AI service that applies labels (which represent classes) to images, according to their visual characteristics.

Unlike the Computer Vision service, Custom Vision allows you to determine the labels to apply.

<https://docs.microsoft.com/en-us/azure/cognitive-services/custom-vision-service/getting-started-build-a-classifier>

- Create the project
- Upload Training Images
- Tag images
- Train model
- Test model
- Use model

Create new project

×

Name*

Enter project name

Description

Enter project description

Resource Group*

[create new](#)

Project Types ⓘ

☒ Classification

☐ Object Detection (preview)

Classification Types ⓘ

☒ Multilabel (Multiple tags per image)

☐ Multiclass (Single tag per image)

Domains ⓘ

☒ General

☐ Food

☐ Landmarks

☐ Retail

☐ Adult


☐ General (compact)

☐ Landmarks (compact)

☐ Retail (compact)

Cancel

Create project

 Fruit

Training ImagesPerformancePredictionsTrainQuick Test

Filter

Iteration

Workspace

Tags

TaggedUntagged

Showing: all tagged images

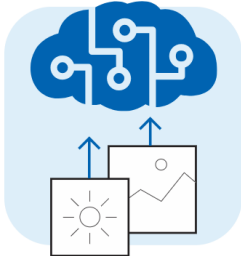
Search for

Add images

Delete

Tag images

Select all



Looks like you don't have any images here!

Go ahead and browse for images to upload to your project, tag them, and they will be ready to be trained.

Add images

.JPG, .PNG, .BMP format, up to 6 MB per image




Image upload



Add Tags



Uploading



Summary



4 images will be added...

Add some tags to this batch of images...

My Tags

Add a tag and press enter

fruit



Upload 4 files

Image upload



Add Tags



Uploading




Summary



4 images uploaded successfully

Done

 Fruit Demo

Training ImagesPerformancePredictionsTrainQuick Test

Iterations

Probability Threshold: 50% ⓘ

Iteration 6

Training...

Iteration 5

Trained : moments ago
with General (compact)
domain

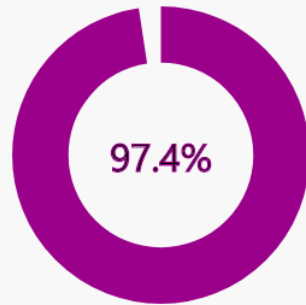
DeleteExport

Iteration 6

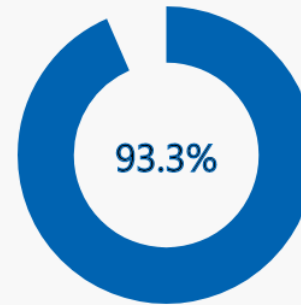
Training...

Last checked: 7/23/2018, 5:36:49 PM

Precision ⓘ



Recall ⓘ



Performance Per Tag

Tag	Precision	^	Recall
strawberry	99.2%		99.2%
Banana	99.1%		97.2%
Pineapple	98.9%		95.2%
Apple	98.4%		89.5%
Orange	98.3%		94.1%
Passionfruit	96.8%		85.1%
Coconut	91.1%		92.0%

Summary

What we have learnt

- Understand what are Cognitive Services
- Apply Vision Cognitive Service