



## Custom Vision

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# Why Microsoft Cognitive Services?

## Easy

## Flexible

## Tested

Roll your own with REST APIs

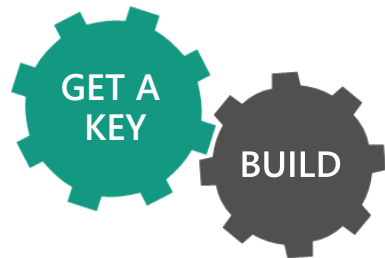
Integrate into the language and platform of your choice

Built by experts in their field from Microsoft Research, Bing, and Azure Machine Learning

Simple to add: just a few lines of code required

Breadth of offerings helps you find the right API for your app

Quality documentation, sample code, and community support



# The problem

Image understanding in human-computer interaction is:

## Technically challenging

It's exceedingly difficult to enable a computer to understand what a person wants and to find the pieces of information that are relevant to their intent.

## Costly to implement

Building and maintaining machine learning systems requires a large investment of time, money and engineering resources

## Often domain specific

In the past, building your own machine learned models often required assistance of a team of data scientists that would customize the models to the specific domain.



# Custom Vision Service

Custom Vision Service is an easy-to-use tool for prototyping, improving, and deploying a custom image classifier to a cloud service, without any background in computer vision required.



# Example use cases

Custom Vision Service makes it easy to build a custom image classifier. For example:

Identify whether a photo includes a picture of your product

Differentiate between species of animals or types of tools



## Advantages

- ✓ Well suited for classifying images where the item you are trying to identify is a main subject in the photo
- ✓ Robust to subtle differences in subjects- so you only need a limited amount of example training data to get started

## Constraints

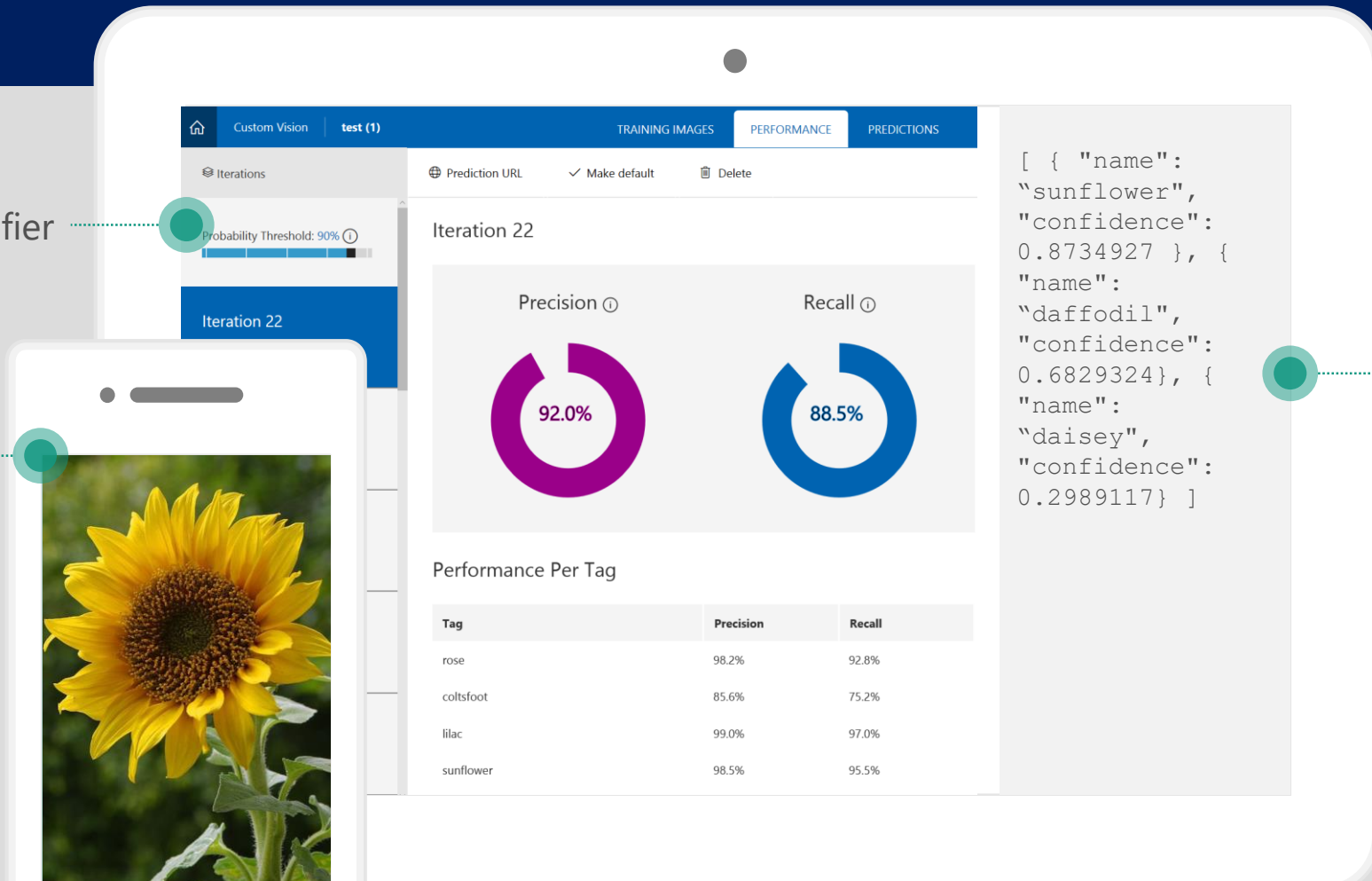
- ✓ Object Detection with bounding boxes is not yet available in v1
- ✓ Intended to be robust to subtle differences, so v1 is not well suited to tasks like defect detection/quality assurance tasks

# Example: flower recognition

Model trained to recognize species of flowers.

Build classifier

Classify new images by calling http endpoint



Results available for your application

# Easy and fast

Custom Vision Service is designed to be straightforward to use, regardless of whether you have any experience in computer vision.

It only takes 30 images per category to build your first prototype classifier. Build a new classifier in minutes!

Training your classifier takes <2 minutes

Once you build your classifier, you can deploy it to an http endpoint for use in your application

Straightforward UX

REST APIs make bulk and programmatic actions simple





# Improves over time

**Custom Vision Service may be fast to prototype, but its true power develops over time as it helps you improve your classifier.**

Custom Vision Service handles testing your classifier and gives guidance about how to improve it

It is designed to “circumvent experience,” by building in heuristics that computer vision practitioners know about from experience (while giving you the choice to modify options when you want to)

As images are submitted to your endpoint, Custom Vision Service saves these images uses active learning to suggest to you which images you should labeling to help improve your classifier. Over time, your model should improve its performance on real world data

Easy to deploy updated models- and to roll back!



# On the edge

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[aka.ms/puppetshow](https://aka.ms/puppetshow)

[aka.ms/puppetsource](https://aka.ms/puppetsource)



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# Microsoft Cognitive Services

*Give your apps  
a human side*



## Vision

Computer Vision | Content Moderator | Emotion | Face | Video | Video Indexer | Custom Vision Service



## Speech

Bing Speech | Custom Speech Service | Speaker Recognition



## Language

Bing Spell Check | Language Understanding | Linguistic Analysis | Text Analytics | Translator Text & Speech | Web Language Model



## Knowledge

Academic Knowledge | Entity Linking | Knowledge Exploration | Recommendations | QnA Maker | Custom Decision Service



## Search

Bing Autosuggest | Bing Image Search | Bing News Search | Bing Video Search | Bing Web Search | Bing Custom Search



## Labs

Project Prague | Project Cuzco | Project Johannesburg | Project Nanjing | Project Abu Dhabi | Project Wollongong



# Next steps

- To learn more about LUIS and Microsoft Cognitive Services:
  - [www.microsoft.com/cognitive](http://www.microsoft.com/cognitive)
- To try and evaluate Custom Vision Service for free, please visit:
  - [www.customvision.ai](http://www.customvision.ai)