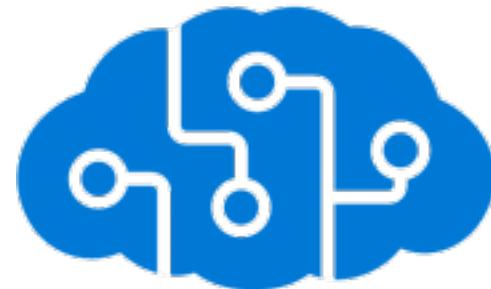




Dinesh: “The core tech is valid, it’s just need to be trained”

Microsoft Azure Cognitive Services



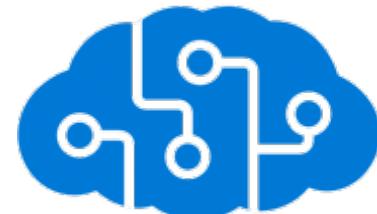
Perry Shalom

Android / iOS / Server
LivePerson, Afeka



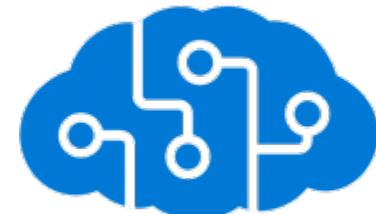
Nikolai Volodin

iOS Developer
ONO Apps



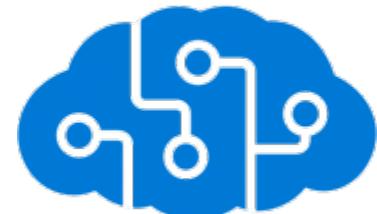
Snir Levy

Solution Architect
Microsoft



Avi Cohen

Azure Lead
DOIT



Microsoft Cognitive Services

Give your apps a human side

Agenda

Introduction to Azure Cognitive Services

Hands On with Azure Face API and Python
Celebs recognition

Create your own model – and train it

Use Azure Face API as a security guard to your app on iOS and Xcode
Create security guard App like Uber

Google Cloud

Premier Partner



Cloud Solution Provider (CSP)

DoIT
INTERNATIONAL



Avi Cohen, Microsoft Azure lead
// DoIT International

infolinks
INNOVATIVE ADS POWERED BY INTENT

como

HIRO

HPESTER **PEER5**

 **brightcom** 
ROUNDS
Fun • Together • Now

chosen

daton*ics*

kaminario.

ANAGOG
The Parking Network

 **treepedia**

ANI>VIEW™

 **Jelly Button Games**

 **FAIRFLY**

Yallo

cellebrite
delivering mobile expertise

 **TabTale**

fiverr®

 **ironSource**

LiveU

 **myThings**

 **Paybox**

 **Kenshoo**

Why Microsoft Cogni

Easy

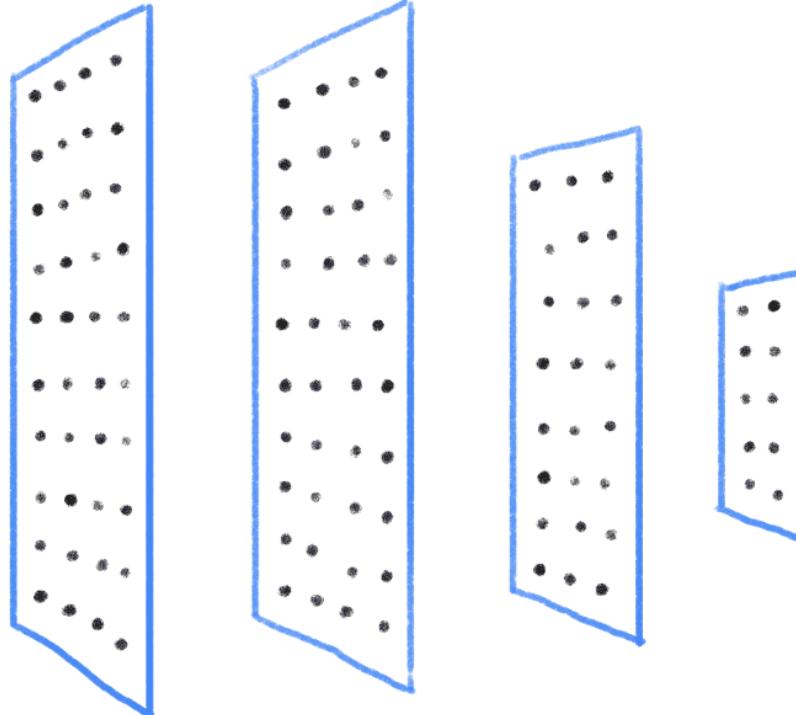
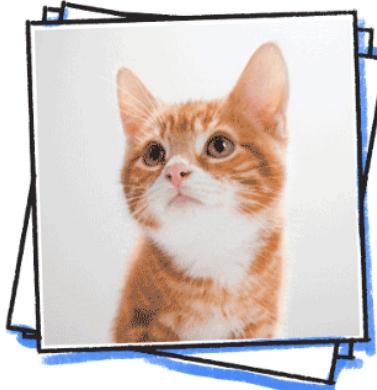
Roll your o

Simple to a
lines of coc

CAT

(LABLED)
PHOTOS

DOG



OUTPUT

Id
Bing,
ng
mple code,

erflow

Build



python™

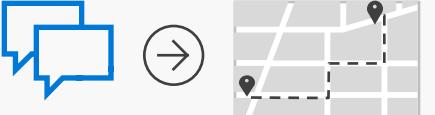
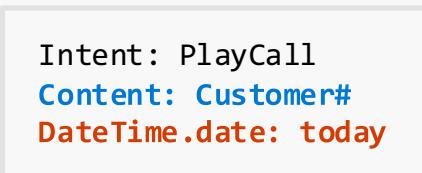
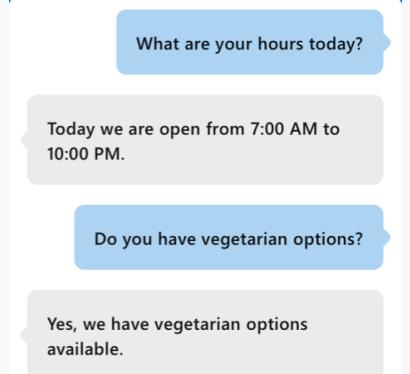


msdn®

uservoice



A variety of real-world applications

Vision	Speech	Language	Knowledge	Search											
 What is in the image or video? Intelligent Image insights  <table border="1"><tr><td>Category</td><td>People; 5 faces</td></tr><tr><td>Adult/Racy?</td><td>False/False</td></tr><tr><td>Dominant colors</td><td></td></tr><tr><td>Accent color</td><td></td></tr></table> Computer Vision	Category	People; 5 faces	Adult/Racy?	False/False	Dominant colors		Accent color		 Give me directions to the nearest local branch Speech to text  <table border="1"><tr><td>Convert spoken audio to text</td></tr><tr><td>Convert text to spoken audio</td></tr><tr><td>Extract intent of user</td></tr></table> Speech Service	Convert spoken audio to text	Convert text to spoken audio	Extract intent of user	 Play today's customer call recording Natural Language Processing   Now Playing 11/29/2016 Customer Call Language Understanding	 QnA Pair of this site? Automatic extraction of questions and answers  QnA Maker	 Search for 'fraud prevention' Intelligent web search  Bing News Search
Category	People; 5 faces														
Adult/Racy?	False/False														
Dominant colors															
Accent color															
Convert spoken audio to text															
Convert text to spoken audio															
Extract intent of user															

Microsoft Cognitive Services

Give your apps a human side



Vision

From faces to feelings, allow your apps to understand images and video



Speech

Hear and speak to your users by filtering noise, identifying speakers, and understanding intent



Language

Process text and learn how to recognize what users want



Knowledge

Map complex information and data in order to solve specific tasks



Search

Access billions of web pages, images, videos, and news with the power of Bing



Labs

An early look at emerging Cognitive Services technologies: discover, try, and give feedback on new technologies before general availability

Cognitive Services capabilities

Infuse your apps, websites, and bots with human-like intelligence



Vision

- Object, scene, and activity detection
- Face recognition and identification
- Celebrity and landmark recognition
- Emotion recognition
- Text and handwriting recognition (OCR)
- Video metadata, audio, and keyframe extraction and analysis
- Explicit or offensive content moderation
- Custom image recognition



Speech

- Speech transcription (Speech-to-text)
- Speech Synthesis (Text-to-speech)
- Real-time speech translation
- Speaker identification and verification
- Custom Speech models for transcription and translation
- Custom voice



Language

- Language detection
- Text sentiment analysis
- Key phrase extraction
- Entity recognition
- Spell checking
- Explicit or offensive text content moderation, PII detection
- Text translation
- Customizable text translation
- Contextual language understanding



Knowledge

- Q&A extraction from unstructured text
- Knowledge base creation from collections of Q&As
- Semantic matching for knowledge bases
- Customizable content personalization learning



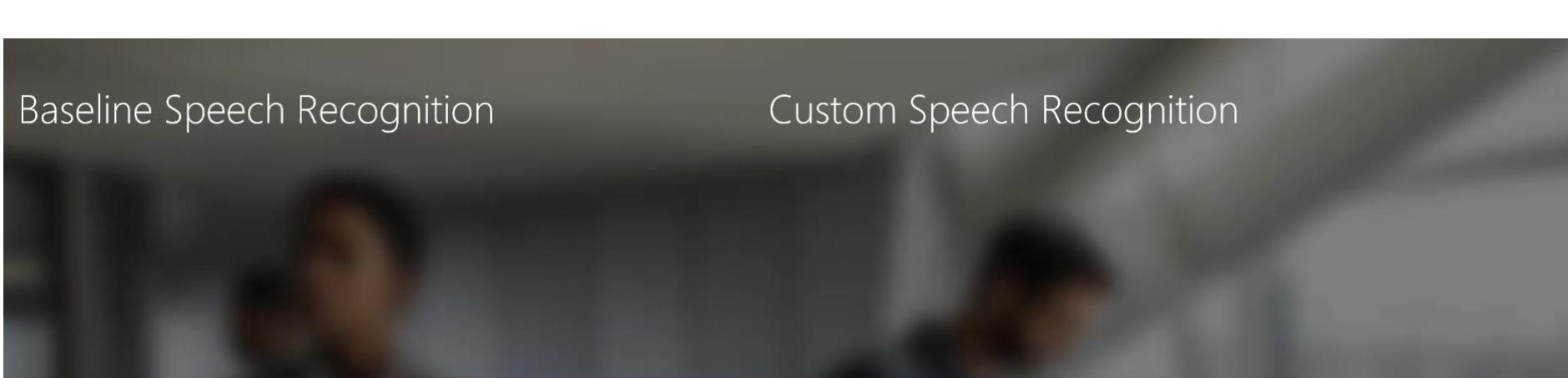
Search

- Ad-free web, news, image, and video search results
- Trends for video, news
- Image identification, classification and knowledge extraction
- Identification of similar images and products
- Named entity recognition and classification
- Knowledge acquisition for named entities
- Search query autosuggest
- Ad-free custom search engine creation



Speech

Convert spoken audio into text, use voice for verification, or add speaker recognition to your app



Baseline Speech Recognition

Custom Speech Recognition



Speech



Speaker Recognition

Use speech to identify and verify individual speakers



Translator Speech

Easily conduct real-time speech translation with a simple REST API call



Custom Speech

Overcome speech recognition barriers like speaking style, background noise, and vocabulary



Unified Speech service

Unified speech service for speech-to-text (general and custom speech models), text-to-speech (general and custom voice models) and **speech translation** (general and custom translator)



Bing Speech

Convert speech to text and back again to understand user intent

Allow your apps to process natural language with pre-built scripts, evaluate sentiment and learn how to recognize what users want

I had a wonderful trip in Seattle, I enjoyed the Space Needle and Pike Place Market.

Analyzed text JSON

LANGUAGES: English (confidence: 100 %)

KEY PHRASES:

SENTIMENT: 73 %

LINKED ENTITIES (PREVIEW): a

Analyze



Text Analytics

Detect sentiment, key phrases, language, and extract top entities from your text



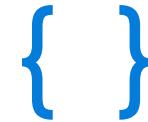
Bing Spell Check

Detect and correct spelling mistakes within your app



Translator Text

Easily perform speech and text translation



Language Understanding

Teach your apps to understand commands from your users



Knowledge

Map complex information
and data in order to solve
specific tasks

The screenshot shows a Microsoft FAQ QnA bot window. The title bar reads "Microsoft FAQ QnA bot". The window contains the following text exchange:

Bot: Hi, I'm a QnA chat bot. How can I help you today?

You: What is a product key?

Bot: A product key is a 25-character code that comes with a Microsoft Office product. The product key allows you to install and activate the Office product on your PC.

Bot at 2:52:10 PM

At the bottom, there is a message input field with a camera icon and the placeholder "Type your message...".



Knowledge



Custom Decision

Create custom experiences
with adaptive, contextual
decision-making



QnA Maker

Distill information into
conversational, easy-to-navigate
answers



Search

Add Bing Search APIs to your apps and harness the ability to comb billions of webpages, images, videos, and news with a single API call



Accent Chairs You'll Love | Wayfair

USD 251.68



Abbyson Living BR-AC1059-BLU Sierra Tufted Velvet Wingback ...



Pair of Guillerme et Chambron Black Cerused Oak 'Edouard ...

USD 8600





Search



Bing Search

Web Search
Image Search
News Search
Video Search



Bing Visual Search

Get rich insights to help build compelling
image applications on
the device of your choice



Bing Entity Search

Enrich user experiences with
contextual entity search results



Bing Autosuggest

Give your app intelligent autosuggest
options for searches



Bing Custom Search

Create a highly-customized
web search experience

Bing Statistics add-in

Get powerful Bing API usage insights in an easy-to-use add-in



Vision

Image-processing algorithms to smartly identify, caption, and moderate your pictures





Vision



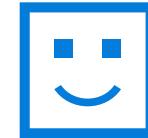
Computer Vision

Distill actionable information from images



Video Indexer

Process and extract smart insights from videos



Face

Detect, identify, analyze, organize, tag faces in photos, and even recognize emotions



Content Moderator

Machine-assisted moderation of text and images, augmented with human review tools



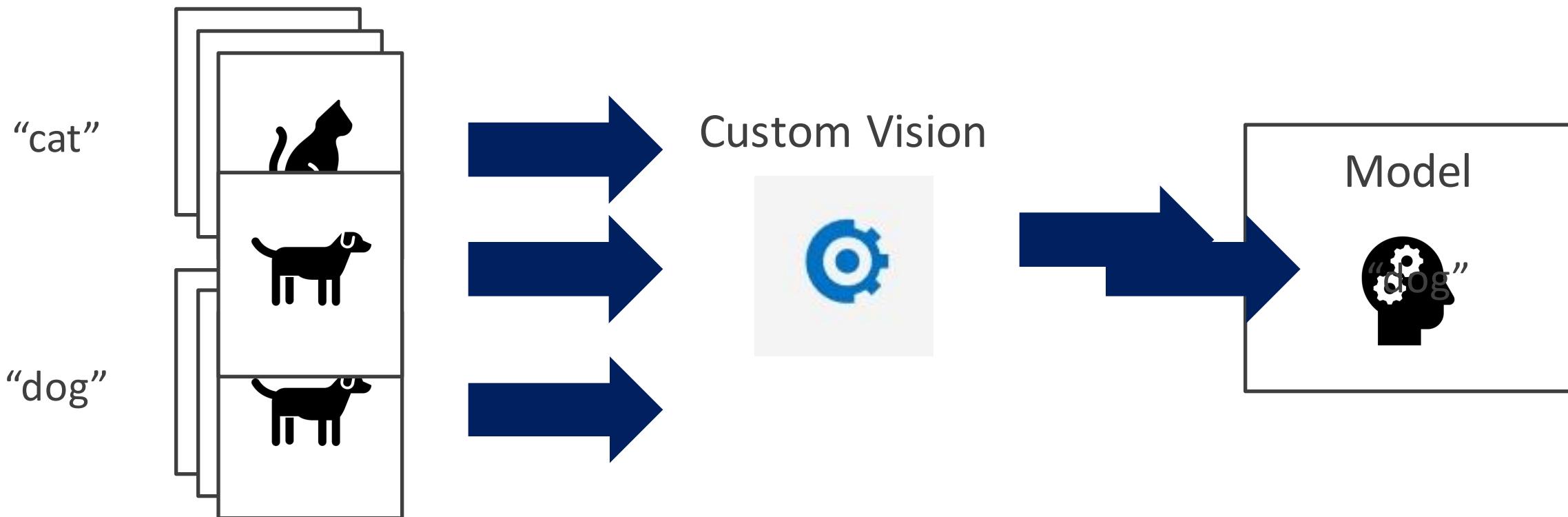
Custom Vision

Customizable web service that learns to recognize specific content in imagery

Custom Vision Service

What is it?

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 or deep learning required.



Example Customer Scenarios

Customer Support

- Enable a customer to identify a product for support by taking a photo. No finding the manual or pulling the appliance out to identify it!

Service Engineers

- Identify parts for ordering

Manufacturing

- Fault detection on assembly lines to avoid machine downtime and drop in production rates (provided differences are obvious)

Data Scientists

- Automatic tagging instead of manual, to create features or labels



Custom Vision Service

A customizable web service that learns to recognize specific content in imagery

Upload Images

Upload your own labeled images, or use Custom Vision Service to quickly tag any unlabeled images.

Train

Use your labeled images to teach Custom Vision Service the concepts you want it to learn.

Evaluate

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

Active learning

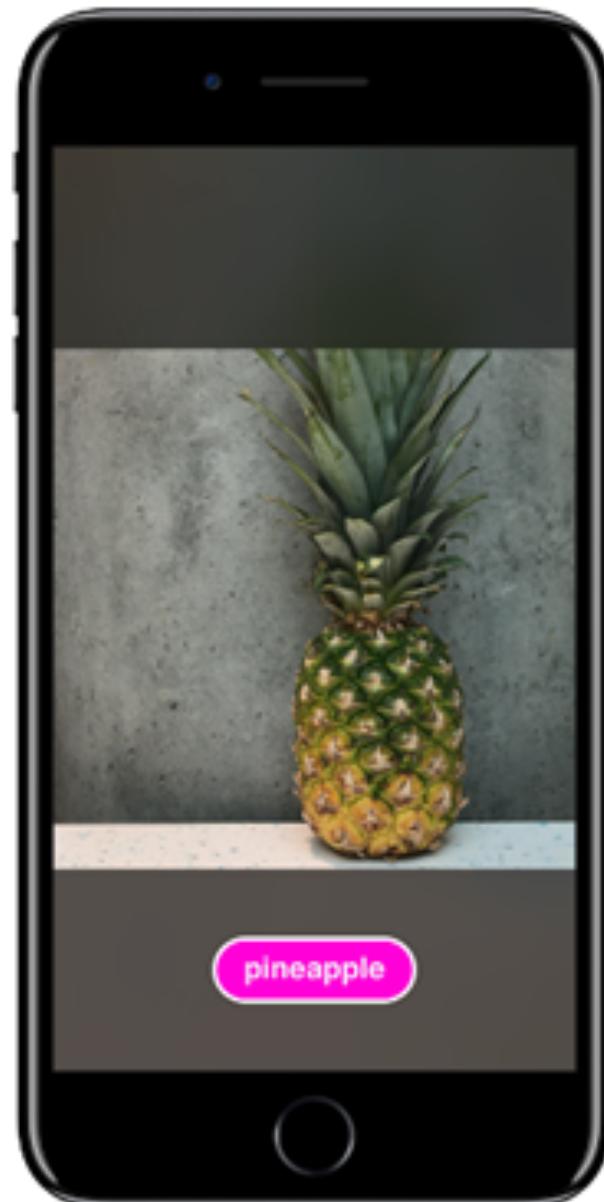
Images evaluated through your custom vision model become part of a feedback loop you can use to keep improving your classifier.

Best Practices for using Custom Vision

- Use at least 30 images for each tag
- Images should be the focus of the picture
- Use sufficiently diverse images and backgrounds (ex: cats with red background and dogs with blue background)
- Train with images that are similar in {quality, resolution, lighting, etc.} to the images that will be used in prod
- Supports Microsoft accounts (MSA) and AAD

Export models to mobile!

- Announcement:
<https://aka.ms/cvsexport>
- Sample:
<https://github.com/Azure-Samples/cognitive-services-ios-customvision-sample>
- Xamarin port:
<https://github.com/Xamarin/ios-samples/tree/master/ios11/Co>



Pricing and more

- Up to 10 transactions per second. Need to ask for more
- Storage rates are on daily calculation
- An Analyze call containing Tag, Face, and Adult would count as three transactions

Vision API

TIER	FEATURES	PRICE
Computer Vision API—free		5,000 transactions free per month
S1	Tag, Face, GetThumbnail, Color, or Image Type	0-1M transactions — \$1 per 1,000 transactions
	OCR, Adult, Celebrity, or Landmark	0-1M transactions — \$1.50 per 1,000 transactions

Pricing and more

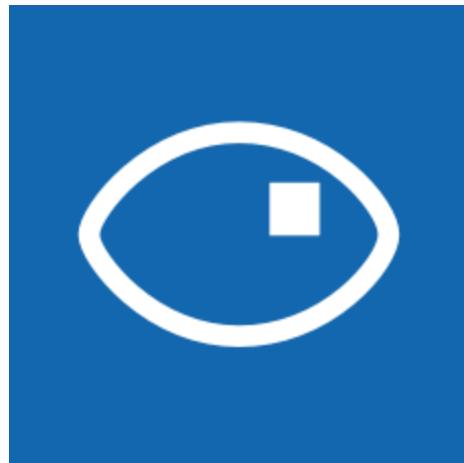
Custom Vision

Free	2 projects, 5,000 training images per project, 10,000 predictions	\$0
Standard	100 projects, Upload, training and prediction transactions	\$1 per 1,000 transactions

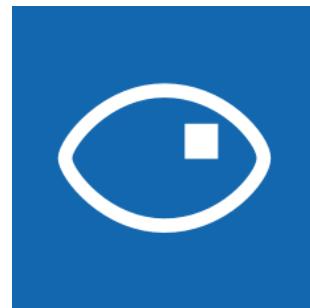
Face API

TIER	FEATURES	PRICE
Face API – free	Up to 20 transactions per minute	30,000 transactions free per month
Face API – standard	0–1,000,000 transactions	\$1 per 1,000 transactions
Face Storage	Stores images sized up to 4 MB each	\$0.25 per 1,000 images per month

Computer Vision



Snir





Open Computer vision API in Service in Azure



Secure | https://ms.portal.azure.com/#create/hub

Preview Microsoft Azure Report a bug Search resources, services, and data

Create a resource

All services

Favorites

Resource groups

Dashboard

All resources

App Services

SQL databases

Azure Cosmos DB

Load balancers

Storage accounts

Virtual networks

Azure Active Directory

Monitor

Advisor

Security Center

New

computer

Computer Vision

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Cosmos DB Quickstart tutorial

Kubernetes Service Quickstart tutorial

DevOps Project Quickstart tutorial

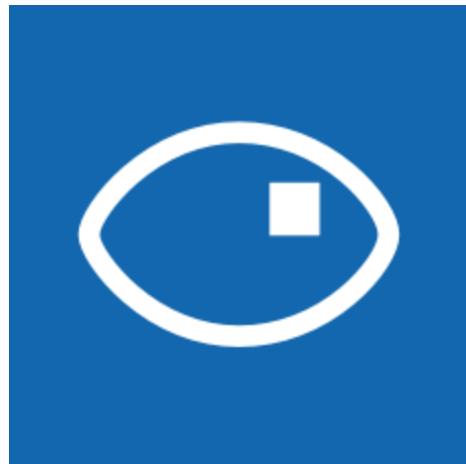


Open Computer vision API in Service in Azure

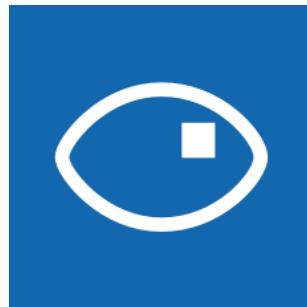


- Name : MeetUP
- Key : 53623c2fab124b6187f3e1ee2af71439
- Region

Hands on with Azure Face API and Python



Perry





Get to know

```
def selectedLanguage:  
    allOtherLanguages = ["JAVA", "Node.js", "C#"]  
    sdkLanguages = ["Windows", "Swift", "Android", "Ruby", "Python", "Go", "Node.js"]  
    print('whyPython', sdkLanguages, allOtherLanguages)
```



Computer vision API



- Analyzes visual content in different ways based on developers' inputs.
- The computer vision is already trained with 1M celebs from our planet (demo).
- You can write [Python code](#) that uses [Vision API](#) and gets info about an image with a celeb(s).



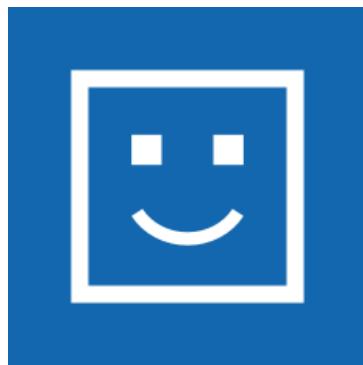
Computer vision API



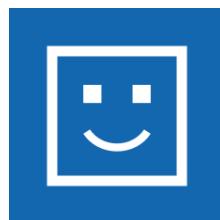
code example



Face API



Snir



Face



```
},
"smile": 1.0,
"headPose": {
  "pitch": 0.0,
  "roll": 3.2,
  "yaw": 11.4
},
"gender": "male",
"age": 30.0,
"facialHair": {
  "moustache": 0.4,
  "beard": 0.4,
  "sideburns": 0.4
},
"glasses": "NoGlasses",
"makeup": {
  "eyeMakeup": false,
  "lipMakeup": false
},
"emotion": {
  "anger": 0.0,
  "contempt": 0.0,
  "disgust": 0.0,
  "fear": 0.0
}
```

Face



Face detection

Detect faces and their attributes within an image

Face verification

Check if two faces belong to the same person

Similar face searching

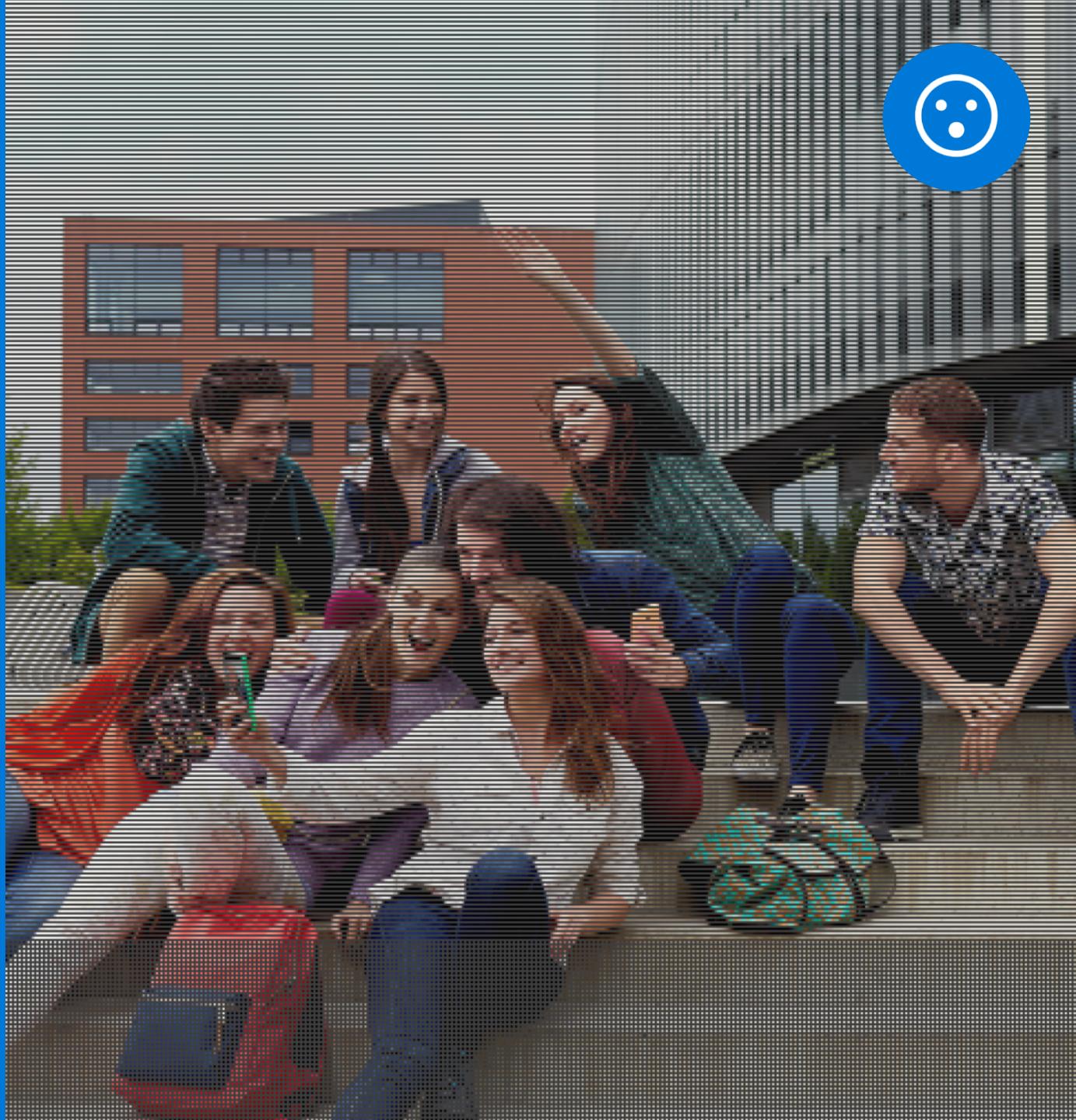
Find similar faces within a set of images

Face grouping

Organize many faces into groups

Face identification

Search which person a face belongs to

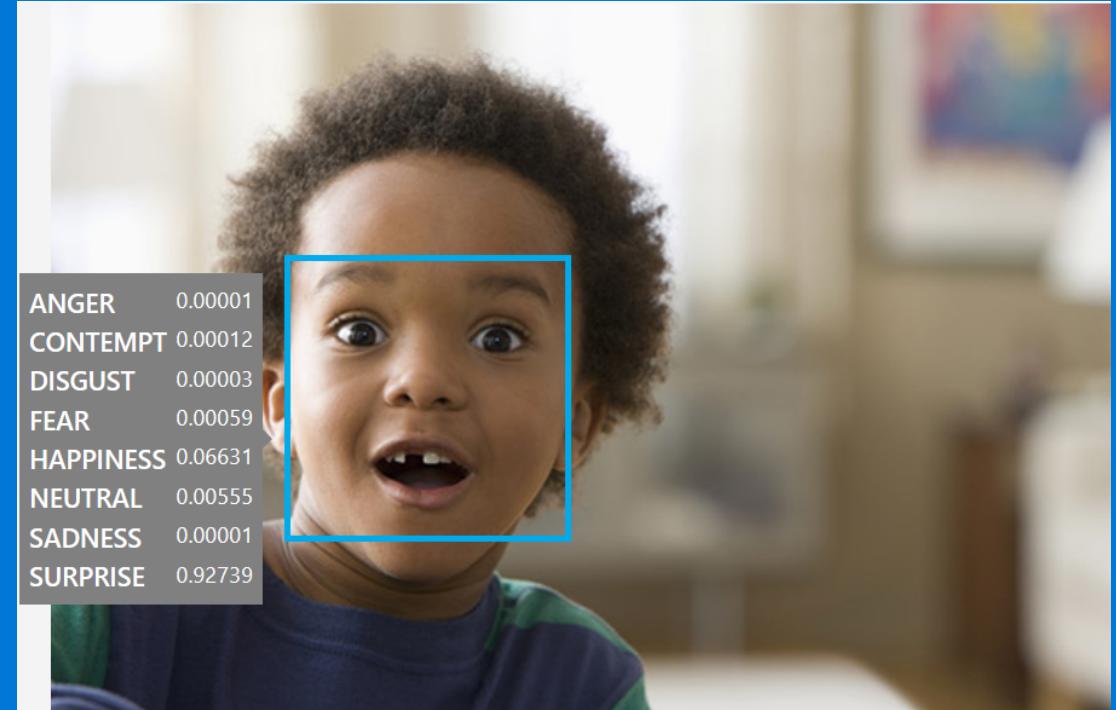


Emotion



Recognize
emotions

Understand content
within an image



Emotion

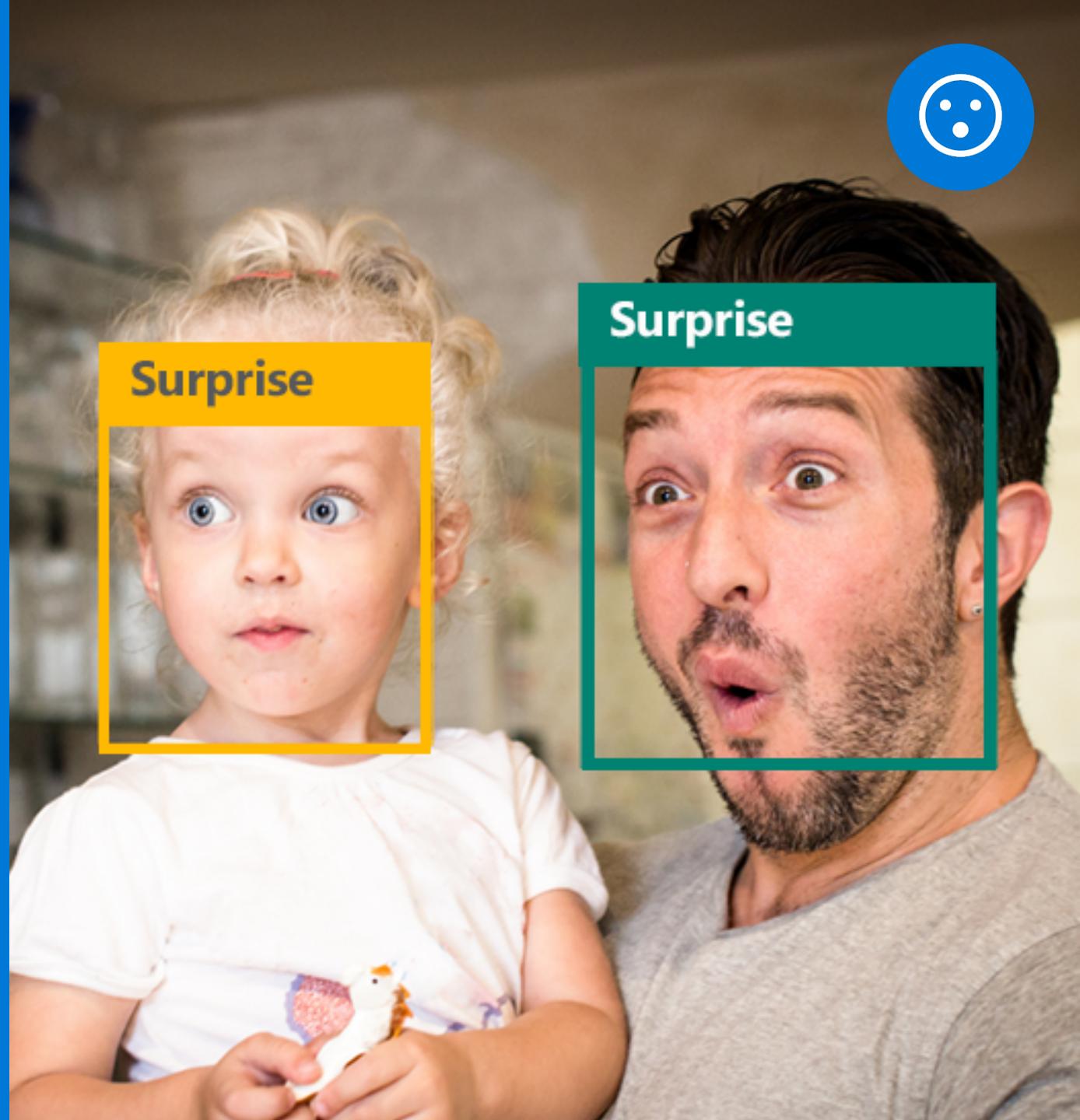


Face detection

```
"faceRectangle": {"width": 193,  
                 "height": 193,  
                 "left": 326,  
                 "top": 204} ...
```

Emotion scores

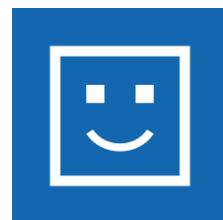
```
"scores": { "anger": 5.182241e-8,  
            "contempt": 0.0000242813,  
            "disgust": 5.621025e-7,  
            "fear": 0.00115027453,  
            "happiness": 1.06114619e-8,  
            "neutral": 0.003540177,  
            "sadness": 9.30888746e-7,  
            "surprise": 0.9952837}
```



Face API



Perry





Face API



- Defers from computer vision API. Why?
 - Concentrates on the face details, neglects the rest of the image.
 - Has much more attributes about face detection, computer vision returns less info (only [age](#), gender and coordinates).
- [Face attributes](#) - demo #1 ([detect face](#)).



Face API – Train the model



- How to recognize a person:
 - [Create a person group](#)
 - [Add a person to a group](#)
 - [Add faces of a person from the group](#)
 - [Train all models in group...](#)
 - ... [Verify \(based on the trained models\)](#)
- Demo #2 - verify person



Face API Verify



- [LargePersonList vs. LargeFaceList:](#)
 - LargeFaceList can hold up to 1,000,000 faces, LargePersonList can hold up to 1,000,000 persons (each person can have 248 faces).
- [Find Similar](#) is used for scenario like finding celebrity-like faces, similar face filtering, or as a light way face identification. But if the actual use is to identify person, please use [PersonGroup](#) / [LargePersonGroup](#) and [Face - Identify](#).

Face



Detection

```
"faceRectangle": {"width": 193, "height": 193,  
"left": 326, "top": 204}  
...  
...
```

Feature attributes

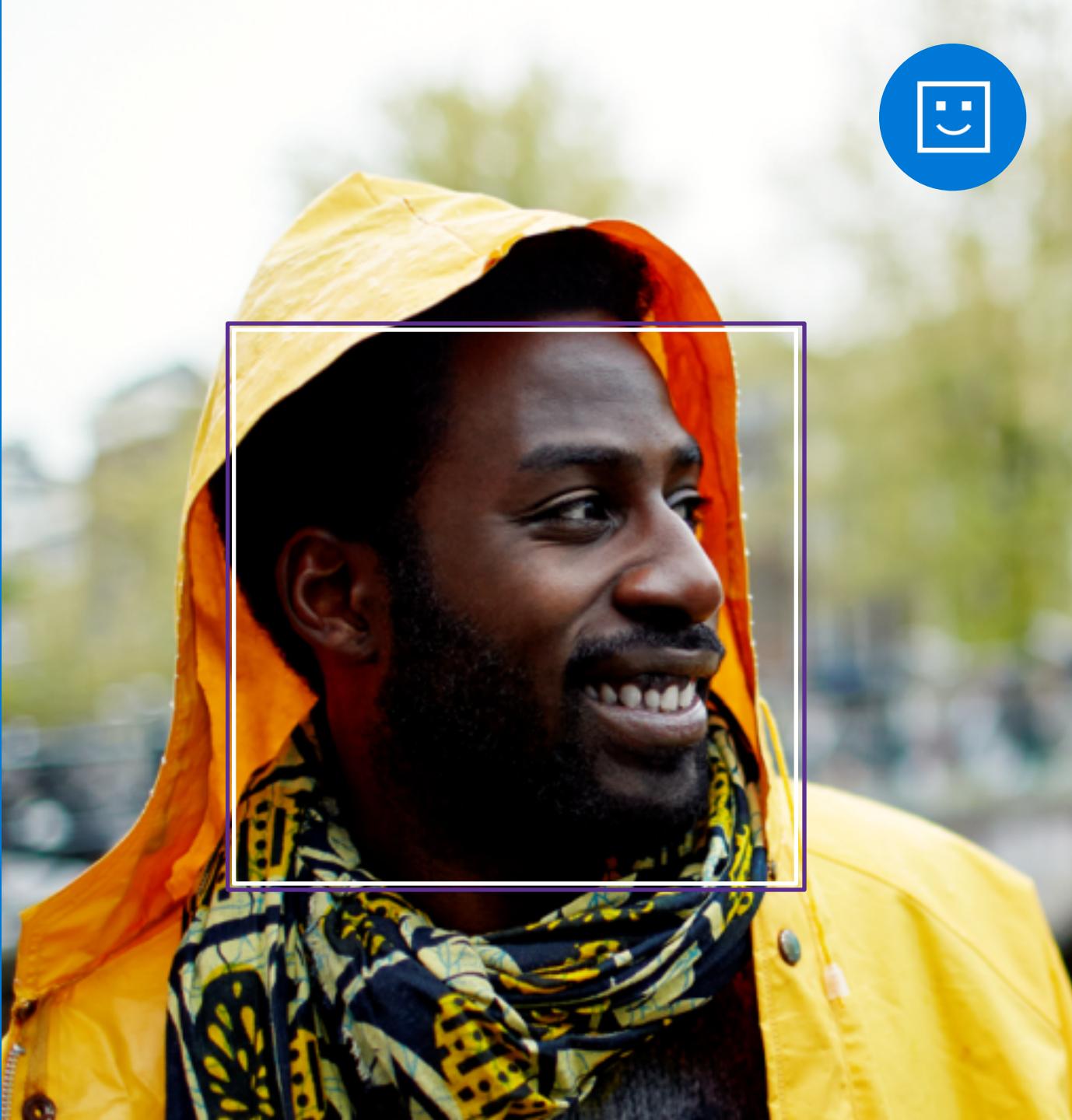
```
"attributes": { "age": 42, "gender": "male",  
"headPose": { "roll": "8.2", "yaw": "-37.8",  
"pitch": "0.0" }}
```

Grouping



Identification

Jasper Williams



Video Indexer

Unlock video insights

Upload your video and go

Start turning your video into insights right away.

Make your content more discoverable

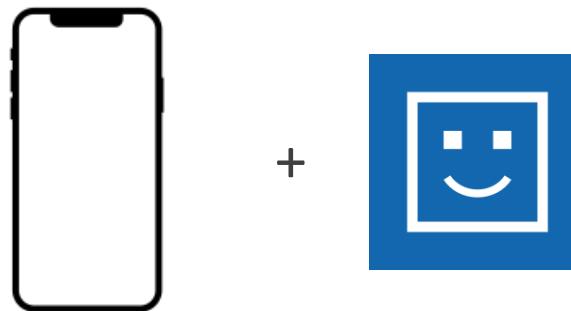
Enhance content discovery experiences such as search results by detecting spoken words, faces, characters, and emotions

Improve engagement with your video

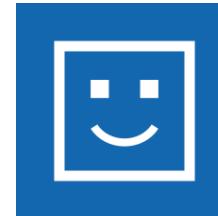
Metadata extracted by Video Indexer can be used to build powerful engagement experiences with recommendations, highlight clips, and interactive videos



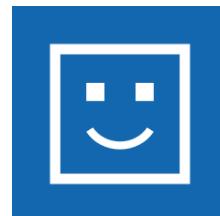
Use Azure Face API as a security guard to your app on iOS and Xcode



+



Nikolai





Face API on IOS APP



- [Face API SDK](#) Integration with Xcode: CocoaPods – Installation:
pod 'ProjectOxfordFace'.
- Written in ObjC, to [use it in Swift](#) you must import the library in
the bridging header. Demo



Face API on iOS APP



- How to recognize a person:
 - Create a person group
 - Add a person to a group
 - Add faces of a person from the group
 - Train all models in group...
 - ... Verify (based on the trained models)

Thanks!

Q&A

Are you still here?

The next slides are bonus slides, enjoy ☺



Vision

From faces to feelings, allow your apps to understand images and video

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



Computer Vision



FEATURE	VALUE
NAME:	
Description	{ "tags": ["train", "platform", "station", "building", "indoor", "subway", "track", "walking", "waiting", "pulling", "board", "people", "man", "luggage", "standing", "holding", "large", "woman", "yellow", "suitcase"], "captions": [{ "text": "people waiting at a train station", "confidence": 0.833099365 }] }
Tags	[{ "name": "train", "confidence": 0.9975446 }, { "name": "platform", "confidence": 0.995543063 }, { "name": "station", "confidence": 0.9798007 }, { "name": "indoor", "confidence": 0.927719653 }, { "name": "subway", "confidence": 0.838939846 }, { "name": "pulling", "confidence": 0.431715637 }]
Image format	"Jpeg"

Computer Vision



Analyze an image

Understand content within an image

OCR

Detect and recognize words within an image

Generate thumbnail

Scale and crop images, while retaining key content

Recognize celebrities

Thanks to domain-specific models, ability to recognize 200K celebrities from business, politics, sports, and entertainment around the world



Analyze image



Type of image

Clip Art Type	0 Non-clipart
Line Drawing Type	0 Non-Line Drawing
Black & White Image	False

Content of image

Categories	[{"name": "people_swimming", "score": 0.099609375}]
Adult Content	False
Adult Score	0.18533889949321747
Faces	[{"age": 27, "gender": "Male", "faceRectangle": {"left": 472, "top": 258, "width": 199, "height": 199}}]

Image colors

Dominant Color Background	White
Dominant Color Foreground	Grey
Dominant Colors	White
Accent Color	



OCR

Life is like riding
a bicycle

To keep your
balance you must
keep moving



OCR

JSON:

```
{  
  "language": "en",  
  "orientation": "Up",  
  "regions": [  
    {  
      "boundingBox": "41,77,918,440",  
      "lines": [  
        {  
          "boundingBox": "41,77,723,89",  
          "words": [  
            {  
              "boundingBox": "41,102,225,64",  
              "text": "LIFE"  
            },  
            {  
              "boundingBox": "356,89,94,62",  
              "text": "IS"  
            },  
            {  
              "boundingBox": "539,77,225,64",  
              "text": "LIKE"  
            }  
          ...  
        ]  
      ]  
    }  
  ]  
}
```



OCR

Good at

Scanned documents

Photos with text

Fine-grained
location information



Smart thumbnail

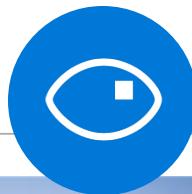
Smart cropping off



https://oxfordportal.blob.core.windows.net



https://oxfordportal.blob.core.windows.net



Content Moderator

Machine-assisted moderation of text and images, augmented with human review tools

Image moderation

Machine-learning based classifiers, custom blacklists, and Optical Character Recognition (OCR)

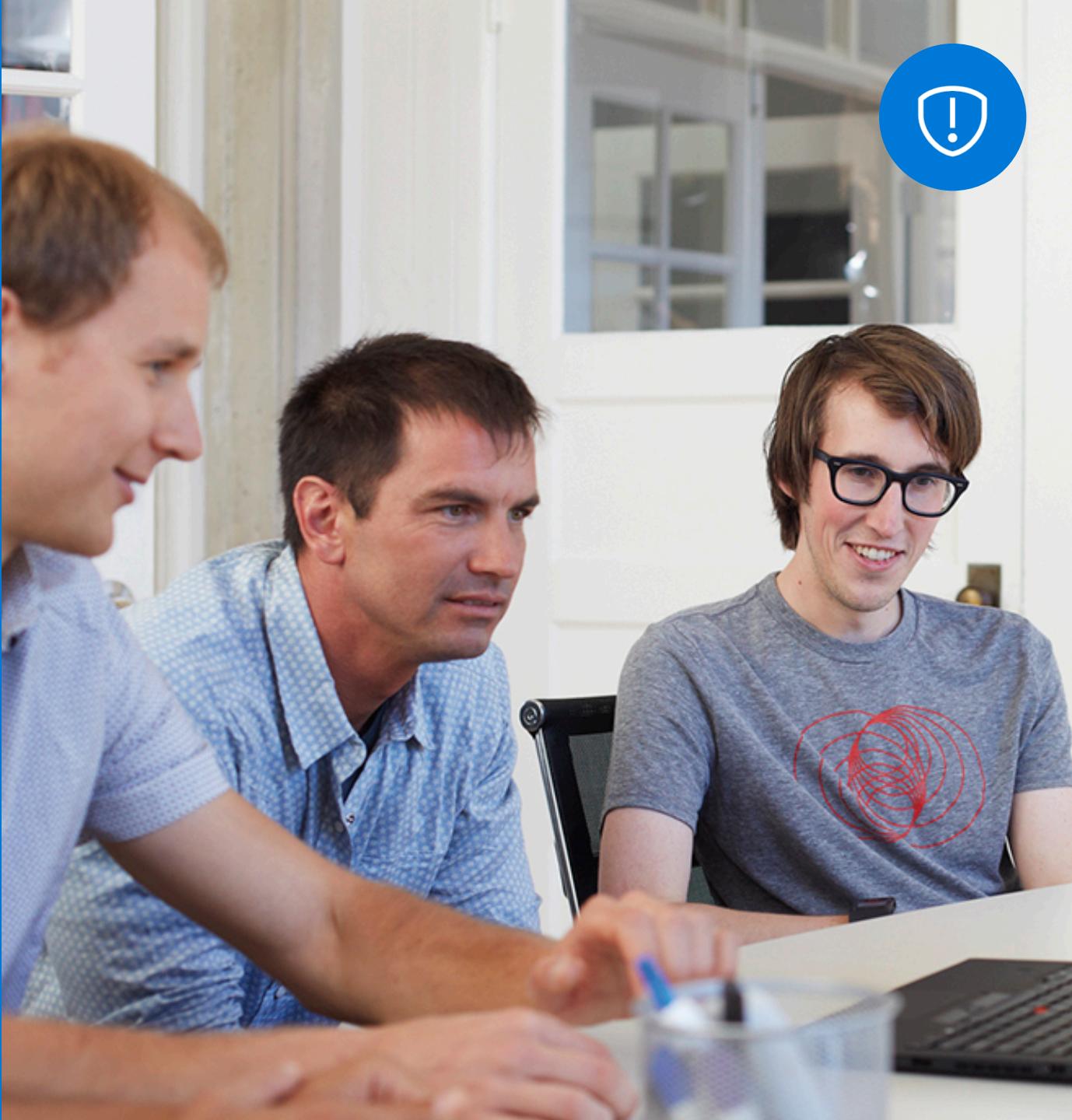
Text moderation

Helps you detect potential profanity in more than 100 languages and match text against your custom lists automatically.

Identification of possible Personally Identifiable Information (PII)

Video moderation (in Azure Media Services)

Scoring of possible adult content in videos.
Video moderation is currently deployed in preview on Azure Media Services



Content Moderator

Moderate

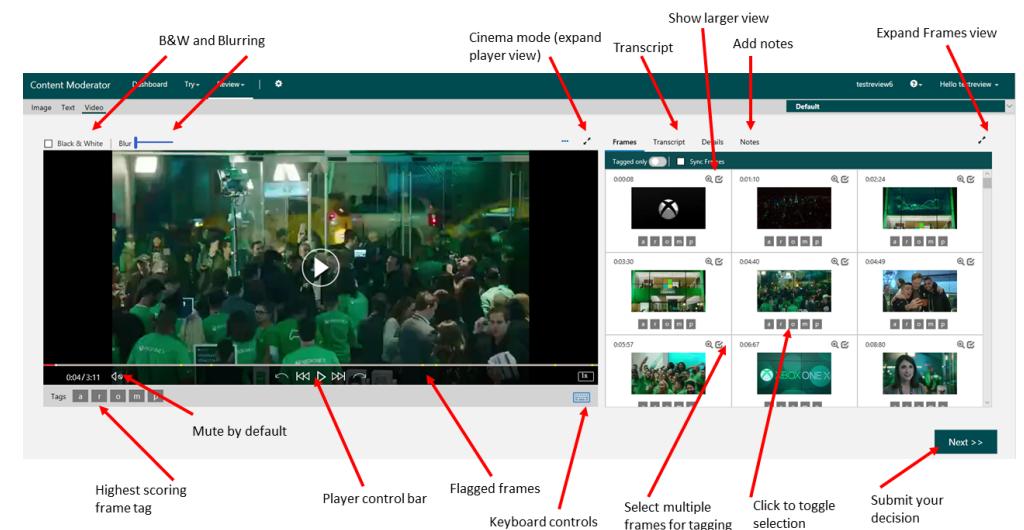
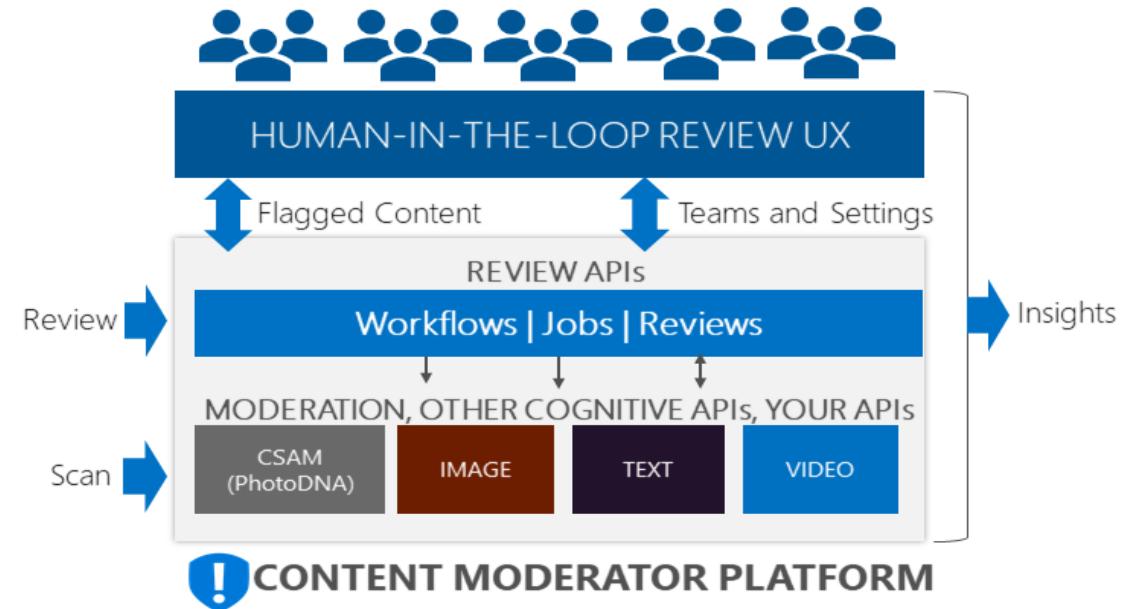
Utilize automated results to reduce time and detect unwanted or offensive content

Configure

Combine automated content moderation with human review and workflows

Review

Approve and reject flagged content to confidently improve filtering



Custom Vision

A customizable web service that learns to recognize specific content in imagery

Upload images

Upload your own labeled images, or use Custom Vision Service to quickly tag any unlabeled images

Train

Use your labeled images to teach Custom Vision Service the concepts you want it to learn

Evaluate

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

Active learning

Images evaluated through your custom vision model become part of a feedback loop you can use to keep improving your classifier



Custom Vision

Customize

Design your own state-of-the-art models
for unique use cases

Upload

Use labeled images to quickly train
and update your models

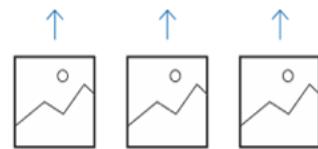
Export

Run models on a device or as a Docker
container with just one click



Results

Tag	Probability
daisy	99.9%
trillium	3.1%
lily of the valley	0.1%
dogwood	0.0%



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

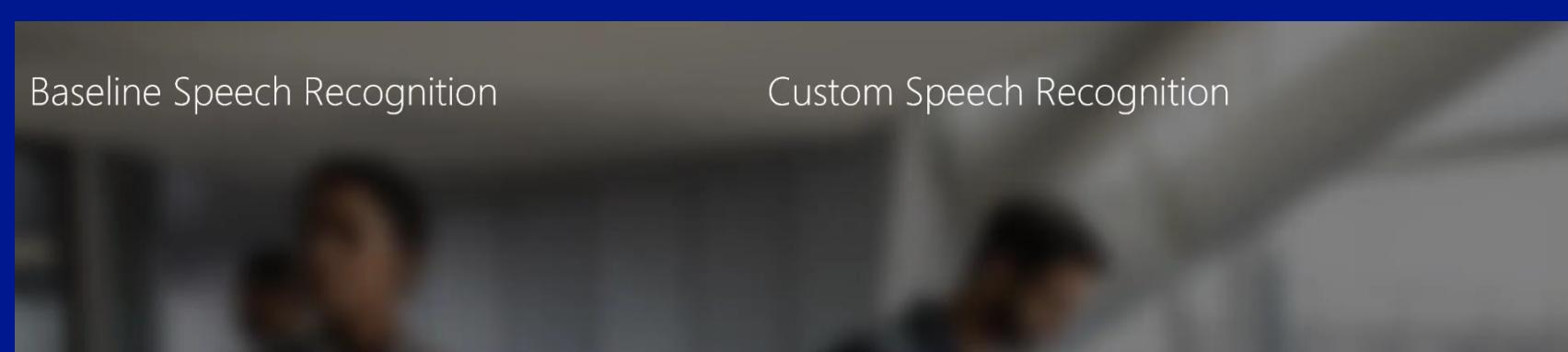
Use simple REST API calls to quickly tag
images with your new custom computer
vision model.

Speech



Hear and speak to your users by filtering noise,
identifying speakers, and understanding intent

Unified Speech service |
Speech to Text | Text to Speech | Speech Translation
Speaker Recognition



Unified Speech

Combine speech recognition, text-to-speech, customized voice models, and translation service

Speech to text

Convert continuous human speech to text that can be used as inputs

Text to speech

Convert text to audio files of natural-sounding speech

Speech translation

Use text or speech to provide translations of speech to other languages



Speaker Recognition

Speaker verification

Check if two voices are the same

Speaker identification

Identify who is speaking



Speaker Recognition



Enrollment

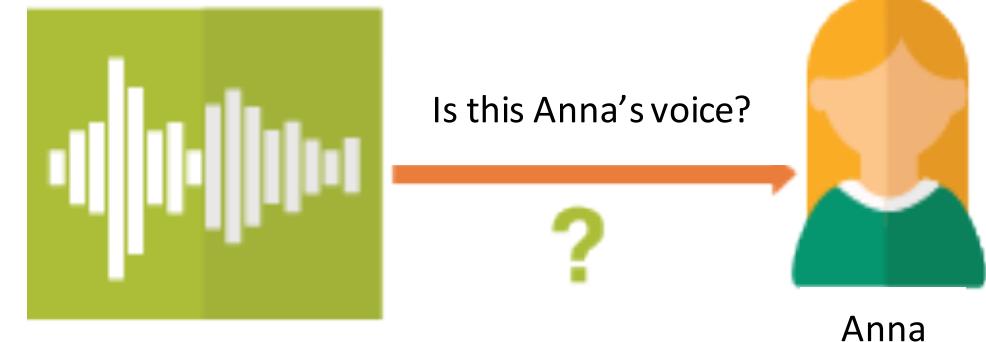
Create a unique voiceprint for a profile

Recognition

After enrolling one or more voices, identify who is speaking from an audio clip

Verification

Confirm if a voice belongs to a previously enrolled profile



Bing Speech

**Voice recognition
(speech to text)**

Converts spoken audio to text

**Voice output
(text to speech)**

Synthesize audio from text

Speech intent recognition

Convert spoken audio to intent



Custom Speech

Customize both
language and acoustic
models

Tailor speech recognition to
your app and environment



Custom Speech



Create custom language models for the vocabulary of the application

Adapt acoustic models to better match the expected environment of the application's users

Deploy to a custom endpoint and access from any device

Record audio



Transcribe



Adapt

Deploy



STARSHIP COMMANDER

“The only reason we can build a product like this is because we are building on the deep learning and speech recognition expertise at Microsoft to deliver an entertainment experience that will be revolutionary.”

Alexander Mejia, Owner and Creative Director,
Human Interact

[Custom Speech Service, LUIS](#)

[Read case study here](#)

[See video here](#)



Translator Speech

Facilitate end-to-end, real-time speech translations in over 60 languages

Transcribe and translate

Optimize translations for real-life conversations

Customize

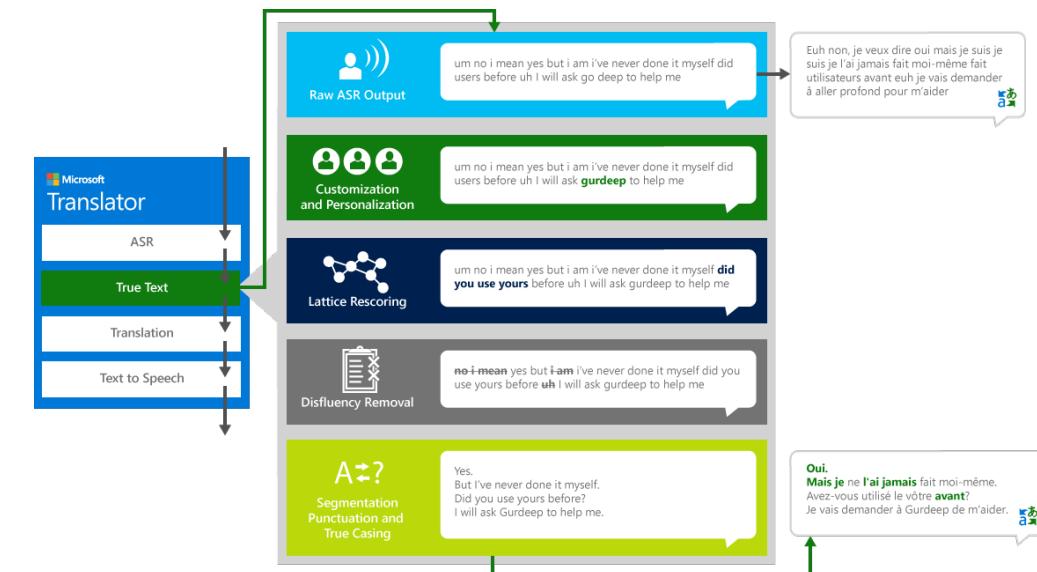
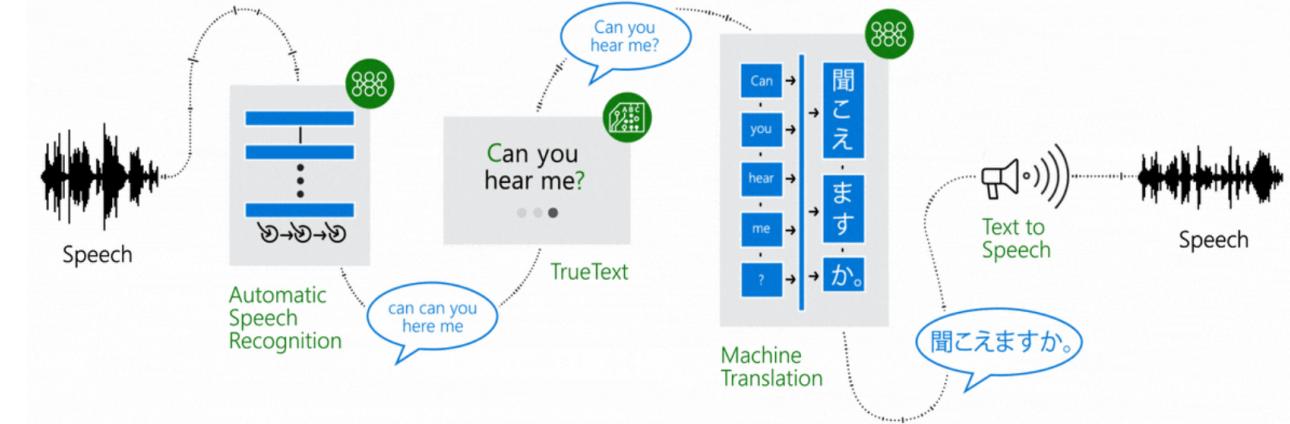
Personalize speech recognition, translations, and speech-to-text to your specific domain or scenario



Translator Speech

To translate the “source” speech from one language to a different “target” language, Translator Speech goes through a four-step process

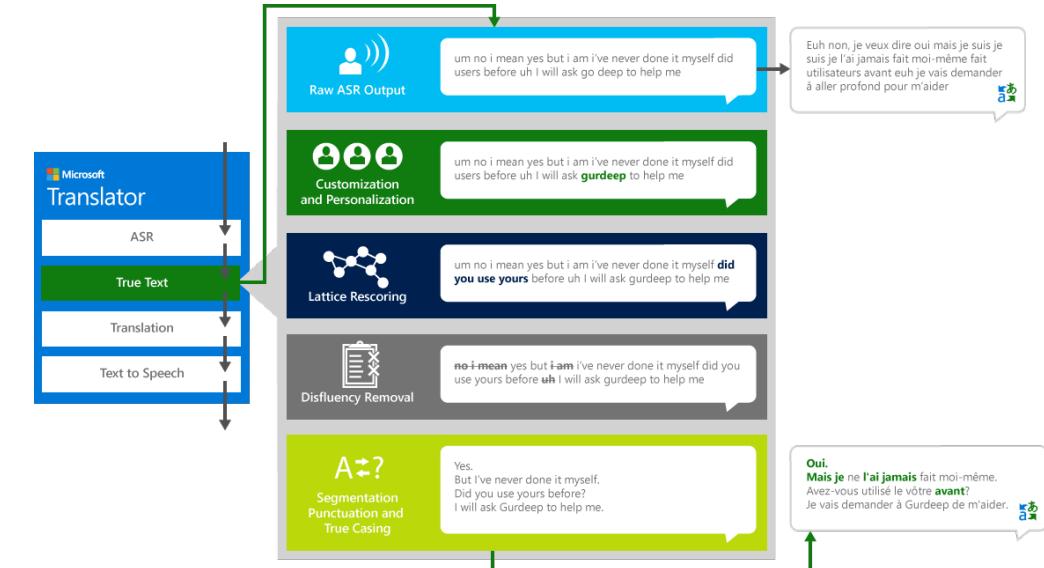
- 1 Speech recognition, to convert audio in into text
- 2 TrueText normalizes text to make it more appropriate for translation
- 3 Translation through the text translation engine with models developed for real-life spoken conversations
- 4 Text-to-speech, when necessary, to produce the translated audio



Translator Speech

To translate the “source” speech from one language to a different “target” language, Translator Speech goes through a four-step process

- 1 Speech recognition, to convert audio in into text
- 2 TrueText normalizes text to make it more appropriate for translation
- 3 Translation through the text translation engine with models developed for real-life spoken conversations
- 4 Text-to-speech, when necessary, to produce the translated audio



99

Language

Process text and learn how to recognize what users want

Text Analytics | Bing Spell Check | Language Understanding | Translator Text

The screenshot shows the results of a text analysis request. On the left, there is a text input field containing the sentence: "I had a wonderful trip in Seattle, I enjoyed the Space Needle and Pike Place Market." Below this is a large green button labeled "Analyze". On the right, there are two tabs: "Analyzed text" (which is selected) and "JSON". Under the "Analyzed text" tab, the results are displayed in sections:

- LANGUAGES:** English (confidence: 100 %)
- KEY PHRASES:** (No results shown)
- SENTIMENT:** 73 % (represented by a progress bar)
- LINKED ENTITIES (PREVIEW):** a (represented by a small icon)



Text Analytics

Sentiment analysis

Understand if a record has positive or negative sentiment

Key phrase extraction

Extract key phrases from a piece of text, and retrieve topics

Language detection

Identify the language, 120 supported languages



Text Analytics

Analyze

Generate a sentiment score using unique classification techniques

Detect

Return detected language and numeric scores to indicate certainty

Extract

Use Natural Language Processing to denote key talking points



I had a wonderful trip in Seattle, I enjoyed the Space Needle and Pike Place Market.

Analyzed text JSON

LANGUAGES: English (confidence: 100 %)

KEY PHRASES:

SENTIMENT: 73 %

LINKED ENTITIES (PREVIEW): a

Analyze

This screenshot shows the Microsoft Text Analytics interface. It features a text input field containing a sentence about a trip to Seattle. Below the input are two tabs: 'Analyzed text' (which is currently selected) and 'JSON'. Under the 'Analyzed text' tab, there are four sections: 'LANGUAGES' (English, confidence 100%), 'KEY PHRASES' (no results shown), 'SENTIMENT' (73%, indicated by a green progress bar), and 'LINKED ENTITIES (PREVIEW)' (a single entity 'a' listed). At the bottom is a large green button labeled 'Analyze'.

Bing Spell Check



State-of-the-art cloud-based spelling algorithms

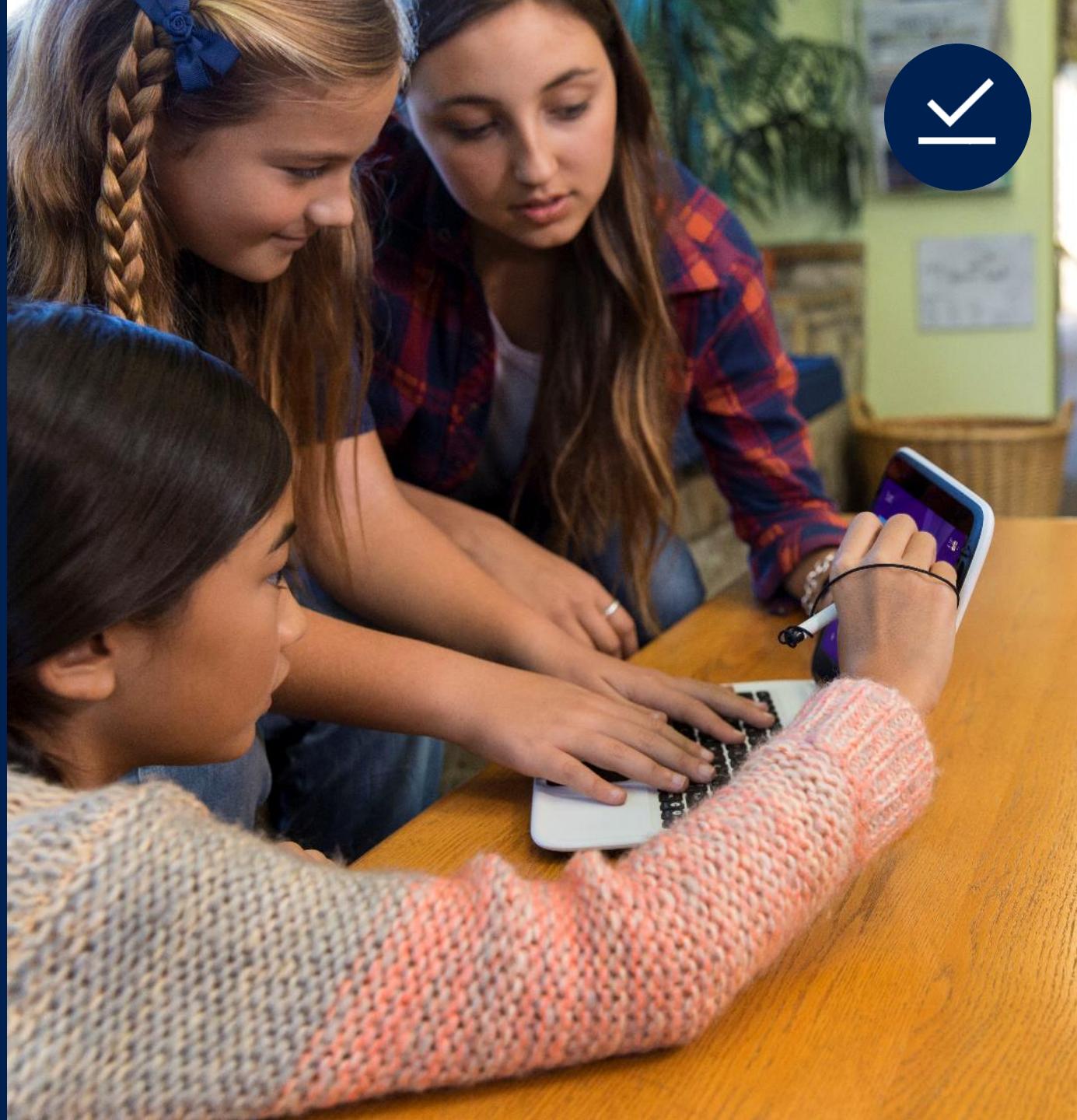
Recognizes a wide variety of spelling errors

Recognize name errors and homonyms in context

Difficult-to-spot errors that use the context of the words around them

Updates over time

Support for new brands and coined expressions as they emerge



Bing Spell Check



**Check a single word
or a whole sentence**

"Our engineers developed this four you!"

Corrected Text: "four" → "for"

Identify errors & get suggestions

```
"spellingErrors": [  
  {  
    "offset": 5,  
    "token": "gona",  
    "type": "UnknownToken",  
    "suggestions": [  
      { "token": "gonna" }  
    ] }]
```



A new service from **microso ft!**

Microsoft



Director **stephen** Steven
Spielberg should use it
in the next AI movie!



Our service is like **lyft** for word processing! **Lyft**

Translator Text

Conduct real-time translation
with a REST API call

Automatic detection

Accurately detect specific languages
on any text string

Transliterate

Translate and display text
in different language alphabets

Speech translation

Build custom NTM models that better
handle writing styles and expressions



Translator Text

Provides automatic detection and multi-language user-experiences in more than 60 languages

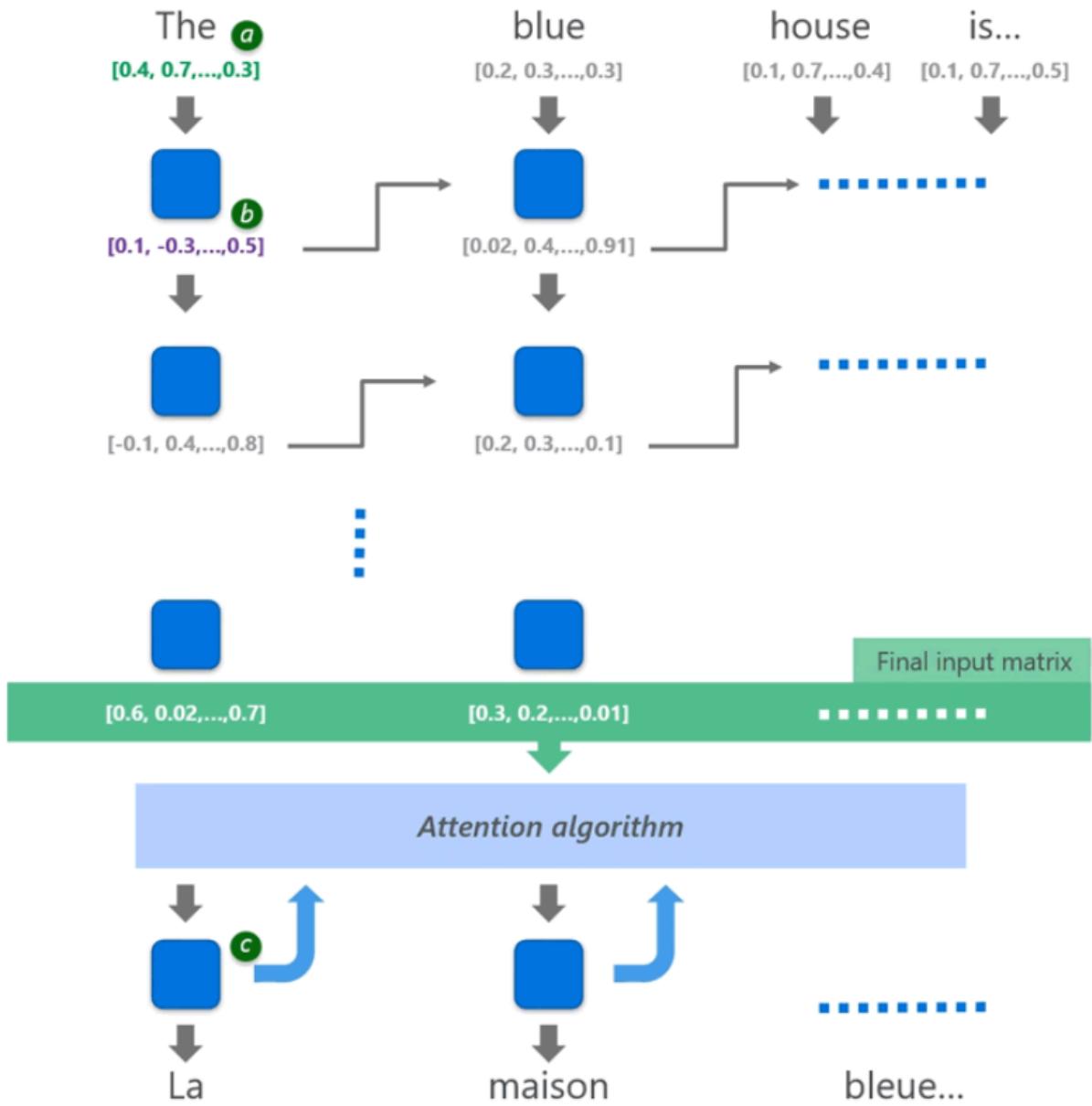
Auto Language Detection—American to French

Input

```
-H "Content-Type: application/json" -d "[{'Text':'The blue house is...?'}]"
```

Response

```
"detectedLanguage": {"language": "en", "score": 1.0},  
  
"translations": [  
    {"text": "La maison bleue... ? ", "to": "fr"}]
```



Translator Text

Provides automatic detection and multi-language user-experiences in more than 60 languages

Auto Language Detection—American to French

Input

```
-H "Content-Type: application/json" -d "[{'Text':'The blue house is...?'}]"
```

Response

```
"detectedLanguage": {"language": "en", "score": 1.0},  
"translations": [  
    {"text": "La maison bleue... ? ", "to": "fr"}]
```

Language Understanding Intelligent Service

**Understand what
your users are saying**

Use pre-built Bing and Cortana
models or create your own



{ }

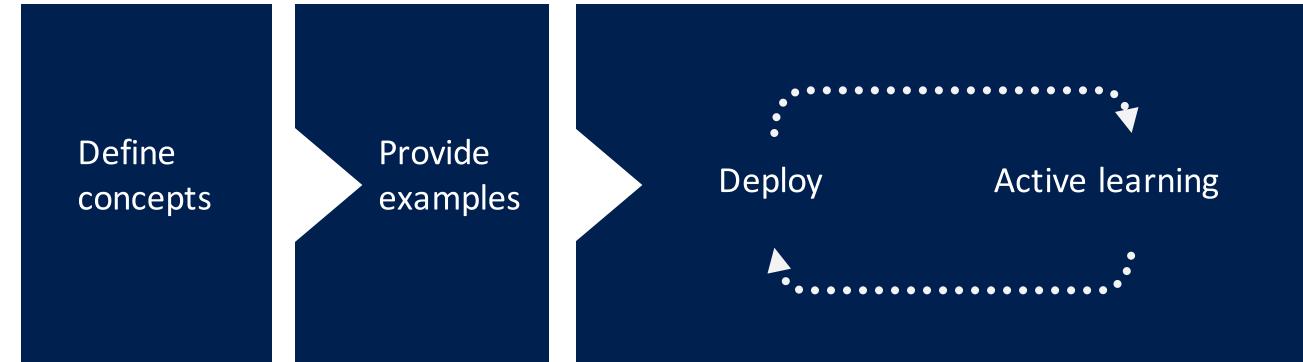
Language Understanding Intelligent Service

Reduce labeling effort
with interactive featuring

Use visualizations to gauge
performance and improvements

Leverage speech recognition
with seamless integration

Deploy using just a few
examples with active learning



Language Understanding Models

“News about
flight delays”



{ }

```
{  
  "entities": [  
    {  
      "entity": "flight_delays",  
      "type": "Topic"  
    }  
  ],  
  "intents": [  
    {  
      "intent": "FindNews",  
      "score": 0.99853384  
    },  
    {  
      "intent": "None",  
      "score": 0.07289317  
    },  
    {  
      "intent": "ReadNews",  
      "score": 0.0167122427  
    },  
    {  
      "intent": "ShareNews",  
      "score": 1.0919299E-06  
    }  
  ]  
}
```

Pizza Bot

Version: 0.1

 Settings

Dashboard

Intents

Entities

Prebuilt domains PREVIEW

Features

Train & Test

Publish App

[← Back to App list](#)

Test your application

Use this tool to test the current and published versions of your application, to check if you are progressing on the right track ... [Learn more](#)

[Train Application](#)

Last train: Jan 18, 2017 2:41:01 PM | Last publish: Jan 18, 2017 2:41:25 PM

[Interactive Testing](#) [Batch Testing](#) Enable published model

Labels view (Ctrl+E)

Entities

[Reset console](#)Type a test utterance & press Enter 

i'd like a [\$Size] pie with [\$Toppings]

i need a [\$Size] pizza with [\$Toppings] and tomatoes 

i need a [\$Size] pizza

Current version results

Top scoring intent
Order-Pizza (0.88)

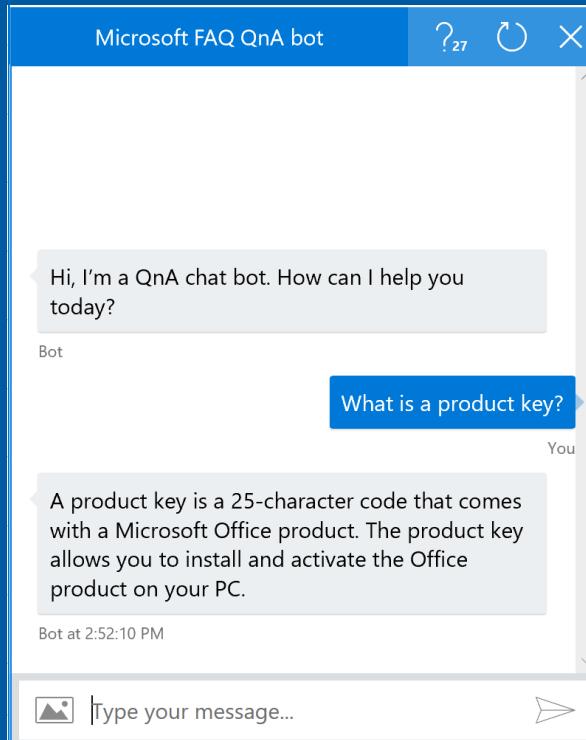
Other intents
None (0.06) Cancel (0)

Map complex information and data in order to solve specific tasks such as QnA pairs extraction

QnA Maker | Custom Decision



Knowledge



QnA Maker

Build, train, and publish simple question and answer bots

QnA extraction

Use existing content to respond to users naturally

Expanded response

Integrate with other APIs to expand question interpretations

Train and improve

Add and remove QnA pairs to improve your bot's knowledge



QnA Maker

Update

Manage knowledge base content and settings

Analyze

Monitor analytics and feedback

Publish

Deploy endpoint in a bot

Test

Verify query matching ranking

Who should use QnAMaker?



Answer:

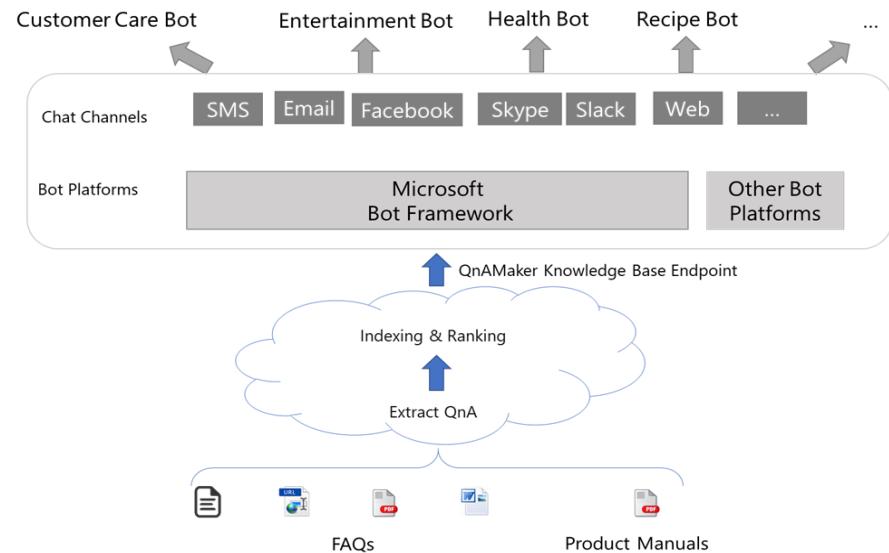
QnA Maker provides an FAQ data source that you can query from your bot or application. Although developers will find this useful, content owners will especially benefit from this tool. QnA Maker is a completely no-code way of managing the content that powers your bot or application.

Score:

100

Matched questions:

- who is the target audience for the qna maker tool
- who should use qnamaker



Custom Decision

Cloud-based, contextual decision making
that sharpens with experience

Contextual understanding

Use context to rank options and make
the best decisions

Quick learning

Rapidly train and optimize decision making based
on trend changes and feedback



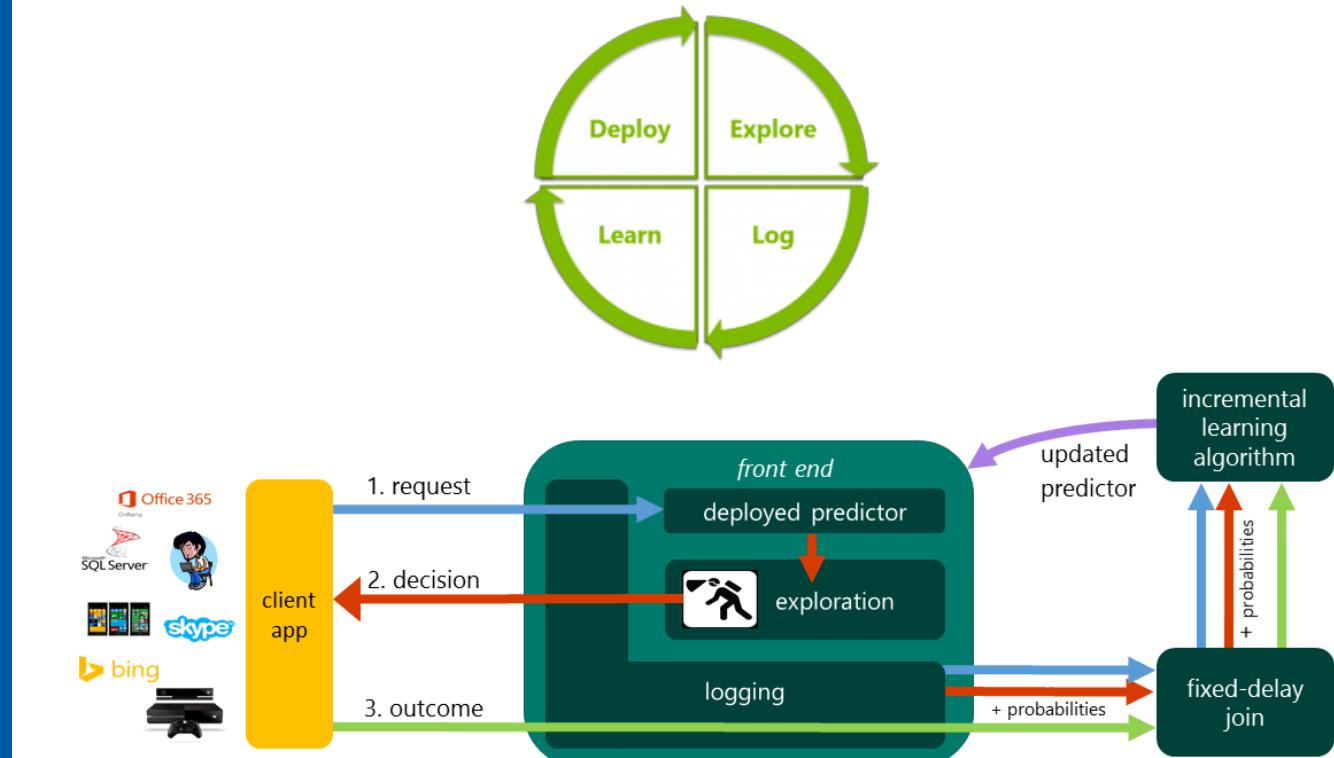
Custom Decision

Personalize
Articles on a news website

Customize
Video content on a media portal

Optimize
Ad placements or web pages
that an ad directs to

Rank
Recommended items on
a shopping website



Access billions of web pages, images, videos, and news with the power of Bing APIs

Bing Web Search | Bing Custom Search | Bing Video Search |
Bing Image Search | Bing Visual Search | Bing Entity Search |
Bing News Search | Bing Autosuggest | Bing Statistics add-in





Accent Chairs You'll Love | Wayfair
USD 251.68



Abbyson Living BR-AC1059-BLU Sierra Tufted Velvet Wingback ...



Pair of Guillerme et Chambron Black Cerused Oak 'Edouard ...
USD 8600



Bing Web Search

Intelligently search billions of webpages, videos, images, and news blasts

Powerful statistics

Quickly retrieve search statistics to inform your business practices

Related searches

Discover more search options with related queries

Safe search

Customize results to flag adult and other racy content



Bing Web Search

Quickly narrow your search results by market, freshness, result type, search category, and more

Submit a customized query to return the most accurate results for your location

SDOT Bike Web Map - Transportation | seattle.gov
www.seattle.gov/transportation/projects-and-programs/programs/bike...
From in-street Sharrows to fully separated Protected Bike Lanes and Multi-Use Trails, ... Seattle Department of Transportation PO Box 34996 Seattle, WA 98124-4996

Name "Online Bicycle Map",

URL "<http://www.seattle.gov/transportation/projects-and-programs/programs/bike-program/online-bike-map>"

Date Accessed: "2018-05-19T07:32:00Z",

About "Transportation in Seattle"

seattle bike trails



Market

en-us (English-United States)

SafeSearch

Strict

Freshness

(unspecified)

[SDOT Bike Web Map - Transportation | seattle.gov](#)

www.seattle.gov/transportation/projects-and-programs/programs/bike...

From in-street Sharrows to fully separated Protected Bike Lanes and Multi-Use Trails, ... Seattle Department of Transportation PO Box 34996 Seattle, WA 98124-4996

[Seattle Bike Trails - Seattle Outdoors Information ...](#)

www.seattleoutdoorsinfo.com/.../seattle-biking/seattle-bike-trails

Current information about hiking, camping, biking, winter sports, and just about anything that involves exploring the Pacific Northwest, with special focus on Seattle.

[Seattle Trails & Detailed Trail Maps | TrailLink.com](#)

<https://www.traillink.com/city/seattle-wa-trails>

Looking for the best trails around Seattle? Find the top rated trails in Seattle, whether you're looking an easy walking path or a long bike trail, you'll find what you're looking for. Click on a trail below to find trail descriptions, trail maps, photos, and reviews ...

[Seattle , WA Bike Trails - Maps of Bike Routes in Seattle , WA](#)

www.mapmyride.com/us/seattle-wa

Find over 26366 bike trails in Seattle . Cycling routes, maps, events, races, & club rides in Seattle , WA. Track & analyze your rides with MapMyRIDE!

[WSDOT - Maps of Local Bicycle Paths and Accessible Trails](#)

<https://www.wsdot.wa.gov/bike/localmaps.htm>

Bing Custom Search

An easy-to-use, ad-free, commercial-grade search tool lets you deliver results you want

Customize your search

Quickly and reliably define the slices of the web that you want to draw from. Change the parameters of the sites you want and don't want at any time

Easy-to-use

Custom Search features a straightforward UI that enables you to create your web search without a line of code

Commercial-grade

Usage is ad-free—no matter how much or how little of the service you use



Bing Custom Search

Identify

Utilize past search history to pinpoint on-topic or relevant sites and images

Provide

Expand the scope of search domains to define automatic query and search suggestions

Apply

Use Bing rankings to help users achieve the best automated results

Deliver

Add intelligent query suggestions and adjust search parameters to deliver relevant results and access unique usage insights

Custom Config

All

new movies



New Movies in Theaters | Moviefone

<https://www.moviefone.com/new-movie-releases>

Movie, TV, and pop culture fun for the whole family.

New Movies, Movie Trailers, TV, Digital, Blu-ray & Video ...

www.comingsoon.net

Check out the latest new movies coming soon to theaters & video games to come to market. Read latest buzz & watch exclusive trailers!

Snagfilms on the App Store - itunes.apple.com

<https://itunes.apple.com/us/app/snagfilms/id404906625>

Watch FREE FULL-LENGTH Movies and TV Shows streamed to your iPhone or iPad ! Over 5,000 independent movies, TV shows and documentaries. Over a dozen categories from adrenaline-filled action-adventure films to hilarious comedy and critically acclaimed documentaries.

Free Movies - Apps on Google Play

<https://play.google.com/store/apps/details?id=freemoviesapp.com>

Free Movies application connects you do a database of over 5,000 movies you can watch on your Android smartphone / tablet computer for free ... New ...

Get Movies & TV - Microsoft Store

<https://www.microsoft.com/en-us/store/p/movies-tv/9wzdncrfj3p2>

Download this app from Microsoft Store for Windows 10, Windows 8.1, Windows 10 Mobile, Windows Phone 8.1, Windows Phone 8, HoloLens, Xbox One. See screenshots, read the latest customer reviews, and compare ratings for Movies & TV.

Market

en-us (English-United States)

SafeSearch

Strict

Bing Video Search

Find videos with advanced video search features

Enhanced results

Leverage advanced video metadata including previews and trending videos

Preview

Enrich search results with GIF thumbnails

Search filters

Customize and narrow search results



Bing Video Search

Search results provide useful metadata including creator, encoding format, video length, view count, video description, and simplified paging

Video



Publish Date

"2016-09-20T20:09:26",

Description

"Cats are awesome, and super funny too! Who doesn't like cats and kittens? They make us laugh and happy!"

Content Creator

"Tiger Productions"

Publisher

"YouTube"

Market

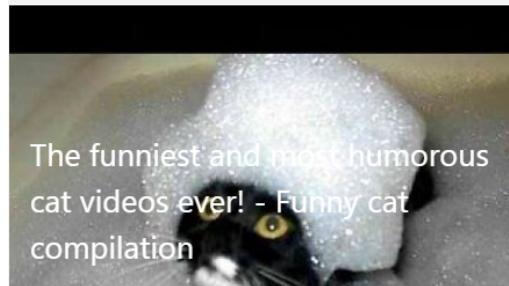
en-us (English-United States)

SafeSearch

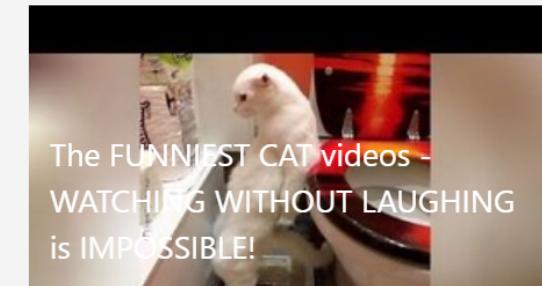
Strict

Freshness

(unspecified)



The funniest and most humorous
cat videos ever! - Funny cat
compilation



The FUNNIEST CAT videos -
WATCHING WITHOUT LAUGHING
is IMPOSSIBLE!



NINJA CATS! There's absolutely
NOTHING MORE FUNNY! -
Impossible TRY NOT TO LAUGH
compilation



CRAZY CATS vs PAPER, get ready
for SUPER LAUGHING! - Funny
CAT VIDEOS



Are ORANGE CATS the FUNNIEST
CATS? - Super FUNNY
COMPILATION that will make you
DIE LAUGHING

Bing Image Search

Instantly add image search options, from trending images to detailed insights

Unlock insights

Leverage image metadata including visually related searches and automatically generated captions

Search filters

Narrow results with customized filters like image type and trending images



Bing Image Search

Discover new sorting and filtering options that simplify specific results and include thumbnails, full image URLs, publishing info, and image metadata



Name

"Desktop HD Wallpapers: 3D Nature Wallpapers",

Date Published

"2012-12-03T12:00:00",

Content Size

"595588 B",

Width 1600,

Height 914,

nature wallpapers



Market

en-us (English-United States)

SafeSearch

Strict

Freshness

(unspecified)

Bing Visual Search

Deliver new experiences that
enable users to search with images and
gain insights in compelling new ways

- Discover intelligent context identification
- Enhance produce recommendations for your business
- Make your applications and devised intelligent
- Augment image understanding through OCR
- Power statistics for your queries



Bing Visual Search

Enhance

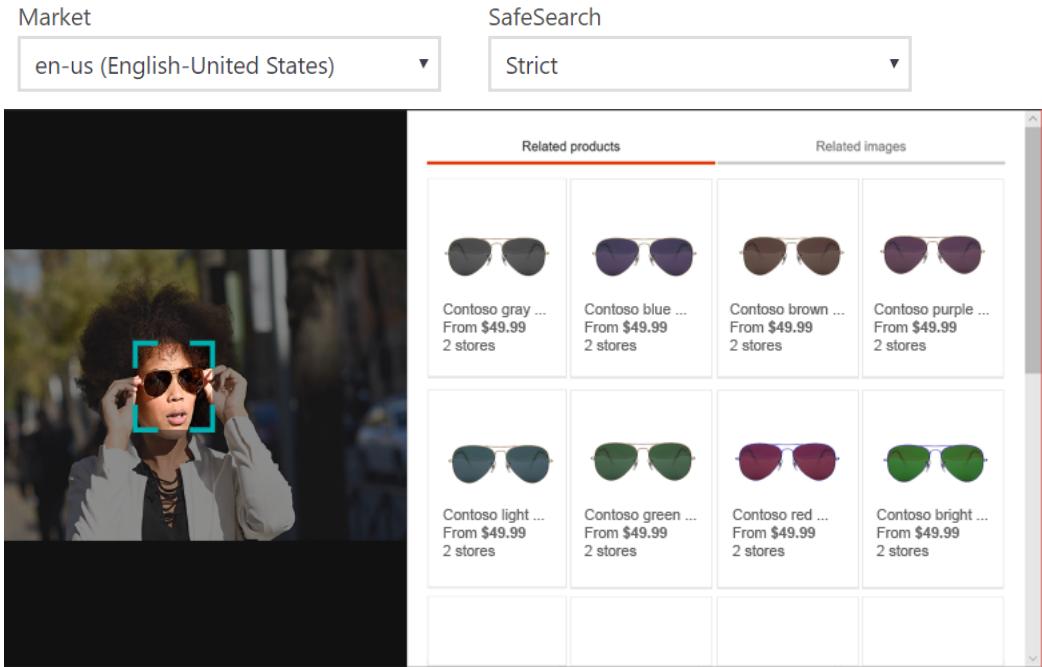
Create compelling recommendations using visually similar images

Add

Integrate any image source to get intelligent search annotations and information

Augment

Extract textual information and read text in images for improved search results

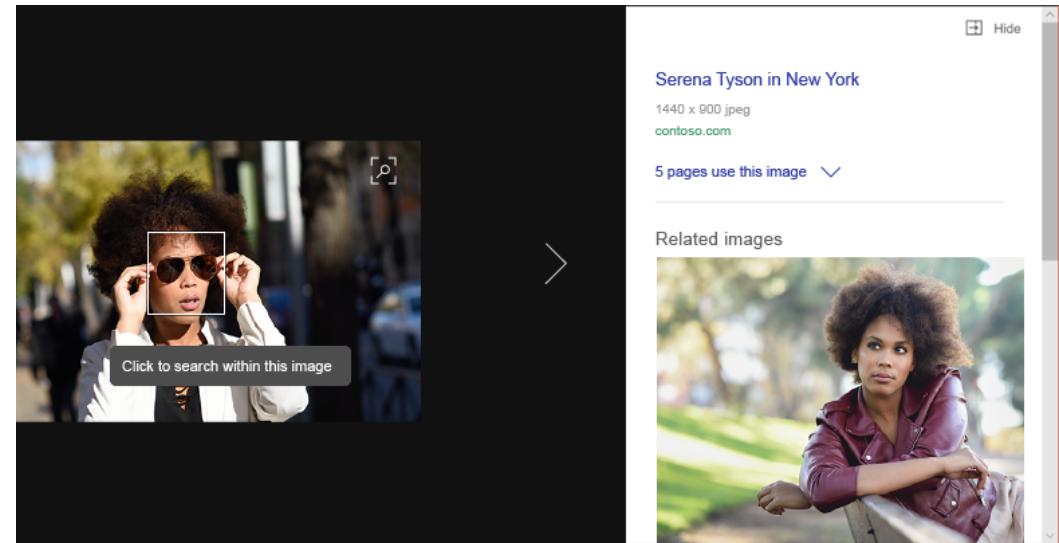


The screenshot shows the Bing Visual Search interface. At the top, there are dropdown menus for 'Market' set to 'en-us (English-United States)' and 'SafeSearch' set to 'Strict'. Below the interface is a large image of a person wearing sunglasses. A blue square annotation highlights the sunglasses. To the right of the image, there are two tabs: 'Related products' (which is selected) and 'Related images'. Under 'Related products', there are four items listed:

Product Name	Price Range	Stores
Contoso gray ...	From \$49.99	2 stores
Contoso blue ...	From \$49.99	2 stores
Contoso brown ...	From \$49.99	2 stores
Contoso purple ...	From \$49.99	2 stores

Below these are four more items under 'Related images':

Product Name	Price Range	Stores
Contoso light ...	From \$49.99	2 stores
Contoso green ...	From \$49.99	2 stores
Contoso red ...	From \$49.99	2 stores
Contoso bright ...	From \$49.99	2 stores



The screenshot shows the Bing Visual Search interface. On the left, there is a large image of a person wearing sunglasses. A white square annotation highlights the sunglasses. Below the image, a button says 'Click to search within this image'. To the right of the image, there is a sidebar with the following information:

- Image details:
 - Serena Tyson in New York
 - 1440 x 900 jpeg
 - contoso.com
- A link to '5 pages use this image'.
- A section titled 'Related images' which shows a smaller image of the same person in a different pose.

Bing Entity Search

Enrich user experiences with contextual entity search results

Tap into the power of the web to search for the most relevant entities (such as movies, books, famous people, U.S. local businesses...) and easily provide primary details and information sources about them

Augment your content with entity search results

Showcase of local businesses nearby



Bing Entity Search

Identify

Detect the most relevant entity based on searched terms

Augment

Improve the user experience and provide primary details about searched entities

Showcase

Present local or relevant businesses and locations for a more engaging experience

Query
Coffee 98004
Search Type
Restaurant
Address Locality
Bellevue
Address Region
WA
Postal Code
98004

The screenshot shows a search bar at the top with the query "Coffee 98004" and a magnifying glass icon. Below the search bar, three search results are listed:

- Third Culture Coffee**
<https://thirculturecoffee.com/>
Bellevue, WA, 98004;
(425) 230-3660
Categories: Place, LocalBusiness, Restaurant
[See more on Bing >](#)
- Honor Coffee**
<http://www.honorcoffee.com/>
Bellevue, WA, 98004;
(425) 598-2185
Categories: Place, LocalBusiness, Restaurant
[See more on Bing >](#)
- Starbucks**
<http://www.starbucks.com/>
Bellevue, WA, 98004;
(425) 637-6513
Categories: Place, LocalBusiness, Restaurant
[See more on Bing >](#)

On the right side of the interface, there are several input fields and dropdown menus for optional parameters:

- Market: en-us (English-United States)
- Optional parameters (dropdown menu)
- Latitude: 37.77
- Longitude: -122.4194
- Radius (meters): 5000

Bing News Search

Group and filter world news by topic,
local news, and searchable metadata

Trends

Catalogue worldwide trending news
by place or category

Customize topics

Categorize searches by news topic
and personal interest



Bing News Search

Results include rich detail like authoritative image of articles, provider info, article URL, and date published

Return results can be customized to the location or market of the user

Simplify findings with sorting and filtering options for trending news and other topics

science updates 

Market
en-us (English-United States) ▾

SafeSearch
Strict ▾

Freshness
(unspecified) ▾

 CHSE Odisha +2 Science result declared; 76.98% students pass the exam
School and mass education minister Badri Narayan Patra releasing plus two science results at council of higher secondary education here on Saturday. Live updates 96,185 students have enrolled for the Plus Two examination 95096 studetns have appeared and ...

 Elon Musk updates the public on Boring Company and it's amazing
Los Angeles - The hottest ticket in Los Angeles Thursday night was not a movie premiere - It was a seat in a synagogue to hear a tech CEO update people on a venture literally called the Boring Company. About 750 people were lucky enough to get a seat at ...

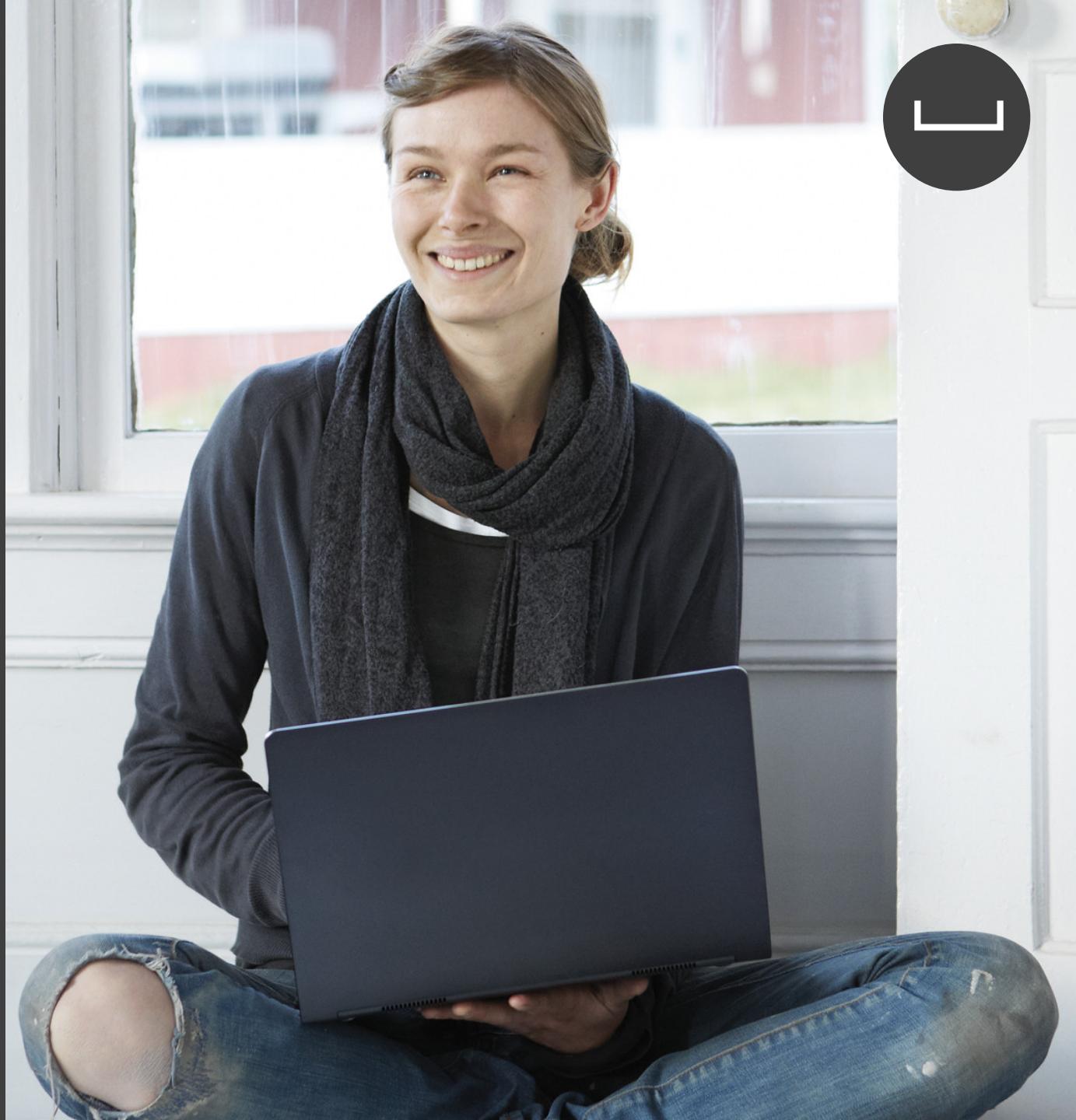
 Update: Launch coverage of Earth-observing satellites
Briefing participants will be: David Jarrett, GRACE-FO program executive in the Earth Science Division at NASA Headquarters Frank Webb, GRACE-FO project scientist at NASA's Jet Propulsion Laboratory Frank Flechtner, GRACE-FO project manager at GFZ Phil ...

 NASA program to track greenhouse gas is canceled (Update)
The end of the program—called the Carbon Monitoring System (CMS)—which tracked sources and sinks for carbon and made high-resolution models of the planet's flows of carbon —was first reported by the journal Science. "Now, President Donald Trump's ...

 APS Celebrates Science of Light with Art
In honor of the role of light in science, culture, and life itself, the United Nations Education, Science and Culture Organization (UNESCO) has declared 2019 the International Year of Light and Light-based Technologies.

Bing Autosuggest

Query completion suggestions capabilities, so users can type less and get to what they want faster



Bing Autosuggest

Populate

Use drop-down lists to suggest queries based on past search history

Narrow

Return detailed contextual suggestions to quickly find preferred search items

Discover

Find, troubleshoot, and diagnose problems quickly

A screenshot of a search interface. In the search bar at the top, the partial query "seatt" is typed. To the right of the search bar is a magnifying glass icon. Below the search bar, a list of nine suggestions is displayed in blue text. The suggestions are: seattle, seattle mariners, seattle times, seattle seahawks, seattle weather, seattle airport, seattlepi, and seattle craigslist.



Bing Statistics add-in

Quickly recover statistics like top queries and market distribution

Smart Search Insights

Gather usage details to gain unique business insights

Data Metrics

Real-time view of user's data consumption through multiple metrics





Get started for free at
<http://azure.com/Cognitive>



Learn more on the Cognitive Services
[documentation](#)



Schedule a workshop to identify areas
in your business where analytics and
intelligence can
drive transformation



Talk with your Microsoft contact about
licensing options and partners



Developer resources

Pricing

<https://azure.microsoft.com/en-us/pricing/details/cognitive-services/>

Documentation

<https://docs.microsoft.com/en-us/azure/#pivot=products&panel=cognitive>

Client SDKs

<https://azure.microsoft.com/en-us/resources/samples/?sort=0&term=cognitive+services>
<https://github.com/southwood/project-oxford-python>

Example Code

<https://github.com/jsturtevant/happy-image-tester-django>
<https://github.com/Microsoft/Cognitive-Face-Android>
<https://github.com/Microsoft/Cognitive-Samples-IntelligentKiosk>

Join Our Community

<https://stackoverflow.com/questions/tagged/microsoft-cognitive>
<https://cognitive.uservoice.com/>

Q&A



Appendix

Microsoft Cognitive Services

Democratizing intelligence



APIs in action

<Insert demo title>

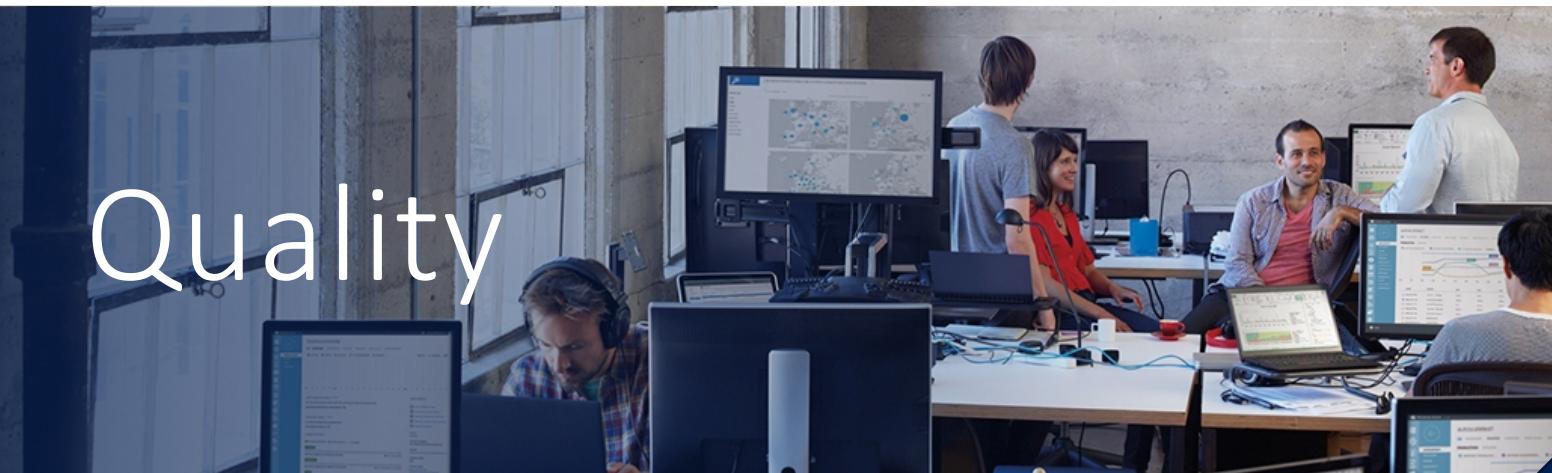


Why Microsoft Cognitive Services?

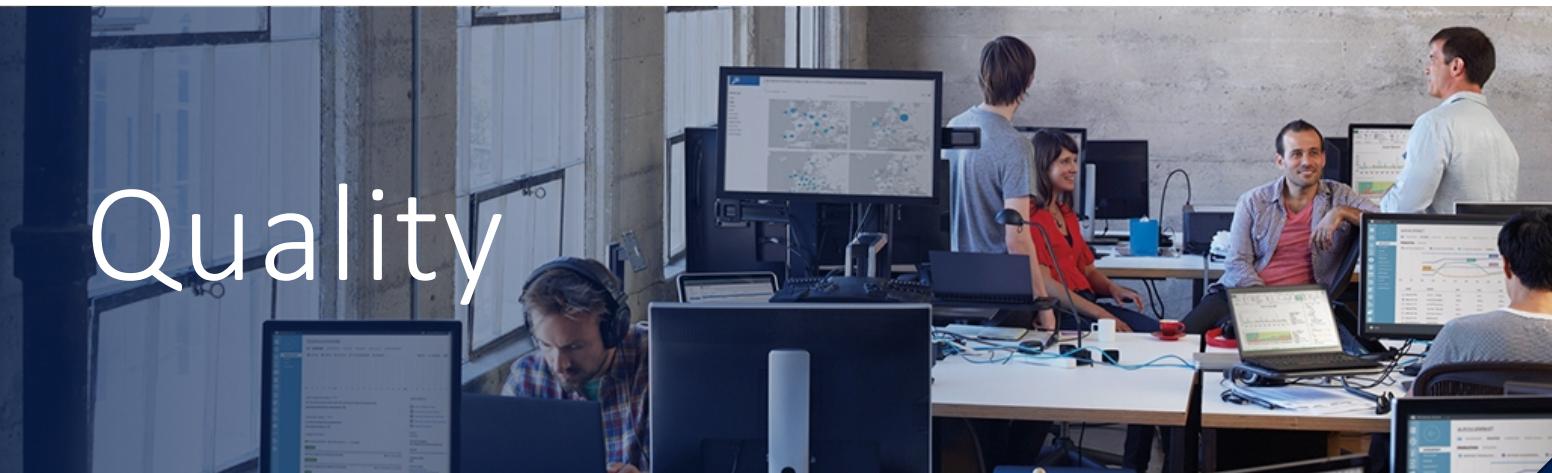
Easy



Flexible



Quality



Microsoft Cognitive Services updates



Vision



Speech



Language



Knowledge



Search



Labs

Video Indexer
Computer Vision
Face
Emotion
Content Moderator
Custom Vision

Speaker Recognition
Bing Speech
Custom Speech
Translator Speech
Unified Speech

Text Analytics
Bing Spell Check
Translator Text
Language Understanding (LUIS)

QnA Maker
Custom Decision

Bing Entity Search
Bing Autosuggest
Bing Search
Bing Statistics add-in
Bing Visual Search
Bing Custom Search

Project Gesture
Project Local Insights
Project Academic Knowledge
Project EntityLinking
Project Knowledge Exploration
Project Event Tracking
Project Answer Search
Project URL Preview
Project AnomalyFinder
Project Conversation Learner
Project Personality Chat

Microsoft Cognitive Services updates



Vision

Video Indexer
Computer Vision
Face
Emotion
Content Moderator
Custom Vision



Speech

Speaker Recognition
Bing Speech
Custom Speech
Translator Speech
Unified Speech



Language

Text Analytics
Bing Spell Check
Translator Text
Language Understanding (LUIS)



Knowledge

QnA Maker
Custom Decision



Search

Bing Entity Search
Bing Autosuggest
Bing Search
Bing Statistics add-in
Bing Visual Search
Bing Custom Search

Microsoft Cognitive Services



Vision

Video Indexer

Computer Vision

Face

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Speech

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Unified Speech



Language

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QnA Maker

Custom Decision



Search

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Bing Search

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Bing Visual Search

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