Microsoft Cognitive Services

Integrate human behavior in your applications

DEVDAY 2016

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Meet Andy

- @Avanade for 9 ½ years
- Belux Software Engineer Practice Lead
- .NET, Azure, SharePoint, O365
- Project delivery, people management
- Microsoft Early Adopter

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Meet Avanade

accenture + Microsoft

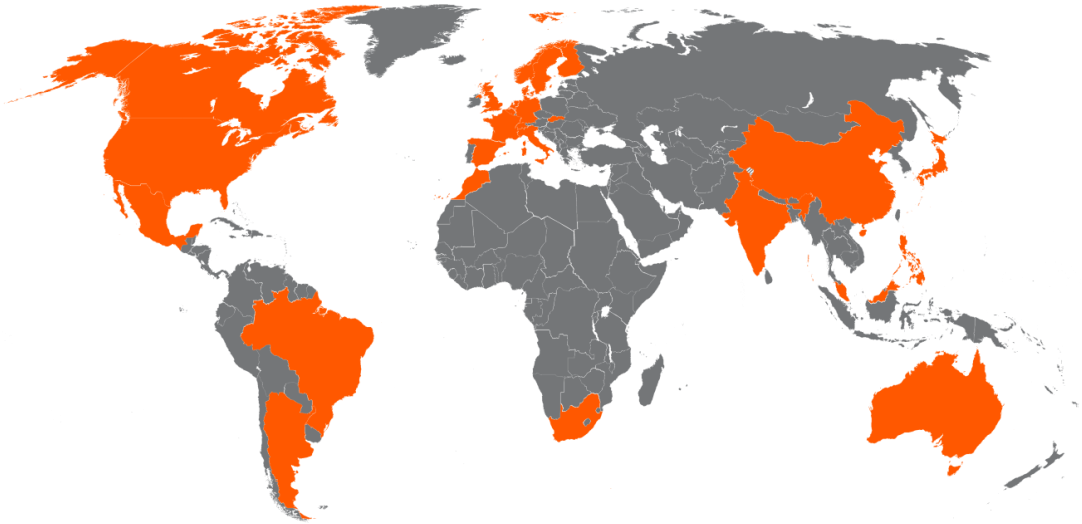
Avanade helps customers realize results in a digital world through business technology solutions and managed services that combine insight, innovation and expertise focused on Microsoft technologies.

Meet Avanade

> 80 locations
> 20 countries

> 26.000 employees worldwide

>100 employees in Belgium



Avanade Belgium (Merelbeke)

Accenture Belgium (Brussels)

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Meet Avanade

Cognitive Services

History

Why ?

Who ?

How ?

Price

Demos

Benefits

Actions

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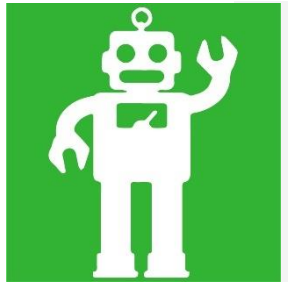
Cognitive Computing

Field of artificial intelligence.



Perform tasks that only humans are able to perform

Include computer vision, machine learning, natural language processing, speech recognition and robotics.

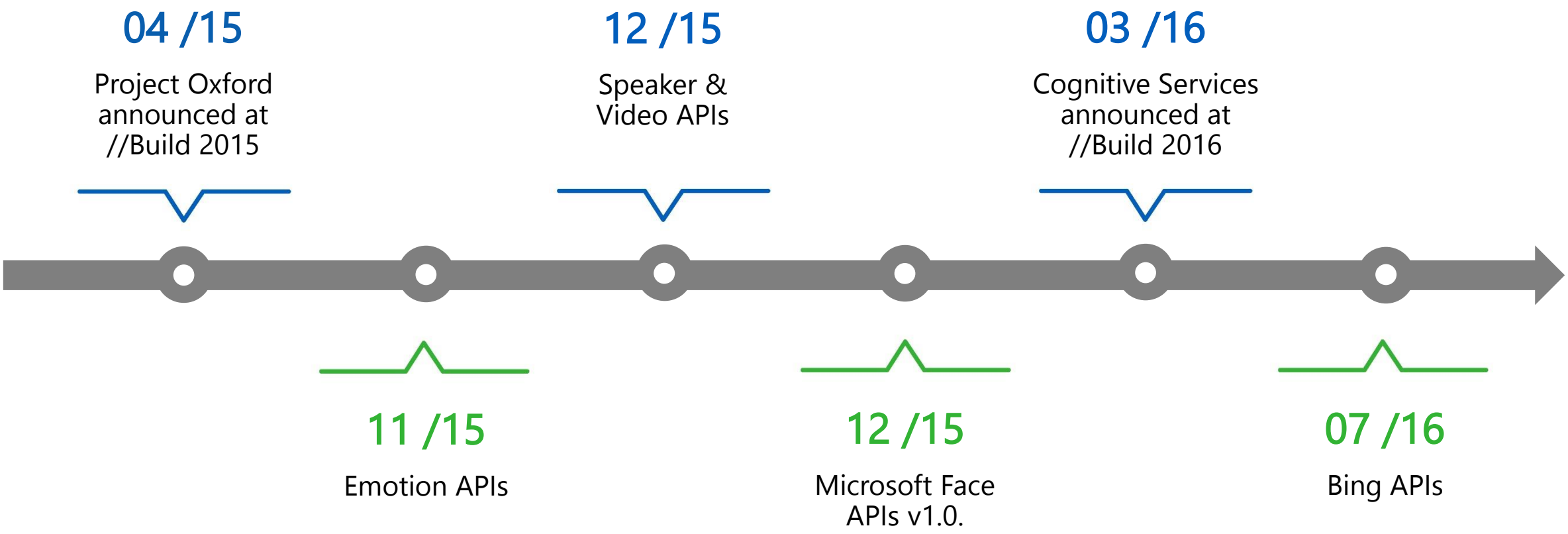
Market Projections

The **US cognitive computing market** is expected to expand from **$1 billion to $50 billion** in the next five years.

Deloitte

Example of cognitive computing app

Microsoft Cognitive Services Timeline



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

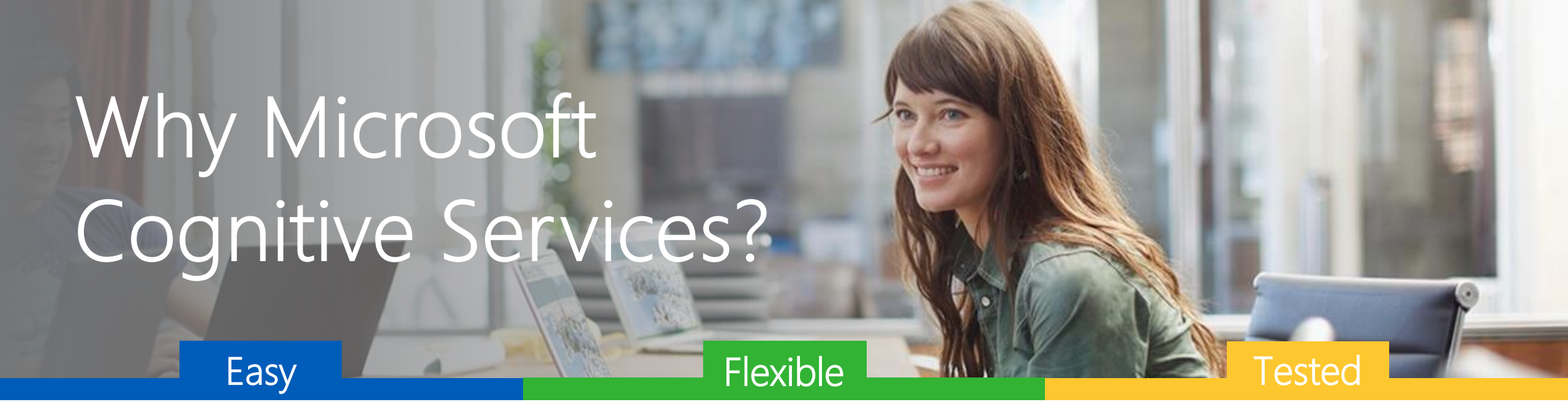
Knowledge

Tap into rich knowledge amassed from the web, academia, or your own data

Search

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

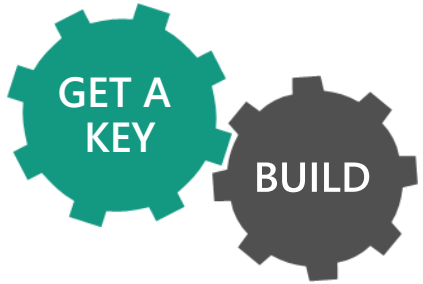
Why Microsoft Cognitive Services?



Easy

Roll your own with REST APIs

Simple to add: few lines of code required



Flexible

Integrate into the language and platform of your choice

Wide selection of APIs which allows you to choose the one tailored to your needs

Tested

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

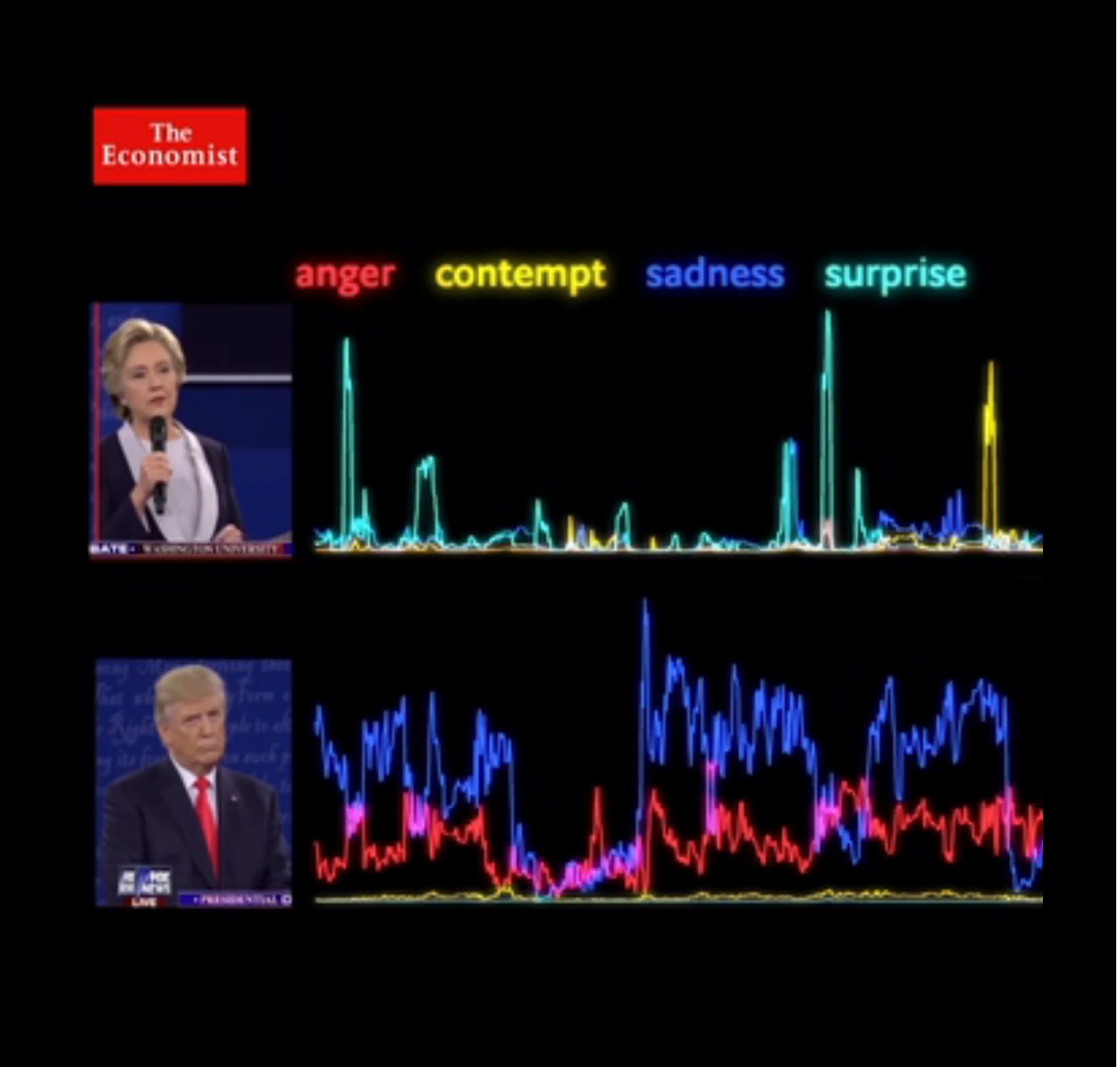
Quality documentation, sample code, and community support

What do Cognitive Services offer?

Emotion detection	Facial identification	Sentiment analysis
Facial detection	Language understanding	Object recognition

UBER

The app uses Cognitive Services to compare the selfie with the original picture of the Uber driver.



The Economist –

Using Cognitive Services, *The Economist* has sought to quantify Mr Trump and Mrs Clinton's emotions during some of the most trenchant moments of the debates.

Cognitive Services APIs

microsoft.com/cognitive

Vision	Speech	Language	Knowledge	Search
Computer Vision	Custom Recognition	Bing Spell Check	Academic Knowledge	Bing Web Search
Emotion	Speaker Recognition	Linguistic Analysis	Entity Linking	Bing Image Search
Face	Bing Speech	Language Understanding	Knowledge Exploration	Bing Video Search
Video		Text Analytics	Recommendations	Bing News Search
Content Moderator		WebLM		Bing Autosuggest
		Translator		

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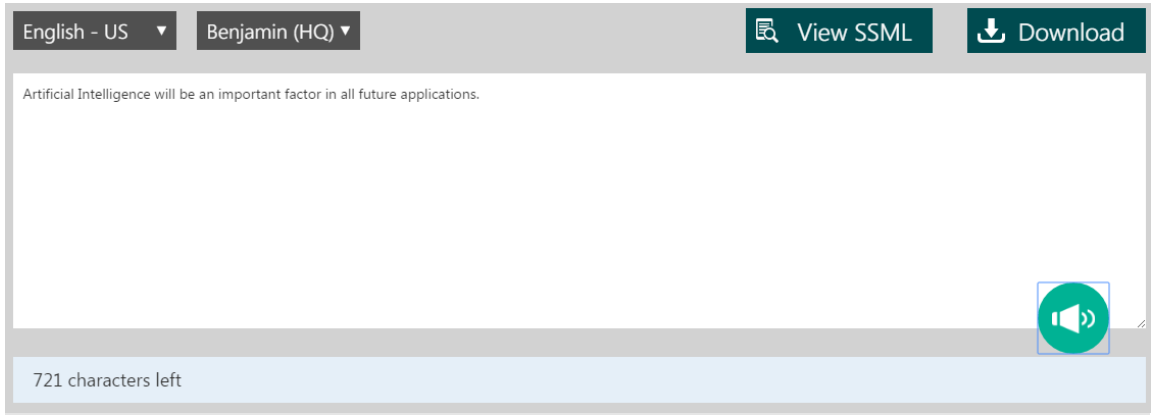
Microsoft Bing Speech API

Convert spoken audio to text

Convert text to spoken audio

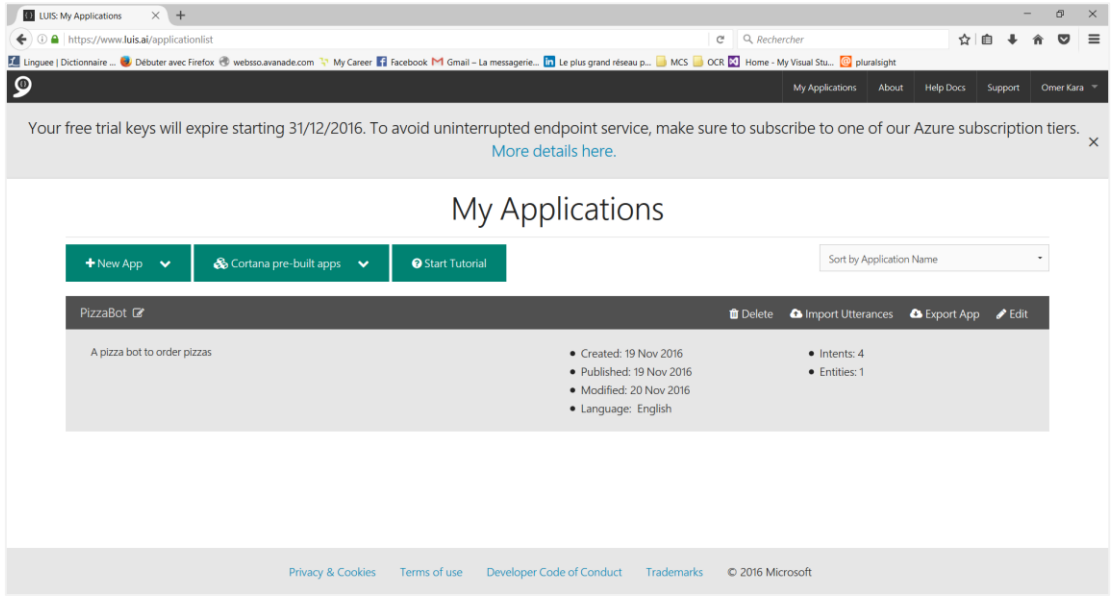


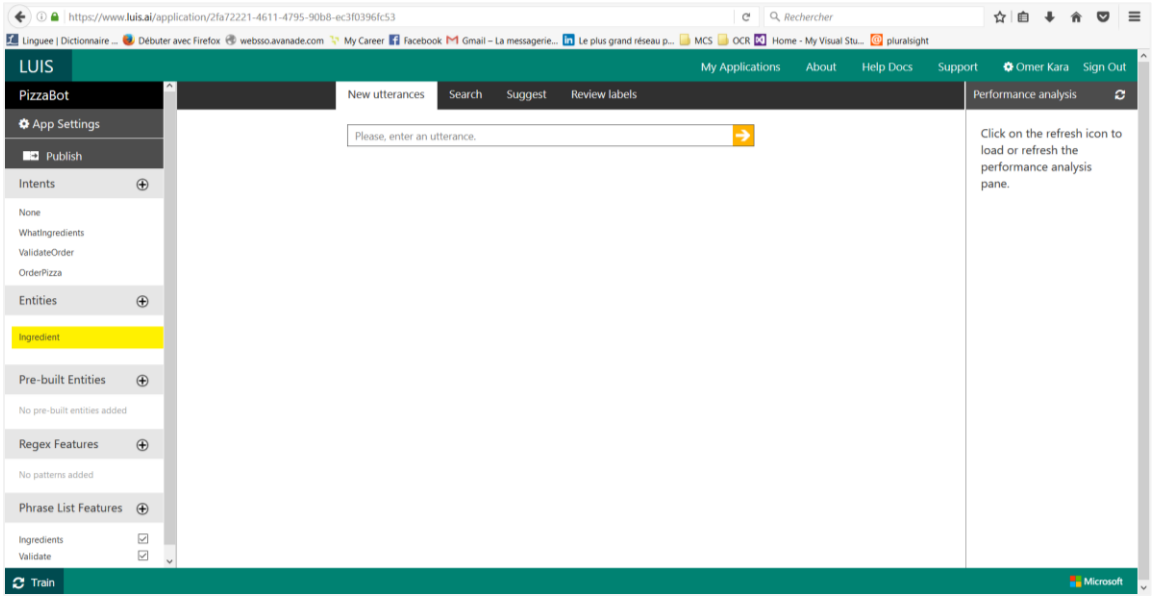
Speech to Text: Chinese, UK English, US English, French, German, Italian, Spanish

Text to Speech: English (US, AU, CA, IN, UK), Chinese (CN, TW, HK), Japanese, German, French (FR, CA), Portuguese, Italian, Spanish (ES, MX), Russian

Microsoft Language Understanding Intelligent Service

LUIS models for your application to better understand intents or entities.



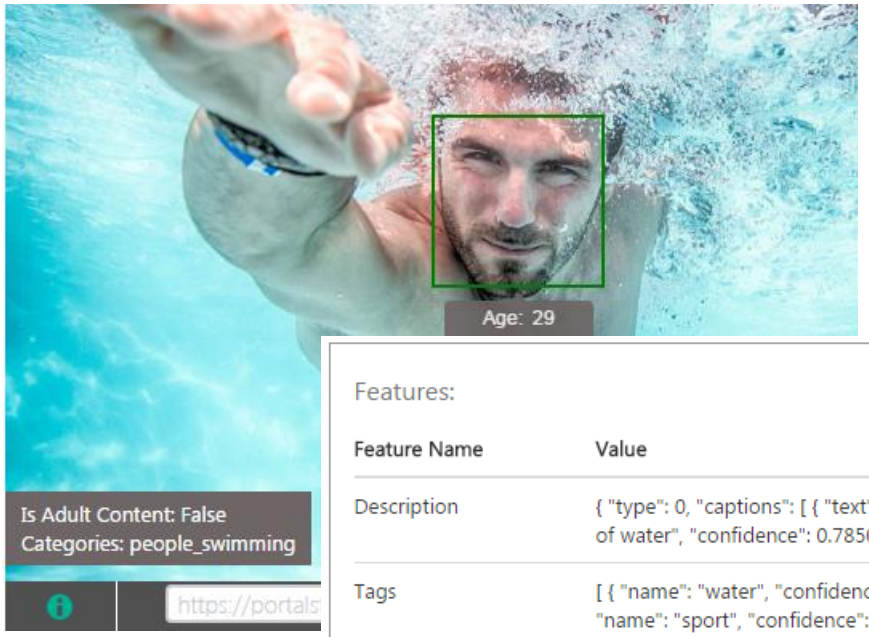


English, Chinese, Italian, French, Spanish

Microsoft Computer Vision API

Returns information about visual content found in an image.

- Identify content
- Identify image types and color schemes
- Celebrity model
- Optical Character Recognition model
- Tool for generating thumbnails



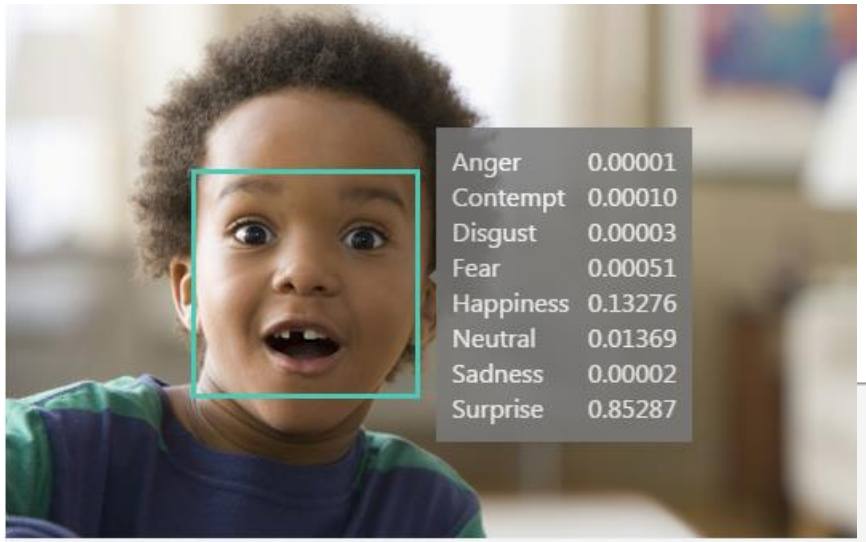
Features:

Feature Name	Value
Description	{ "type": 0, "captions": [{ "text": "a man swimming in a pool of water", "confidence": 0.7850108693093019 }] }
Tags	[{ "name": "water", "confidence": 0.9996442794799805 }, { "name": "sport", "confidence": 0.9504992365837097 }, { "name": "swimming", "confidence": 0.9062817096710205, "hint": "sport" }, { "name": "pool", "confidence": 0.8787589073181152 }, { "name": "water sport", "confidence": 0.631849467754364, "hint": "sport" }]
Image Format	jpg
Image Dimensions	1500 x 1155
Clip Art Type	0 Non-clipart
Line Drawing Type	0 Non-LineDrawing
Black & White Image	Unknown

Microsoft Emotion API

The Emotion API translates a facial expression of an image into a range of emotions.

Anger, contempt, disgust, happiness, fear, neutral, sadness and surprise




```
      "height": 215
    },
    "scores": {
      "anger": 0.000008473417,
      "contempt": 0.0000987896055,
      "disgust": 0.00003328445,
      "fear": 0.0005069857,
      "happiness": 0.132762313,
      "neutral": 0.0136927208,
      "sadness": 0.0000227907713,
      "surprise": 0.852874637
    }
  }
]
```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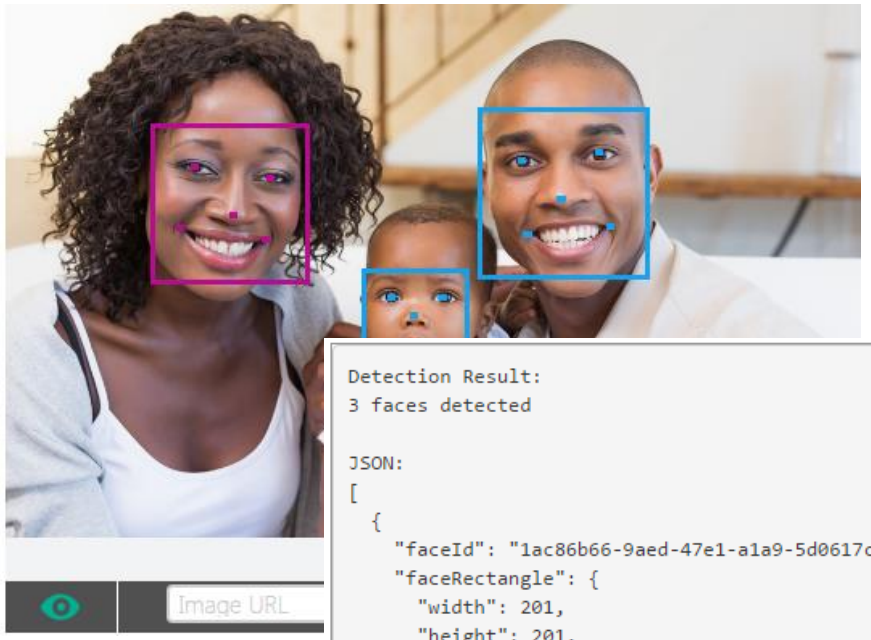
Microsoft Face API

Detect human faces in an image using a rectangular frame which translates facial features into attributes

Age, Gender, Pose, Smile, and Facial Hair along with 27 landmarks for each face in the image.




```
Detection Result:
3 faces detected

JSON:
[
  {
    "faceId": "1ac86b66-9aed-47e1-a1a9-5d0617cd004e",
    "faceRectangle": {
      "width": 201,
      "height": 201,
      "left": 551,
      "top": 166
    },
    "faceLandmarks": {
      "pupilLeft": {
        "x": 602.6,
        "y": 228.5
      },
      "pupilRight": {
        "x": 692,
        "y": 219.6
      },
      "noseTip": {
        "x": 648.4,
```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DEMO I – Pizza Bot

Omer

- Analyst Developer .NET at Avanade
- Certified Programming in C#
- C#, UWP, ASP .NET, Blue Prism
- Cognitive Services and Robotics

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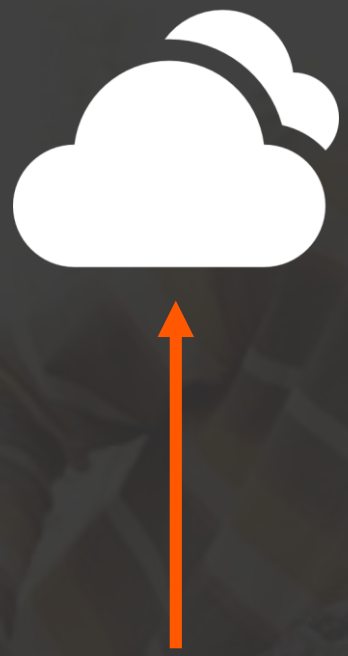
DEMO II – Smart Photo Gallery

Christopher

- Analyst Developer .NET at Avanade
- Software Engineer
- HTML5/CSS3/JS, ASP.NET MVC Web App
- C#, .Net, Cognitive Services

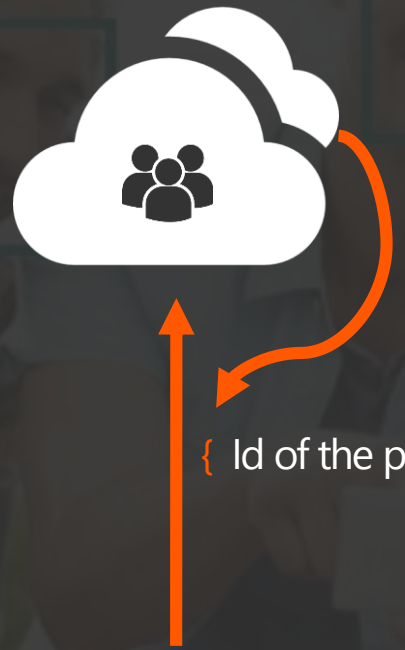
Face Identification

Identify people from picture using the power of Machine Learning



{ Id of the group }

① Create a group of people in MCS



{ Id of the person }

{ Id of the group | Id of the person }

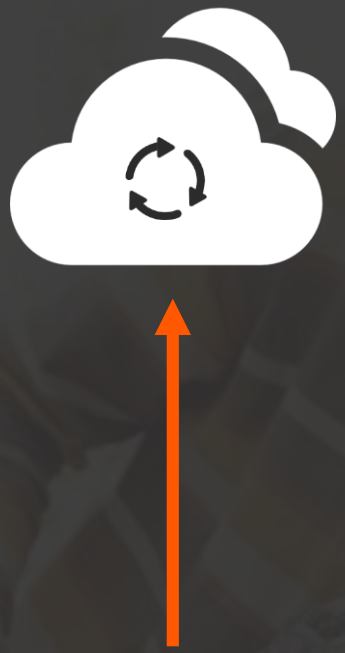
② Register a person with a name

{ Id of the face }

{ Id of the group | Picture | Id of the person }

③ Add a face for this person

Face Identification



{ Id of the group }

④ Train the group

{ Data from detected faces }

{ Picture }

⑤ Detect faces from picture

{ Id of identified persons }

{ Face Ids | Id of the group }

⑥ Make identification

Why Microsoft Cognitive Services?

API	PRICE
Computer Vision API – Free	5,000 transactions free per month
Computer Vision API - Standard	€1.26 per 1,000 transactions
Emotion API – Free	Free
Emotion API – Basic	€0.08 per 1,000 transactions
Emotion API – Standard	€0.21 per 1,000 transactions
Face API – Free	30,000 transactions free per month
Face API – Standard	€1.265 per 1,000 transactions €0.4217 per 1,000 images per month
LUIS API – Free	10,000 transactions free per month
LUIS API – Basic	€0.63 per 1,000 transactions
Bing Speech API – Free	5,000 transactions free per month
Bing Short Form Speech API	€3.37 per 1,000 transactions
Bing Long Form Speech API	€7.59 per hour up to 10 hours/month €6.32 per hour 10-100 hours/month €4.64 per hour More than 100 hours per month
Bing Text-to-Speech API	€3.37 per 1,000 transactions

What can I do today to use CS ?

Cognitive Services Blog : https://www.microsoft.com/cognitive-services/en-us/news

Microsoft Cognitive Services : https://www.microsoft.com/cognitive-services/en-us/SDK-Sample
- SDKs & samples

Intelligent Kiosk Sample : https://github.com/Microsoft/Cognitive-Samples-IntelligentKiosk

Cognitive Services Pricing : https://azure.microsoft.com/en-us/pricing/details/cognitive-services/

Demo 1 : https://github.com/k-omer/Speech_LUIS_DevDay2016

Demo 2 : https://github.com/r-christopher/DevDay2016-SmartGallery

Thank you !

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