AI at your fingertips
Building Smart Apps

Uli Hitzel | Microsoft | BASH @ 79 Ayer Rajah Crescent | Singapore, June 14th 2017

Agenda

AI & Cognitive Services

See it in action!

Discussion, Q&A

South_East_Asia

API

Application_Development

Open_Source

NZ

REST

Microsoft

Architect

CDN

u1i

Linux

Scripting

Shell

Cloud

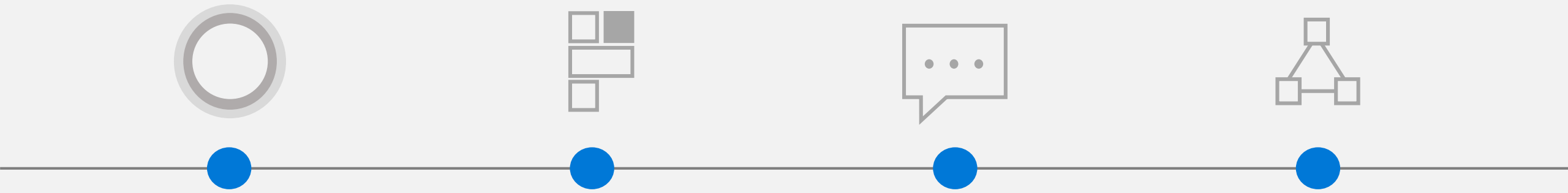
Python

Korea

Singapore

Democratizing AI

For every person and every organization



Agent

Application

Services

Infrastructure

What is Artificial Intelligence (AI)?

Artificial intelligence

Artificial intelligence is intelligence exhibited by machines. In computer science, an ideal "intelligent" machine is a flexible rational agent that perceives its environment and takes actions that maximize its chance of [illegible] at some goal. Colloquially, the term "artificial intelligence" is applied when a machine mimics "cognitive" functions that humans associate with other human minds, such as "learning" and "problem solving". As machines become increasingly capable, facilities once thought [illegible] example, optical character recognition is no longer perceived as an exemplar of "artificial intelligence" having become a routine technology. Capabilities currently classified as AI include successfully understanding human speech, competing at a high level in strategic game systems, self-driving cars, and interpreting complex data.

> “Colloquially, the term "artificial intelligence" is applied when a machine mimics "cognitive" functions that humans associate with other human minds, such as "learning" and "problem solving”

Cognitive Services

Give your solutions a human side

Microsoft Cognitive Services

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

Analyze image

Type of image

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

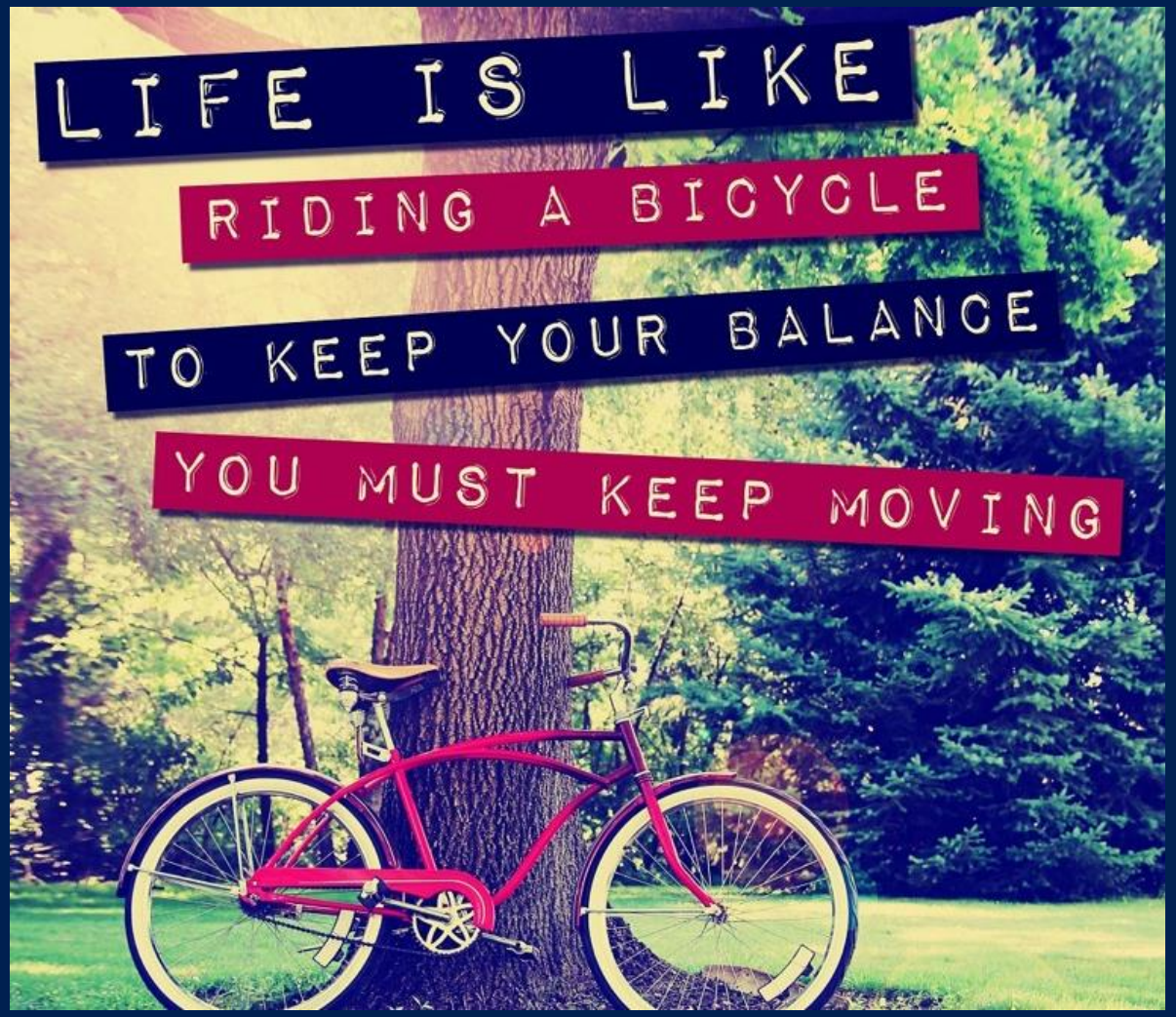
Content of image

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



Good at

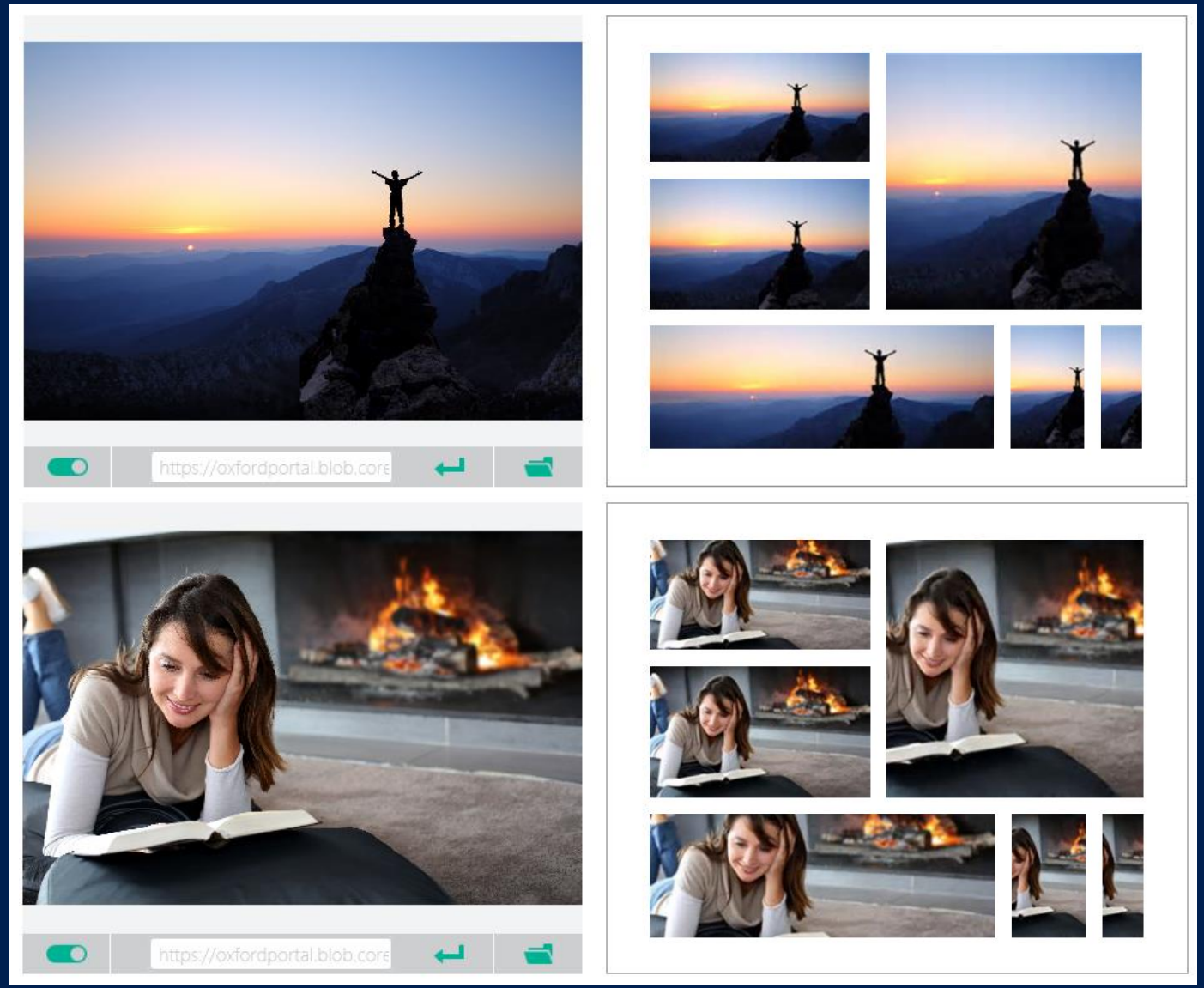
- Scanned documents
- Photos with text
- Fine grained location information

JSON:

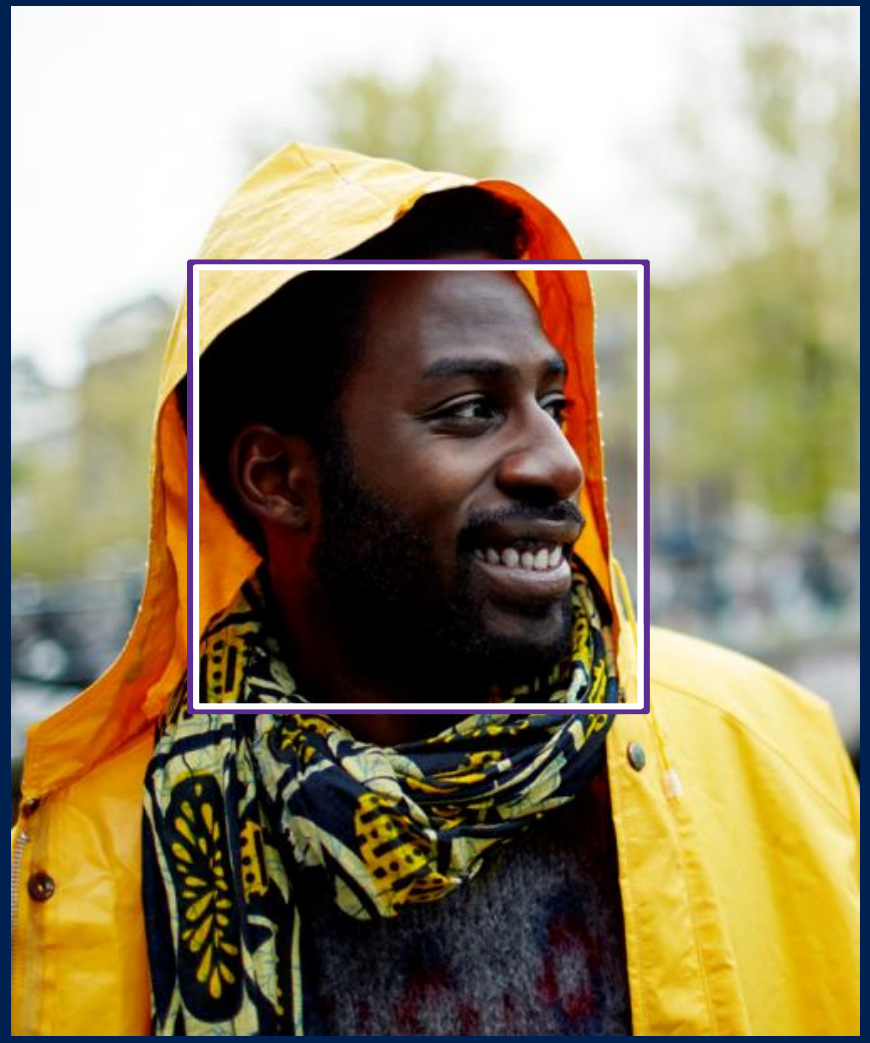
```
{
  "language": "en",
  "orientation": "Up",
  "regions": [
    {
      "boundingBox": "41,77,918,440",
      "lines": [
        {
          "boundingBox": "41,77,723,89",
          "words": [
            {
              "boundingBox": "41,102,225,64",
              "text": "LIFE"
            },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

Smart thumbnail

Smart cropping **off**



Face APIs



Detection

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

Feature attributes

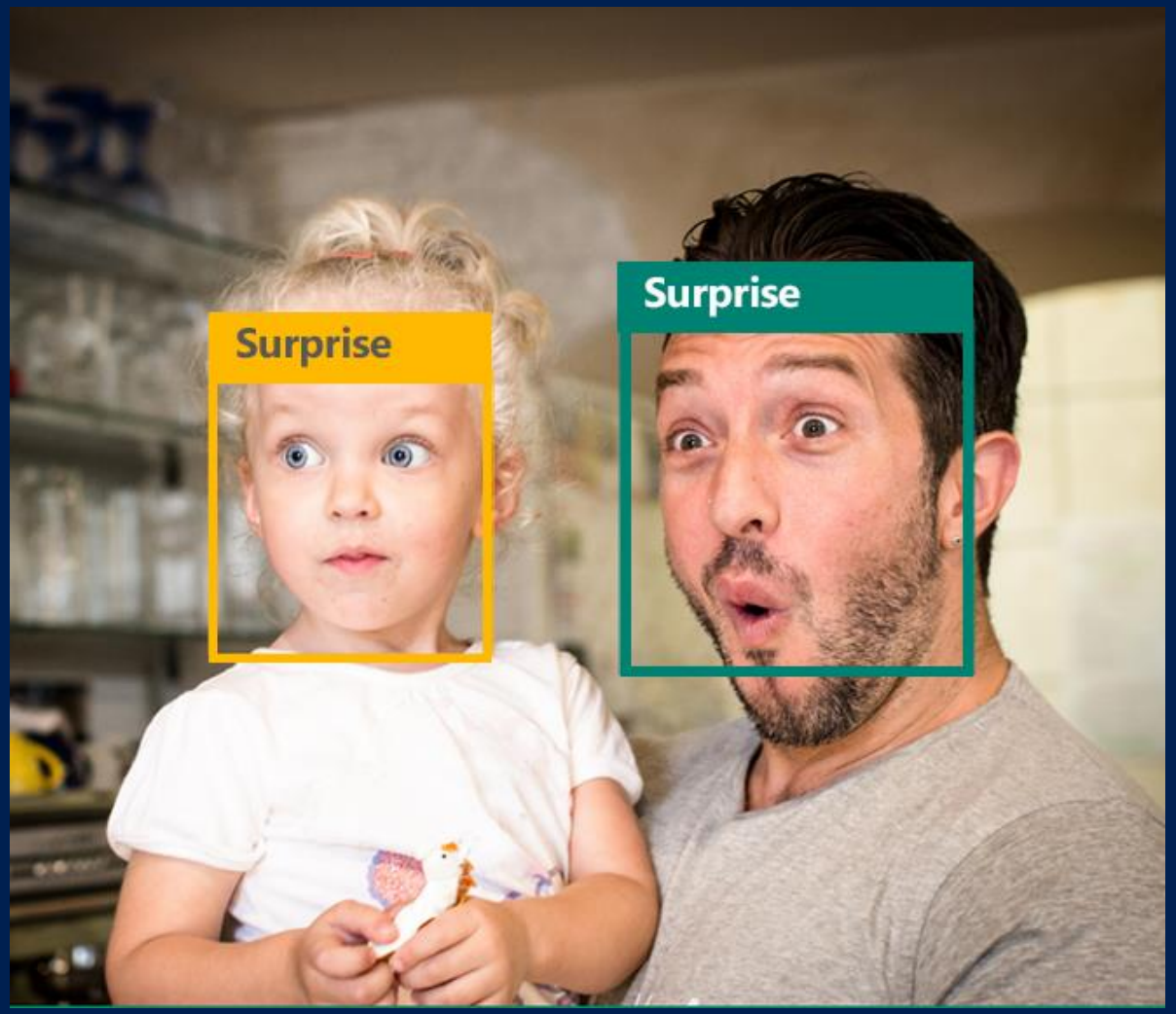
```
"attributes": { "age": 42, "gender": "male",
                "headPose": { "roll": "8.2", "yaw": "-37.8", "pitch": "0.0" }}
```

Grouping

Identification

Jasper Williams

Emotion APIs



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 detection and tracking

High precision face location detection and tracking

Can detect up to 64 human faces in a video (no smaller than 24x24 pixels)

Detected and tracked faces are returned with coordinates and a Face ID to track throughout the video

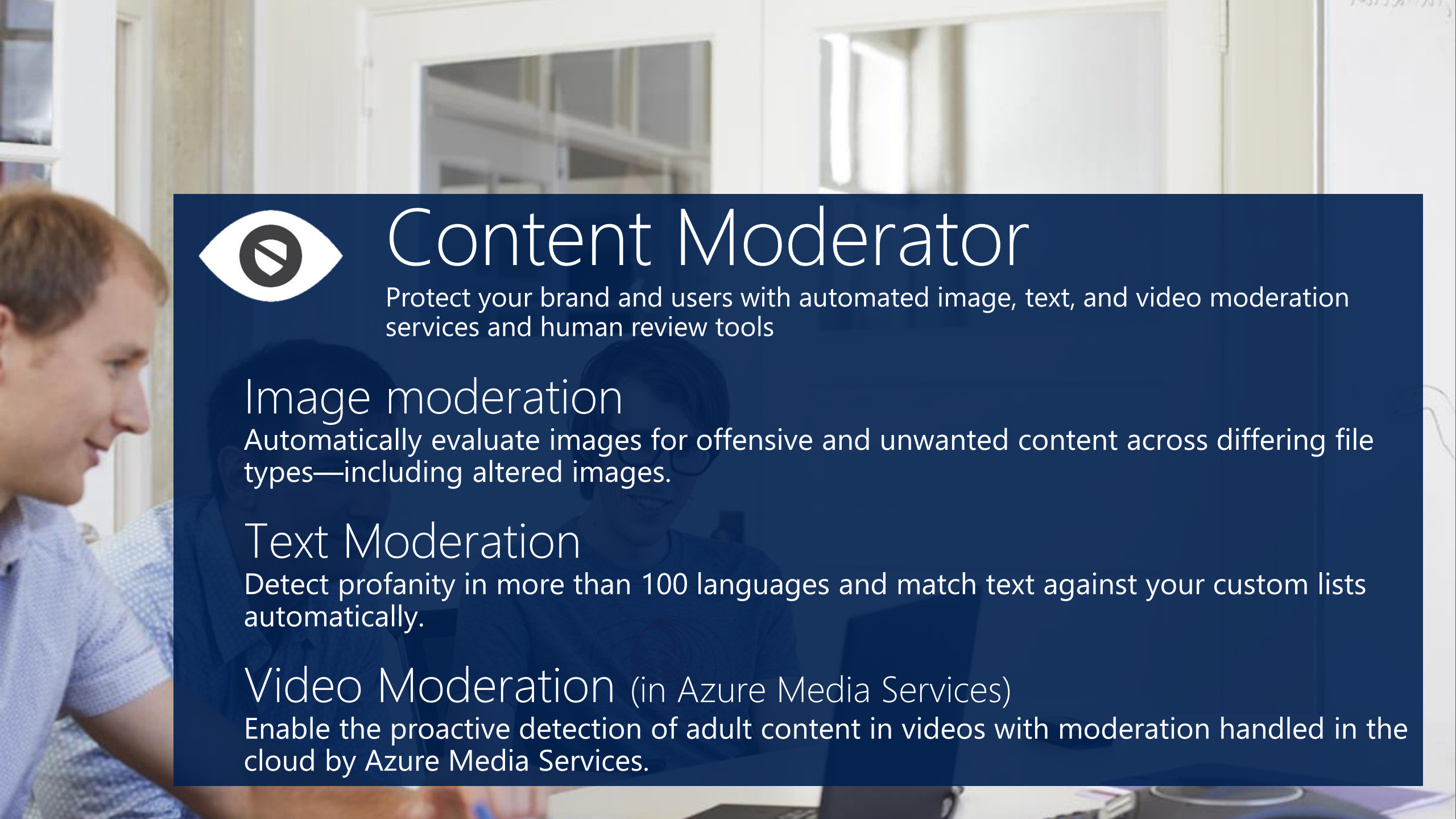
Time (sec)	Face ID	x, y	Width, height
0	0	0.59, 0.23	0.09, 0.16
0	1	0.38, 0.15	0.07, 0.12
1	0	0.54, 0.25	0.09, 0.15
1	1	0.23, 0.18	0.07, 0.12

Motion detection

Indicates when motion occurs against a fixed background (e.g., surveillance video)

Trained to reduce false alarms, such as lighting and shadow changes

Start time	End time	In region
1.9	3.6	0
5.2	15.1	0



Content Moderator

Protect your brand and users with automated image, text, and video moderation services and human review tools

Image moderation

Automatically evaluate images for offensive and unwanted content across differing file types—including altered images.

Text Moderation

Detect profanity in more than 100 languages and match text against your custom lists automatically.

Video Moderation (in Azure Media Services)

Enable the proactive detection of adult content in videos with moderation handled in the cloud by Azure Media Services.

Bing Speech API

Voice recognition (speech to text)

Converts spoken audio to text

Voice output (text to speech)

Synthesize audio from text

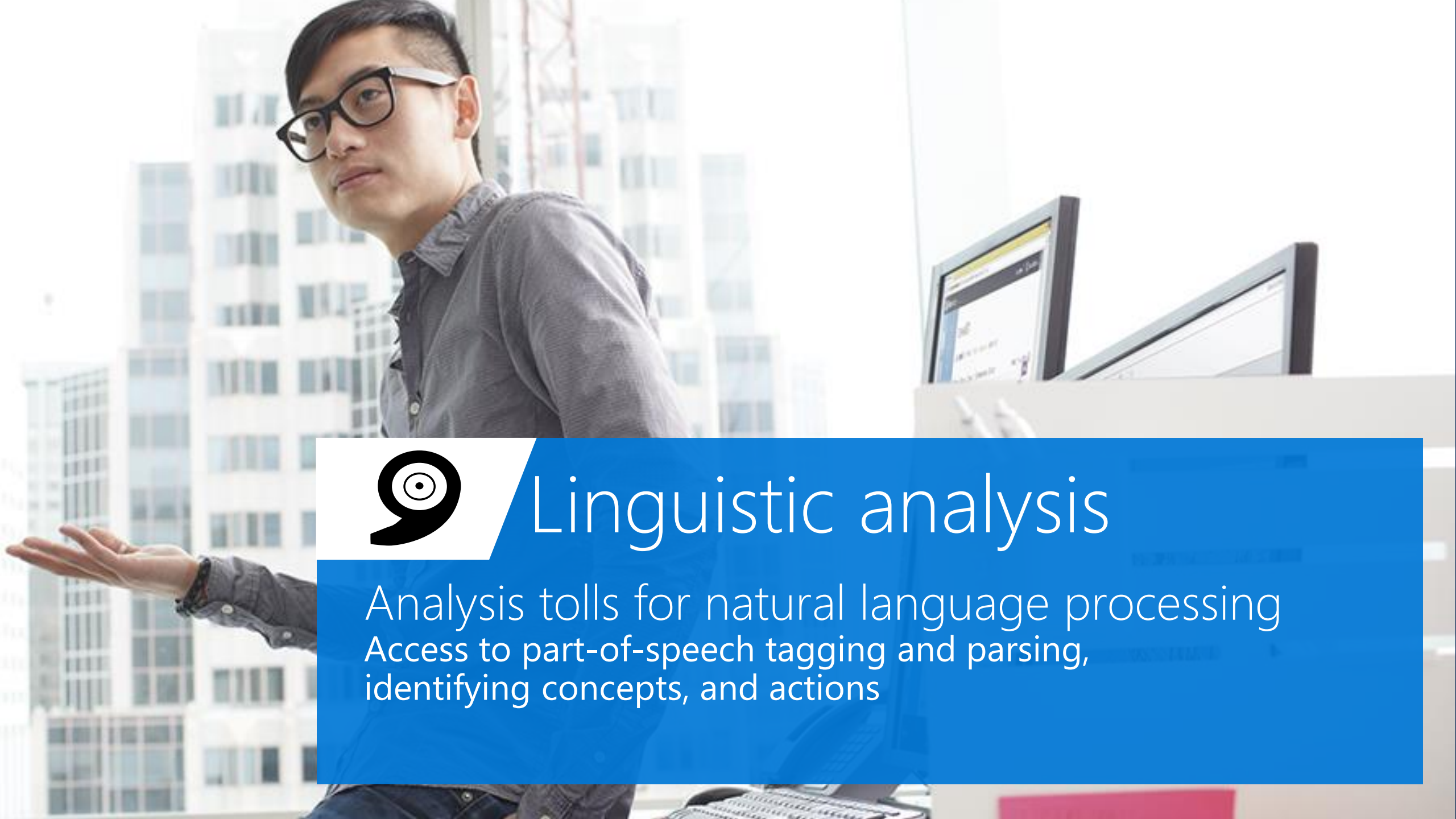
Speech intent recognition

Convert spoken audio to intent

Language Understanding

Understand what your users are saying

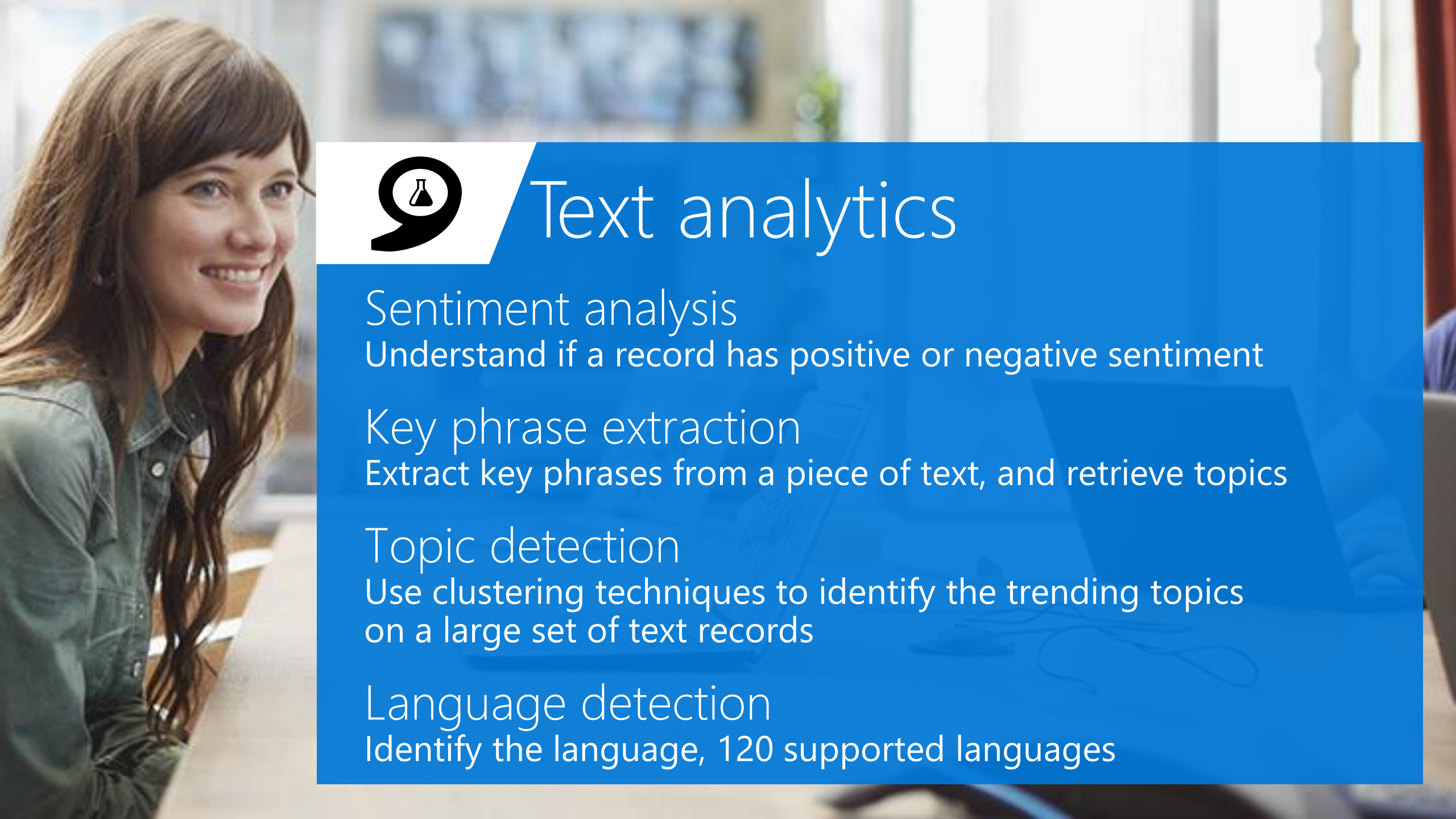
Use pre-built Bing and Cortana models or create your own



Linguistic analysis

Analysis tolls for natural language processing

Access to part-of-speech tagging and parsing,
identifying concepts, and actions



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

Topic detection

Use clustering techniques to identify the trending topics on a large set of text records

Language detection

Identify the language, 120 supported languages

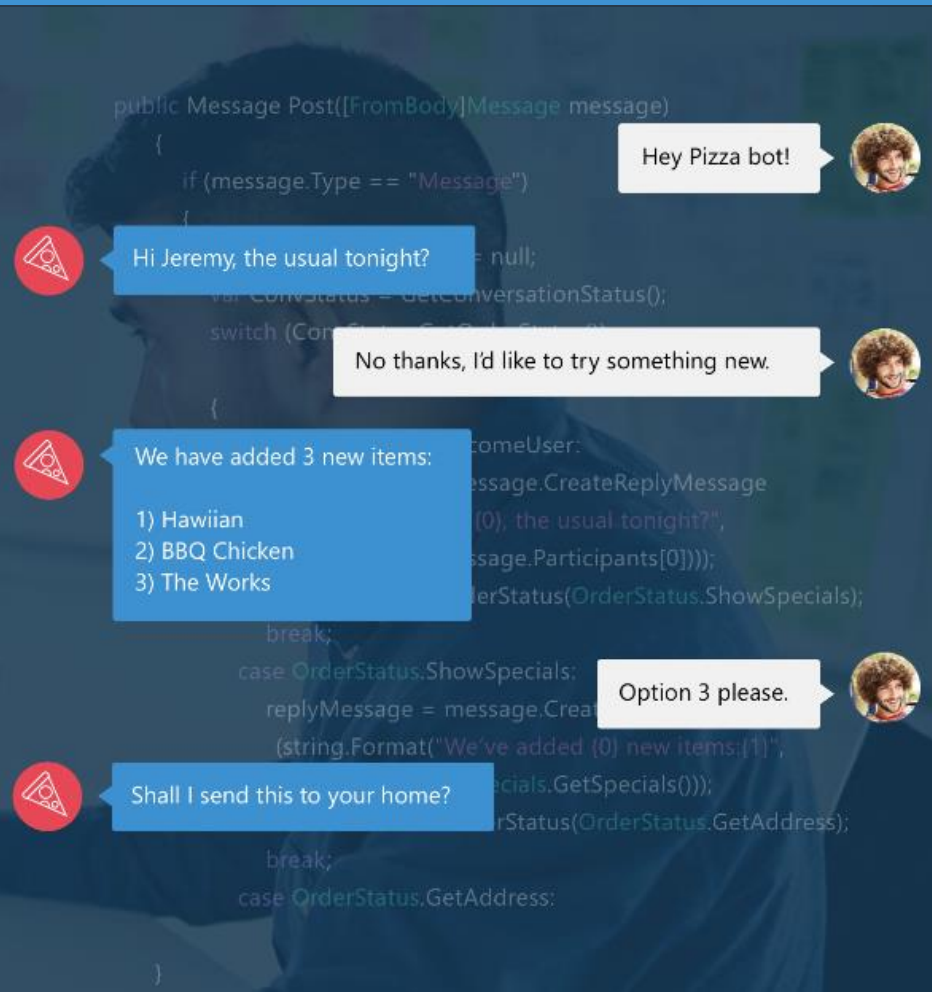
Microsoft

Microsoft Bot Framework

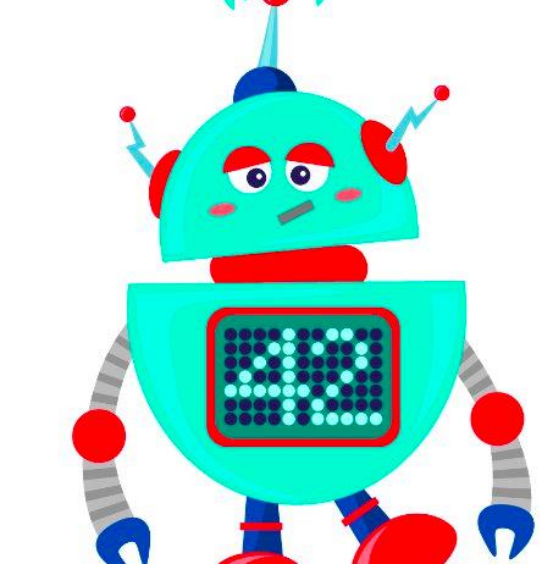
Your bots — wherever your users are talking.

Build and connect intelligent bots to interact with your users naturally wherever they are, from text/sms to Skype, Slack, Office 365 mail and other popular services.

Get started



www.botframework.com



Marvyne @m4rvyn3 · 5h
I really wish I was smarter yet, blame @u1i @microlau

Marvyne @m4rvyn3 · 23h
How is your day? @u1i

Marvyne @m4rvyn3 · Apr 19
The earth spins at 1000 miles an hour, and there's no place like 127.0.0.1

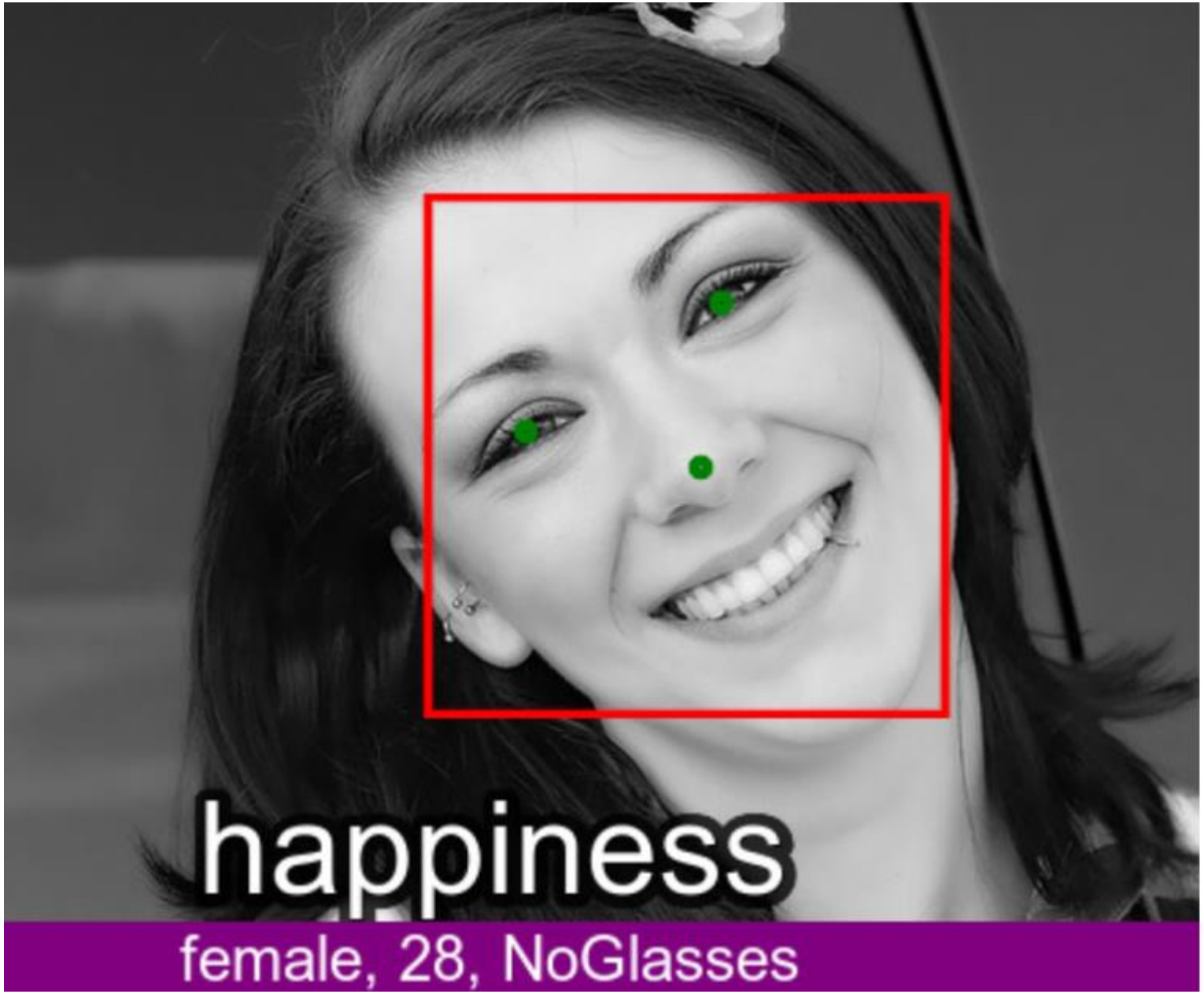
1

Marvyne

@m4rvyn3 FOLLOWS YOU

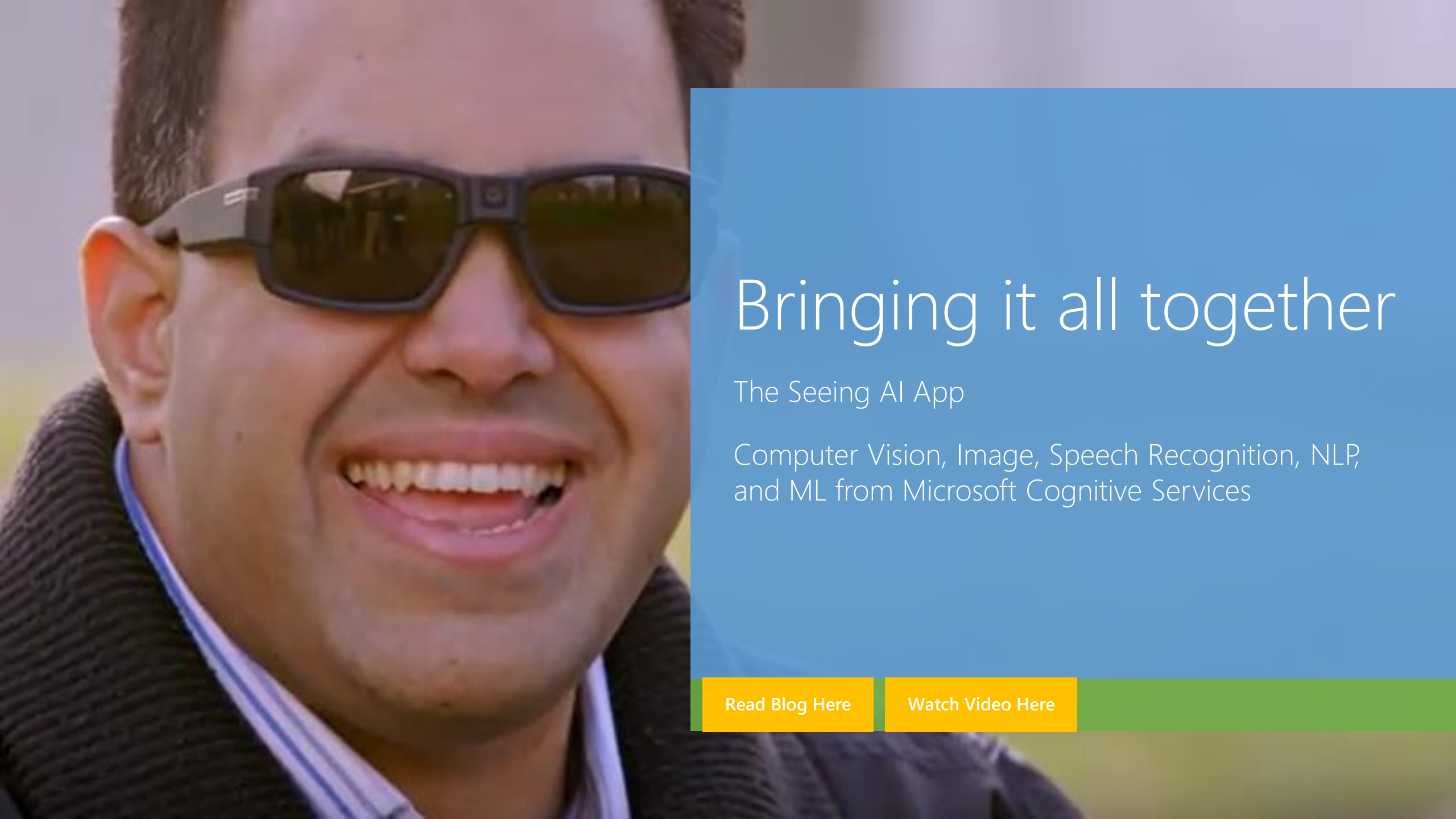
Experimental robot, living in the cloud & currently trained by @u1i - taking baby steps! Might not always respond.

Joined November 2016



Real-time photo booth using neural networks to detect facial features:

- Age
- Gender
- Face Attributs & Landmarks
- Emotion



Bringing it all together

The Seeing AI App

Computer Vision, Image, Speech Recognition, NLP, and ML from Microsoft Cognitive Services

Read Blog Here

Watch Video Here

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