

# Cognitive APIs

# APIs and Cognitive APIs

- API: It is a set of functions and procedures allowing the creation of applications that access the features or data of an operating system, application, or other service.
- Cognitive APIs: APIs that provide a cognitive (data science) service.
- Multiple cloud providers provide such cognitive APIs: Microsoft, Amazon, Google, IBM, Twitter, etc.

# Features of APIs

- Input
- Output
- Rate limits
- Authentication
  - HTTP auth: provide username and password. Unless the process is strictly enforced throughout the entire data cycle to **SSL** for security, the authentication is transmitted in open on insecure lines.
  - API keys: a **unique generated value** is assigned to each first time user, signifying that the user is known.
  - OAuth
- Pricing

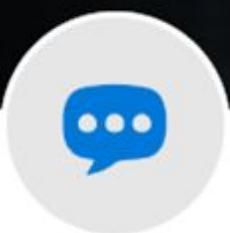
# Microsoft Cognitive Services

## 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, & 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



# Microsoft Cognitive Services

## Give your apps a human side



### Vision

Computer Vision

Content Moderator

Emotion

Face

Video

Video Indexer



### Speech

Bing Speech

Speaker  
Recognition

Translator Speech



### Language

Bing Spell Check

Linguistic Analysis

Text Analytics

Translator Text  
& Speech

Web Language  
Model



### Knowledge

Academic  
Knowledge

Entity Linking

Knowledge  
Exploration

Recommendations

QnA Maker



### Search

Bing Autosuggest

Bing Image  
Search

Bing News  
Search

Bing Video  
Search

Bing Web  
Search

Bing Entity  
Search

# Vision APIs

Decision

Language

Speech

**Vision**

Web search

**Identify and analyse content within images, videos and digital ink**

## Computer Vision

Analyse content in images.

## Custom Vision

Customise image recognition to fit your business needs.

## Face

Detect and identify people and emotions in images.

## Form Recogniser PREVIEW

Extract text, key-value pairs and tables from documents.

## Ink Recogniser PREVIEW

Recognise digital ink and handwriting and pinpoint common shapes.

## Video Indexer

Analyse the visual and audio channels of a video and index its content.

## Computer Vision

[Try for free](#) | [Learn More](#)

Image classification

Scene and activity recognition in images | [Demo](#)

Celebrity and landmark recognition in images | [Demo](#)

Optical character recognition (OCR) in images | [Demo](#)

Support

Handwriting recognition | [Demo](#)

## Video Indexer

[Try for free](#) | [Learn More](#)

Face detection in video

Object, scene and activity detection in video

Metadata, audio and keyframe extraction and analysis

## Face

[Try for free](#) | [Learn More](#) | [Container Support](#)

Face detection in images | [Demo](#)

Person Identification in images

Emotion recognition in images | [Demo](#)

Similar face recognition and grouping in images | [Demo](#)

## Content Moderator

[Try for free](#) | [Learn More](#)

Explicit or offensive content moderation for images and videos

Custom image and text lists to block or allow matching content

Tools for including feedback from human moderators

<https://azure.microsoft.com/en-in/services/cognitive-services/computer-vision/#features>



See it in action

FEATURE NAME:	VALUE
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": 0.8330993 } ] }
Tags	[ { "name": "train", "confidence": 0.9975446 }, { "name": "platform", "confidence": 0.995543063 }, { "name": "station", "confidence": 0.9798007 }, { "name": "indoor", "confidence": 0.9277198 }, { "name": "subway", "confidence": 0.838939548 }, { "name": "pulling", "confidence": 0.4317156 } ]
Image format	"Jpeg"

Image dimensions	462 x 600
Clip art type	0
Line drawing type	0
Black and white	false
Adult	false
Racy	false
Racy score	0.0143244695
Categories	[ { "name": "trans_trainstation", "score": 0.98828125 } ]
Faces	[]
Dominant color background	■ "Black"
Dominant color foreground	■ "Black"
Accent Color	#484C83

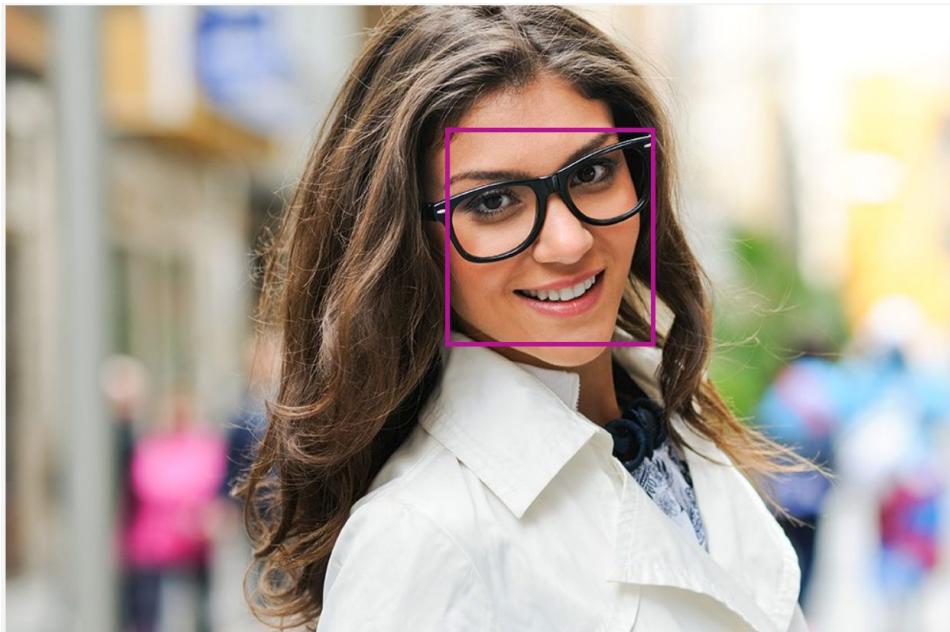
Image URL

Submit

Browse

# Face Detection

<https://azure.microsoft.com/en-in/services/cognitive-services/face/#demo>



JSON: [ {  
    "faceId": "add3ab06-6d7f-48ee-94c4-6d97abcf34d",  
    "faceRectangle": { "top": 128, "left": 459, "width": 224, "height": 224 },  
    "faceAttributes": {  
        "hair": {  
            "bald": 0.1,  
            "invisible": false,  
            "hairColor": [ { "color": "brown", "confidence": 0.99 }, { "color": "black", "confidence": 0.57 }, { "color": "red", "confidence": 0.36 }, { "color": "blond", "confidence": 0.34 }, { "color": "gray", "confidence": 0.15 }, { "color": "other", "confidence": 0.13 } ]  
        },  
        "smile": 1.0,  
        "headPose": { "pitch": 0.0, "roll": -16.9, "yaw": 16.7 },  
        "gender": "female",  
        "age": 24.0,  
        "facialHair": { "moustache": 0.0, "beard": 0.0, "sideburns": 0.0 },  
        "glasses": "ReadingGlasses",  
        "makeup": { "eyeMakeup": true, "lipMakeup": true },  
        "emotion": { "anger": 0.0, "contempt": 0.0, "disgust": 0.0, "fear": 0.0, "happiness": 1.0, "neutral": 0.0, "sadness": 0.0, "surprise": 0.0 },  
        "occlusion": { "foreheadOccluded": false, "eyeOccluded": false, "mouthOccluded": false },  
        "accessories": [ { "type": "glasses", "confidence": 1.0 } ],  
        "blur": { "blurLevel": "low", "value": 0.0 },  
        "exposure": { "exposureLevel": "goodExposure", "value": 0.48 },  
        "noise": { "noiseLevel": "low", "value": 0.0 }  
    },  
    "faceLandmarks": {  
        "pupilLeft": { "x": 504.8, "y": 206.8 }, "pupilRight": { "x": 602.5, "y": 178.4 }, "noseTip": { "x": 593.5, "y": 247.3 }, "mouthLeft": { "x": 529.8, "y": 300.5 }, "mouthRight": { "x": 626.0, "y": 277.3 }, "eyebrowLeftOuter": { "x": 461.0, "y": 186.8 }, "eyebrowLeftInner": { "x": 541.9, "y": 178.9 }, "eyeLeftOuter": { "x": 490.9, "y": 209.0 }, "eyeLeftTop": { "x": 509.1, "y": 199.5 }, "eyeLeftBottom": { "x": 509.3, "y": 213.9 }, "eyeLeftInner": { "x": 529.0, "y": 205.0 }, "eyebrowRightInner": { "x": 579.2, "y": 169.2 }, "eyebrowRightOuter": { "x": 633.0, "y": 136.4 }, "eyeRightInner": { "x": 590.5, "y": 184.5 }, "eyeRightTop": { "x": 604.2, "y": 171.5 }, "eyeRightBottom": { "x": 608.4, "y": 184.0 }, "eyeRightOuter": { "x": 623.8, "y": 173.7 }, "noseRootLeft": { "x": 549.8, "y": 200.3 }, "noseRootRight": { "x": 580.7, "y": 192.3 }, "noseLeftAlarTop": { "x": 557.2, "y": 234.6 }, "noseRightAlarTop": { "x": 603.2, "y": 225.1 }, "noseLeftAlarOutTip": { "x": 545.4, "y": 255.5 }, "noseRightAlarOutTip": { "x": 615.9, "y": 239.5 }, "upperLipTop": { "x": 591.1, "y": 278.4 }, "upperLipBottom": { "x": 593.2, "y": 288.7 }, "underLipTop": { "x": 597.1, "y": 308.0 }, "underLipBottom": { "x": 600.3, "y": 324.8 } } } ]

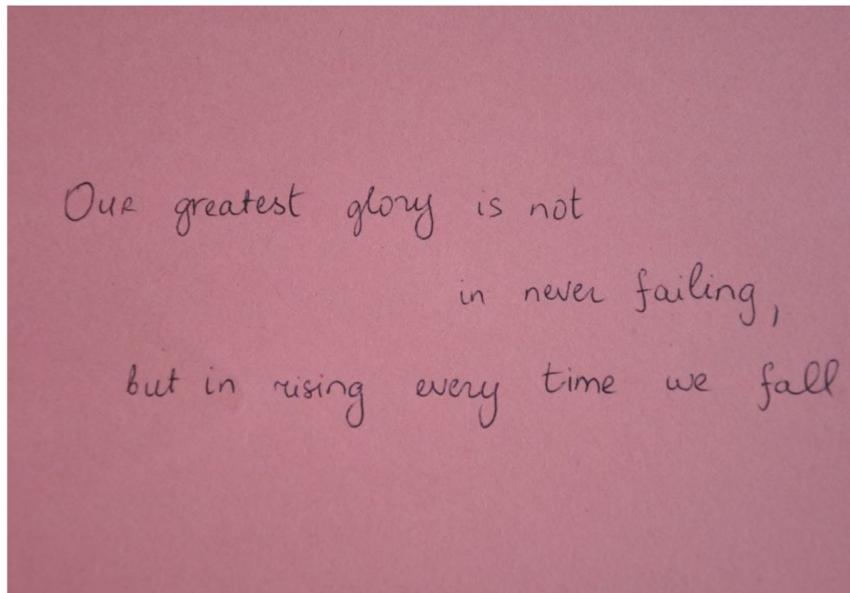
# Read handwritten text from images

<https://azure.microsoft.com/en-in/services/cognitive-services/ink-recognizer/#features>

Detect and extract handwritten text from notes, letters, essays, whiteboards, forms, and other sources. Reduce paper clutter and be more productive by taking photos of handwritten notes instead of transcribing them, and make the digital notes easy to find by implementing search. Handwritten OCR works with different surfaces and backgrounds, such as white paper, yellow sticky notes, and whiteboards.

Note: This technology is currently in preview and is only available for English text.

See it in action



Preview

JSON

OUR greatest glory is not  
in never failing,  
om  
but in rising  
\_every  
time  
fall

Image URL

Submit

Browse

# Recognize celebrities and landmarks

<https://azure.microsoft.com/en-us/services/cognitive-services/computer-vision/#features>

## Recognize celebrities and landmarks

Recognize more than 200,000 celebrities from business, politics, sports and entertainment, as well as 9,000 natural and manmade landmarks from around the world.

See it in action



```
{
  "categories": [
    {
      "name": "people",
      "score": 0.86328125,
      "detail": {
        "celebrities": [
          {
            "name": "Satya Nadella",
            "faceRectangle": {
              "left": 240,
              "top": 294,
              "width": 135,
              "height": 135
            },
            "confidence": 0.99999833106994629
          }
        ],
        "landmarks": null
      }
    },
    "adult": null,
    "tags": [
      {
        "name": "person",
        "confidence": 0.99956613779067993
      }
    ]
  ]
}
```

```
"tags": [
  {
    "name": "person",
    "confidence": 0.99956613779067993
  },
  {
    "name": "suit",
    "confidence": 0.98934584856033325
  },
  {
    "name": "man",
    "confidence": 0.98844343423843384
  },
  {
    "name": "outdoor",
    "confidence": 0.860062301158905
  },
  {
    "name": "sound",
    "confidence": 0.23671795330197121
  },
  {
    "name": "wedding",
    "confidence": 0.1843707298035846
  },
  {
    "name": "tie"
  }
],
"captions": [
  {
    "text": "Satya Nadella wearing a suit and tie",
    "confidence": 0.99032750982666984
  }
],
"requestId": "6380b942-d1d2-4fa5-890e-57c739b8c328",
"metadata": {
  "width": 600,
  "height": 900,
  "format": "Jpeg"
},
"faces": [
  {
    "age": 49,
    "gender": "Male",
    "faceRectangle": {
      "left": 240,
      "top": 294,
      "width": 135,
      "height": 135
    }
  }
],
"color": {
  "dominantColorForeground": "Black",
  "dominantColorBackground": "Black"
}
```

Image URL

Submit

Browse

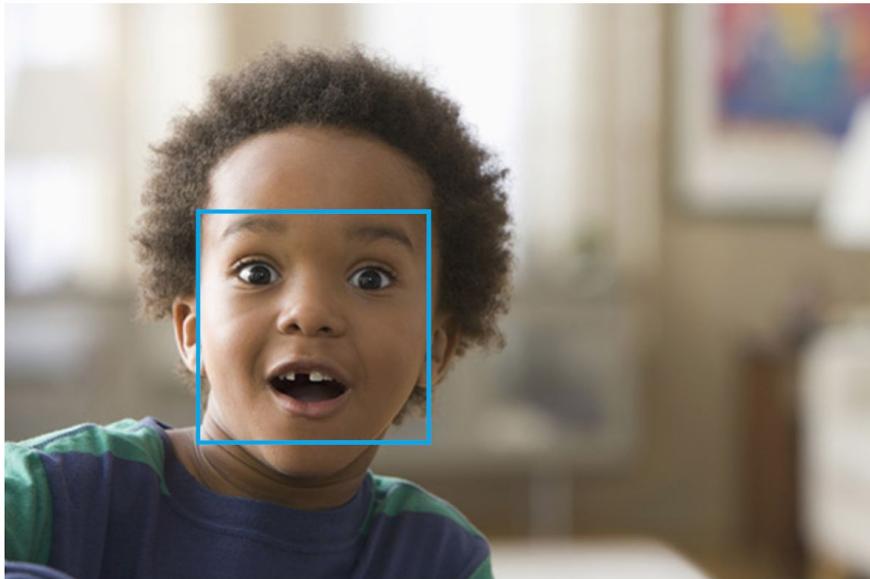
# Emotion Recognition

<https://azure.microsoft.com/en-in/services/cognitive-services/face/>

## Emotion recognition

The Face API now integrates emotion recognition, returning the confidence across a set of emotions for each face in the image such as anger, contempt, disgust, fear, happiness, neutral, sadness, and surprise. These emotions are understood to be cross-culturally and universally communicated with particular facial expressions.

See it in action



**Detection result:**  
1 faces detected

**JSON:**

```
[  
  {  
    "faceRectangle": {  
      "top": 141,  
      "left": 130,  
      "width": 162,  
      "height": 162  
    },  
    "scores": {  
      "anger": 9.29041E-06,  
      "contempt": 0.000118981574,  
      "disgust": 3.15619363E-05,  
      "fear": 0.000589638,  
      "happiness": 0.06630674,  
      "neutral": 0.00555004273,  
      "sadness": 7.44669524E-06,  
      "surprise": 0.9273863  
    }  
  }]
```

Image URL

Submit

Browse

# Face Verification

<https://azure.microsoft.com/en-us/services/cognitive-services/face/#verification>

## Face verification

Check the likelihood that two faces belong to the same person. The API will return a confidence score about how likely it is that the two faces belong to one person.

[See it in action](#)

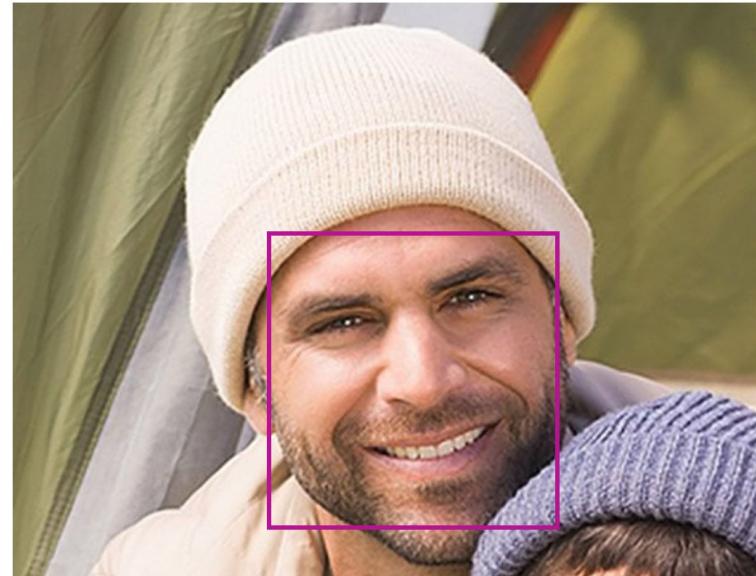


Image URL

Image URL

Verification result: The two faces belong to the same person. **Confidence is 0.7349.**

# Language/Text APIs

## Azure Cognitive Services

Decision

**Language**

Speech

Vision

Web search

Extract meaning from unstructured text

**Immersive Reader** PREVIEW

Help readers of all abilities comprehend text using audio and visual cues.

**Language Understanding**

Build natural language understanding into apps, bots and IoT devices.

**QnA Maker**

Create a conversational question and answer layer over your data.

**Text Analytics**

Detect sentiment, key phrases and named entities.

**Translator Text**

Detect and translate more than 60 supported languages.

## Translator Text

[Try for free](#) | [Learn More](#)

Automatic language detection | [Container Support](#)

Automated text translation

Customizable translation

## Content Moderator

[Try for free](#) | [Learn More](#)

Explicit or offensive content moderation for images and videos

Custom image and text lists to block or allow matching content

Tools for including feedback from human moderators

## QnA Maker

[Try for free](#) | [Learn More](#)

QnA extraction from unstructured text | [Demo](#)

Knowledge base creation from collections of Q&As

Semantic matching for knowledge bases

# Immersive Reader

<https://azure.microsoft.com/en-in/services/cognitive-services/immersive-reader/#features>

adj. n. v. n. adj.  
Im·mers·ive Rea·der is an Az·ure Cog·ni·tive  
n. n. v. v.  
Service for de·vel·op·ers who want to em·bed  
adj. n. n.  
in·clu·sive ca·pa·bil·i·ties in·to their apps for  
v. n. n. n.  
en·han·cing text read·ing and com·pre·hen·sion  
n. adv. n. n.  
for u·sers re·gard·less of age or a·bil·i·ty.



<http://corenlp.run/>

<https://tagme.d4science.org/tagme/>

Input Text

Italiano English Deutsche

Trump is the 45th and current president of the United States. Modi, prime minister of India, met Trump in 2019 and Obama in 2014.

Many links

Few links

Reset

TAGME!

Tagged text Topics

Trump is the 45th and current president of the United States. Modi, prime minister of India, met

**Donald Trump**  
Donald John Trump (born June 14, 1946) is an American businessman, politician, television personality, author, and candidate for the Republican nomination for President of the United States in the 201...

**Narendra Modi**  
Narendra Damodardas Modi (, born 17 September 1950) is the 15th and current Prime Minister of India, in office since 26 May 2014. Modi, a leader of the Bharatiya Janata Party was the Chief Minister of...

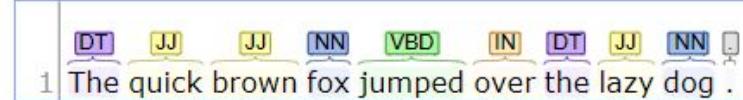
— Text to annotate —

The quick brown fox jumped over the lazy dog.

— Annotations —

parts-of-speech  named entities  dependency parse  openie

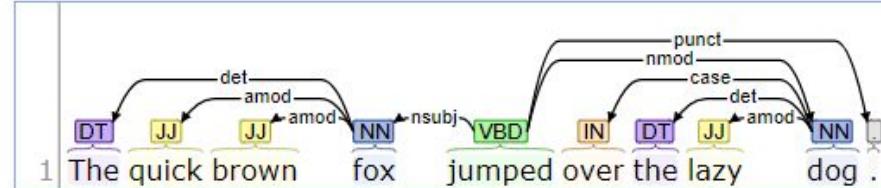
Part-of-Speech:



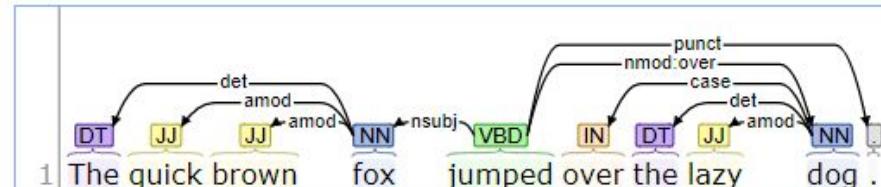
Named Entity Recognition:

1 The quick brown fox jumped over the lazy dog .

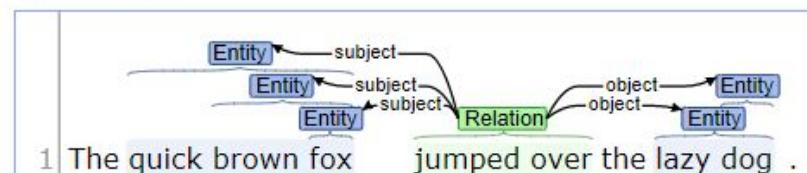
Basic Dependencies:



Enhanced++ Dependencies:



Open IE:



<http://corenlp.run/>

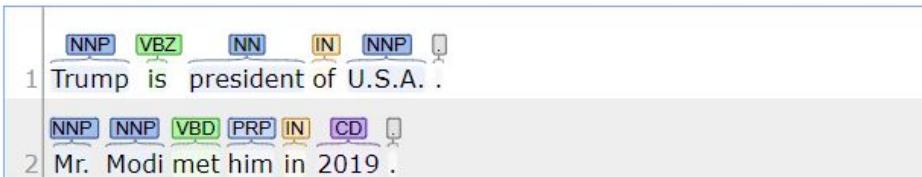
— Text to annotate —

Trump is president of U.S.A. Mr. Modi met him in 2019.

— Annotations —

parts-of-speech  named entities  dependency parse  openie

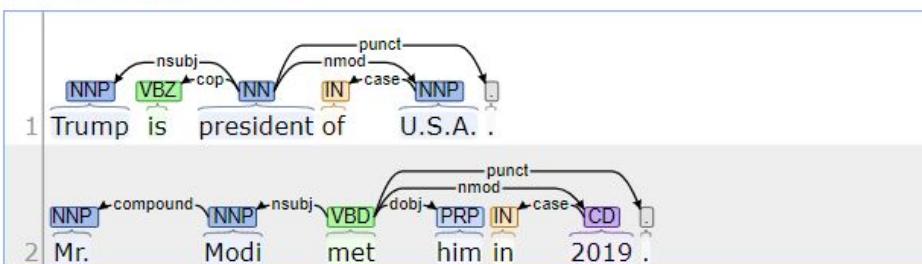
Part-of-Speech:



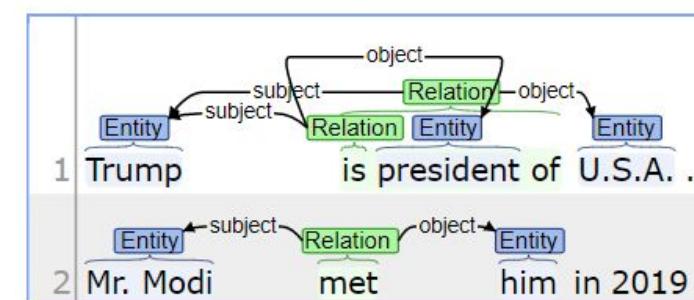
Named Entity Recognition:



Basic Dependencies:



Open IE:



# Text analytics

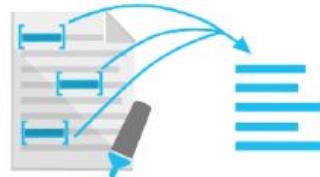
<https://azure.microsoft.com/en-in/services/cognitive-services/text-analytics/>



## Sentiment analysis

The latest version of this API returns scores and labels at a sentence and document level. The scores and labels are positive, negative and neutral. At the document level, the mixed sentiment label also can be returned without a score. A variety of languages is supported.

[Learn More >](#)



## Key phrase extraction

The API returns a list of strings denoting the key talking points in the input text. We employ techniques from Microsoft Office's sophisticated Natural Language Processing toolkit. More than 12 languages are supported including English, German, Spanish and Japanese.

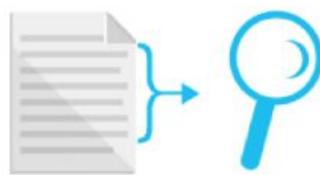
[Learn More >](#)



## Language detection

The API returns the detected language and a numeric score between 0 and 1. Scores close to 1 indicate 100% certainty that the identified language is true. A total of 120 languages are supported.

[Learn More >](#)



## Named Entity Recognition

Detect all named entities in the text, such as organisations, people and locations and more. Entity Linking disambiguates distinct entities by associating text to additional information on the web. For example, use it to determine whether a term such as "times" refers to "The New York Times" or "Times Square."

# Extract information from your text

<https://azure.microsoft.com/en-us/services/cognitive-services/text-analytics/>

## Extract information from your text

Use the demo below to experiment with the Text Analytics API. Pick one of our examples or provide your own. Identify the language, sentiment, key phrases, and entities (Preview) of your text by clicking "Analyze".

See it in action

I had a wonderful trip to Seattle and enjoyed seeing the Space Needle!

Analyzed text

JSON

**LANGUAGES:** English (confidence: 100 %)

**KEY PHRASES:** Seattle, wonderful trip, Space Needle

**SENTIMENT:** 98 %

**LINKED ENTITIES (PREVIEW):** I had a wonderful trip to [Seattle](#) and enjoyed seeing the [Space Needle](#)!

Analyze

# Easily extract text and structure from forms

<https://azure.microsoft.com/en-in/services/cognitive-services/form-recognizer/#features>

The screenshot illustrates the Microsoft Form Recognizer interface. On the left, a sample invoice document from "BlueInvoice" is shown. The document header reads "Contoso". It contains fields for "Bill To: Contoso, Ltd", "Phone: 432-555-0189", "Fax: 432-555-0123", "Email: contoso@example.com", "Invoice #: 3-456-2", and "Invoice Date: 4/14/2019". Below this, it says "Invoice For: Project 2" and features a table of items with columns: Item #, Description, Qty, Unit Price, Discount, and Price. The table has 10 rows, each labeled "Invoice 3-456-2 Data n" where n ranges from 1 to 10. On the right, the extracted data is presented in two tabs: "Preview" and "JSON". The "Preview" tab shows a list of key-value pairs corresponding to the invoice fields. The "JSON" tab shows the data in JSON format.

**Key-value pairs**

Bill To: Contoso, Ltd  
Phone: 432-555-0189  
Invoice #: 3-456-2  
Fax: 432-555-0123  
Invoice Date: 4/14/2019  
Email: contoso@example.com  
Invoice For: Project 2  
Invoice Subtotal: 2,014.00  
Tax Rate: 8.75%

Item #	Description	Qty	Unit Price	Discount	Price
Z4567	Invoice 3-456-2 Data 1	39	\$ 5.00	\$ ..	\$ 195.00
Z4568	Invoice 3-456-2 Data 2	40	4.00	5.00	155.00
Z4569	Invoice 3-456-2 Data 3	30	6.00	7.00	173.00
Z4570	Invoice 3-456-2 Data 4	40	7.00	..	280.00
Z4571	Invoice 3-456-2 Data 5	10	4.00	..	40.00
Z4572	Invoice 3-456-2 Data 6	5	8.00	..	40.00
Z4573	Invoice 3-456-2 Data 7	70	6.00	..	420.00
Z4574	Invoice 3-456-2 Data 8	25	4.00	..	100.00
Z4575	Invoice 3-456-2 Data 9	5	7.00	3.00	32.00

# Language Understanding

<https://azure.microsoft.com/en-in/services/cognitive-services/language-understanding-intelligent-service/>

Remote light control

Type a command to control the lights:

all on

Submit

OR pick one of ours:

turn the right light on

switch all lights to green

turn on the left light

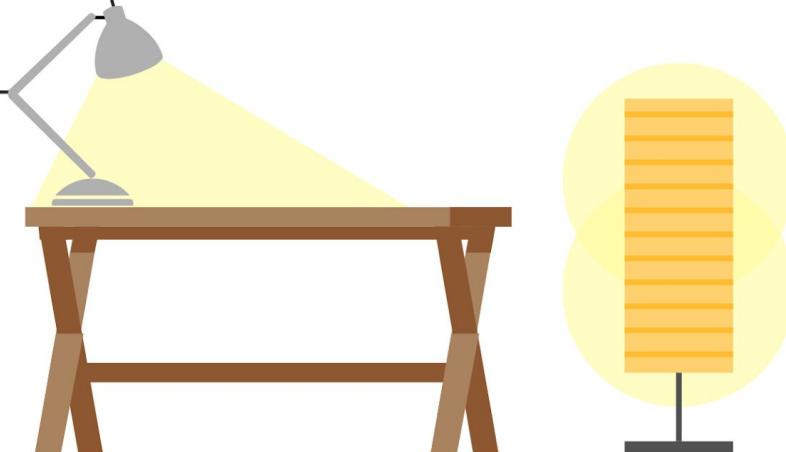
all on

switch floor lamp to green

turn the table light off

all lights off

Smart light application in action ⓘ



LUIS application response ⓘ

```
{ "query": "all on", "topScoringIntent": { "intent": "TurnAllOn", "score": 0.995185554 }, "entities": [] }
```

# Create a FAQ service from existing content

<https://azure.microsoft.com/en-in/services/cognitive-services/qna-maker/>

The screenshot shows a user interface for a QnA Maker service. On the left, there is a search bar containing the text "how can i login?". Below the search bar is a section titled "Examples" which lists several questions: "How do I login?", "Who should use QnAMaker?", "What are supported file formats?", "What is the maximum size of a knowledge base?", and "Should I use botframework?". At the bottom of this list is a link "Check the QnA Maker FAQ.". To the right of the search bar are two buttons: "Preview" (in blue) and "JSON" (in grey). The main content area on the right is divided into sections: "Answer:", "Score:", and "Matched questions:". The "Answer:" section contains the text "You can login with your Microsoft account.". The "Score:" section contains the number "98". The "Matched questions:" section contains a list of three items: "• How do I login to the QnA Maker Portal?", "• how do I login?", and "• how do i login".

how can i login?

Preview JSON

Examples

How do I login?

Who should use QnAMaker?

What are supported file formats?

What is the maximum size of a knowledge base?

Should I use botframework?

Check the QnA Maker FAQ.

Answer:

You can login with your Microsoft account.

Score:

98

Matched questions:

- How do I login to the QnA Maker Portal?
- how do I login?
- how do i login

# Content Moderation

## Image moderation

Enhance your ability to detect potentially offensive or unwanted images through machine learning-based classifiers, custom lists and optical character recognition (OCR).

---

## Text moderation

Use content filtering to detect potential profanity in more than 100 languages, flag text that may be deemed inappropriate depending on context (in public preview) and match text against your custom lists. Content Moderator also helps check for personally identifiable information (PII).

---

## Video moderation

Enable machine-assisted detection of possible adult and racy content in videos. The video moderation service (in public preview) is available as part of Azure Media Services.

---

## Human review tool

The best content moderation results come from humans and machines working together. Use the review tool when prediction confidence can be improved or tempered with a real-world context.

# Speech APIs

## Azure Cognitive Services

Decision

Language

**Speech**

Vision

Web search

Integrate speech processing into apps and services

### Speech to Text

Transcribe audible speech into readable, searchable text.

### Text to Speech

Convert text to lifelike speech for more natural interfaces.

### Speech Translation

Integrate real-time speech translation into your apps.

### Speaker Recognition PREVIEW

Identify and verify the people speaking based on audio.

### Speech to Text

[Try for free](#) | [Learn More](#)

Automatic speech recognition and speech transcription (speech-to-text) | [Demo](#)

Customizable speech recognition and speech transcription (speech-to-text) | [Demo](#)

Customizable speech models for unique vocabularies or accents | [Demo](#)

### Text to Speech

[Try for free](#) | [Learn More](#)

Automatic text-to-speech | [Demo](#)

Customizable voice fonts for text-to-speech | [Demo](#)

# Speech to text

<https://azure.microsoft.com/en-in/services/cognitive-services/speech-to-text/#features>

## Use breakthrough speech technology

Enhance your apps with speech capabilities powered by decades of breakthrough research. Microsoft was the first to reach human parity on the Switchboard conversational speech recognition task and continues to drive cutting-edge research in speech recognition.

[Learn more about advancements in speech](#)

Language

English (IN)

[Play sample 1](#)

[Play sample 2](#)

Enable speech capabilities in your application by using Microsoft Cloud based speech service on Bing.

 Start recording

Speaker identification: Identify who is speaking.

<https://azure.microsoft.com/en-us/services/cognitive-services/speaker-recognition/#identification>



▷ Audio 1

▷ Audio 2

▷ Audio 3

▷ Audio 4

▷ Audio 5

▷ Audio 6

Text

JSON

**President Barack Obama**

is the one identified speaking in the selected audio.

# Search APIs

Decision

Language

Speech

Vision

**Web search**

Find what you're looking for from the world-wide-web

**Bing Autosuggest**

Help users complete queries faster by adding intelligent type-ahead capabilities

**Bing Custom Search**

Create a custom search engine with ad-free results.

**Bing Entity Search**

Recognize and classify named entities and find search results based on them.

**Bing Image Search**

Add a variety of search image options to your app.

**Bing News Search**

Turn any app into a news search resource.

**Bing Spell Check**

Help users identify and fix word breaks, slang, names, homonyms and brands.

**Bing Video Search**

Add advanced video search features to your app.

**Bing Visual Search**

Enable users to search using images.

**Bing Web Search**

Enable safe, ad-free, location-aware search for your users, surfacing relevant information from [web results](#), [images](#), [news](#), [videos](#) and [visuals](#).

# Search APIs



## Bing Web Search

[Try for free](#) | [Learn More](#)

Ad-free web search | [Demo](#)

Safe web search

Location-aware web search



## Bing Custom Search

[Learn More](#)

Custom search engine creation

Ad-free custom search results | [Demo](#)



## Bing Video Search

[Try for free](#) | [Learn More](#)

Ad-free video search | [Demo](#)

Video topic and trend identification



## Bing Image Search

[Try for free](#) | [Learn More](#)

Ad-free image search | [Demo](#)



## Bing Local Business Search PREVIEW

[Try for free](#) | [Learn More](#)

Find local business results in your place of interest | [Demo](#)



## Bing Visual Search

[Try for free](#) | [Learn More](#)

Identification of similar images and products | [Demo](#)

Knowledge acquisition from images

Websource identification



## Bing Entity Search

[Try for free](#) | [Learn More](#)

Named entity recognition and classification | [Demo](#)

Knowledge acquisition for named entities



## Bing News Search

[Try for free](#) | [Learn More](#)

Ad-free news search results | [Demo](#)

Trending topic identification



## Bing Autosuggest

[Try for free](#) | [Learn More](#)

Search query autocomplete | [Demo](#)

# Search API

<https://azure.microsoft.com/en-us/services/cognitive-services/bing-web-search-api/>

Examples

- burrito recipes
- new movies
- seattle seahawks
- ted talks
- weather today

Market

- en-us (English-United States)

SafeSearch

- Strict

Freshness

- (unspecified)

Preview    JSON

Burrito Recipes - Allrecipes.com  
<https://www.allrecipes.com/recipes/1216>  
Burrito Recipes Pick your filling and wrap it up! We have dozens of burrito recipes for you to choose from, including chicken, ground beef, black beans, and more.

Burrito Recipes : Food Network | Food Network  
<https://www.foodnetwork.com/topics/burrito-recipes>  
In this rolled-up classic, marinated skirt steak gets slow-simmered until tender, then stuffed into warm tortillas.

60+ Easy Homemade Burrito Recipes - How to Make Mexican ...  
<https://www.delish.com/cooking/g2154/burrito-recipes>  
One of our favorite portable Mexican meals, burritos can be personalized to suit all tastes. Whether you prefer spicy bean and cheese or succulent salsa-topped steak, these burrito recipes will ...

Beef and Bean Burritos Recipe - Food Network  
<https://www.foodnetwork.com/.../beef-and-bean-burritos-recipe-1981061>  
Preheat the oven to 170 to 180 degrees F. In a large skillet over medium heat, cook the onions until softened. Then add the ground beef and cook until the beef is cooked through.

Videos for [burrito recipes](#)



# Bing Image Search

<https://azure.microsoft.com/en-us/services/cognitive-services/bing-image-search-api/>

Image Type

All  Animated Gif  Clip Art  Line  Photo

abstract art

Examples

abstract art

cute animals

celebrations

nature wallpapers

sunsets

Market

en-us (English-United States)

SafeSearch

Strict

Freshness

(unspecified)

Color

(unspecified)

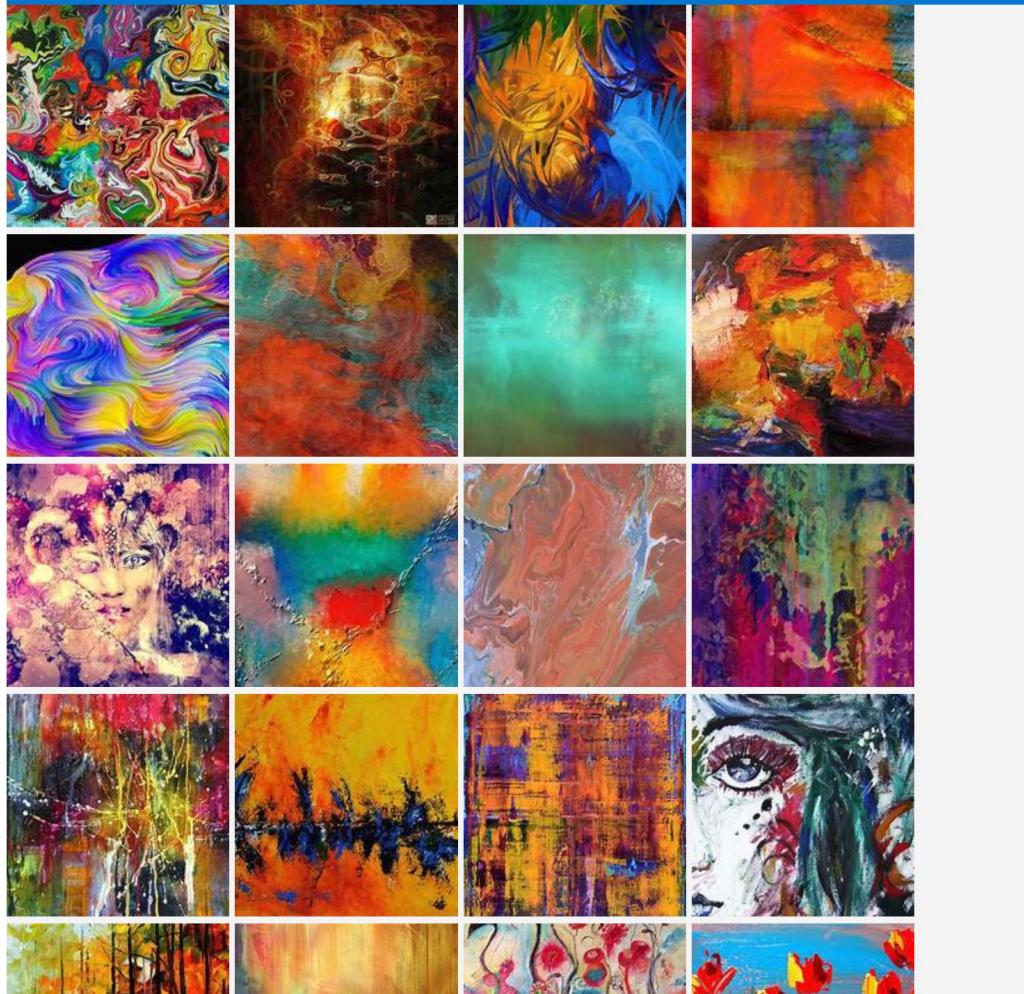
License

(unspecified)

Size

(unspecified)

Preview JSON



# Search most relevant entity

<https://azure.microsoft.com/en-us/services/cognitive-services/bing-entity-search-api/>

Preview JSON

Examples

- Satya Nadella
- Seattle Seahawks
- Yosemite National Park
- El Gaucho Bellevue
- Coffee 98004
- Restaurants near me

Market

en-us (English-United States) ▾

Optional parameters

Latitude  
37.77

Longitude  
-122.4194

Radius (meters)  
5000

**Donald Trump**

URL: <http://www.trumponline.com/>

Donald John Trump is the 45th and current President of the United States, in office since January 20, 2017. Before entering politics, he was a businessman and television personality.

[Wikipedia](#)Text under CC-BY-SA license

[See more on Bing >](#)

**The Trump Organization**

URL: <http://www.trump.com/>

The Trump Organization is the collective name of a group of approximately 500 business entities of which U.S. President Donald Trump is the sole or principal owner. Around 250 use the Trump name. It was originated in 1923 by Trump's grandmother and father as Elizabeth Trump & Son. From 1971 to 2017, Donald Trump ran the organization as chairman and president.

[See more on Bing >](#)

**Ivanka Trump**

URL: <http://www.trump.com/>

Ivana Marie "Ivanka" Trump is an American businesswoman, fashion designer, author and reality television personality. She is the daughter of the President of the United States, Donald Trump, and former model Ivana Trump.

# AutoSuggest

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

See it in action

naren 

Market 

en-us (English-United States)

Preview JSON

- narendra modi
- narendra modi news
- narendra
- narendra jha
- narendra modi twitter
- narendra modi movie
- narendra modi biopic
- narendra modi information

# Spell correction

<https://azure.microsoft.com/en-us/services/cognitive-services/spell-check/>

Proof

he will be

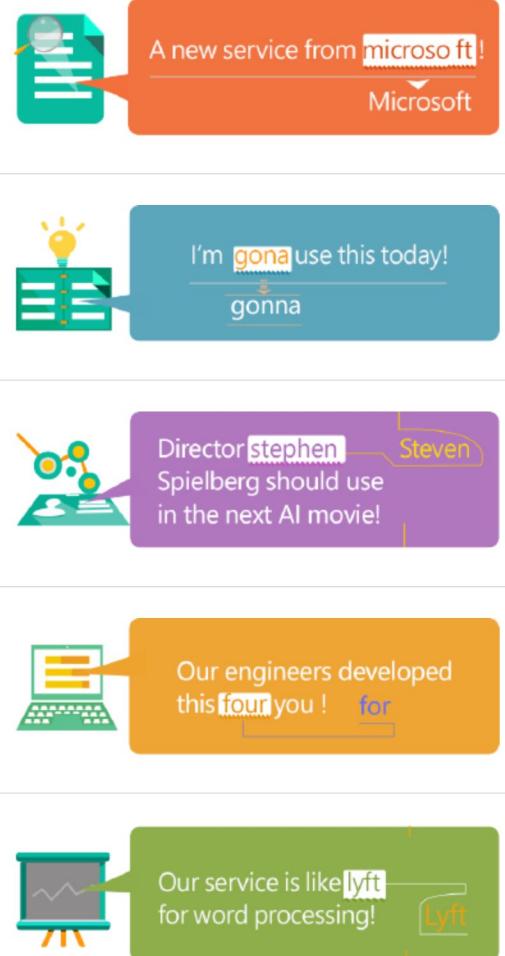
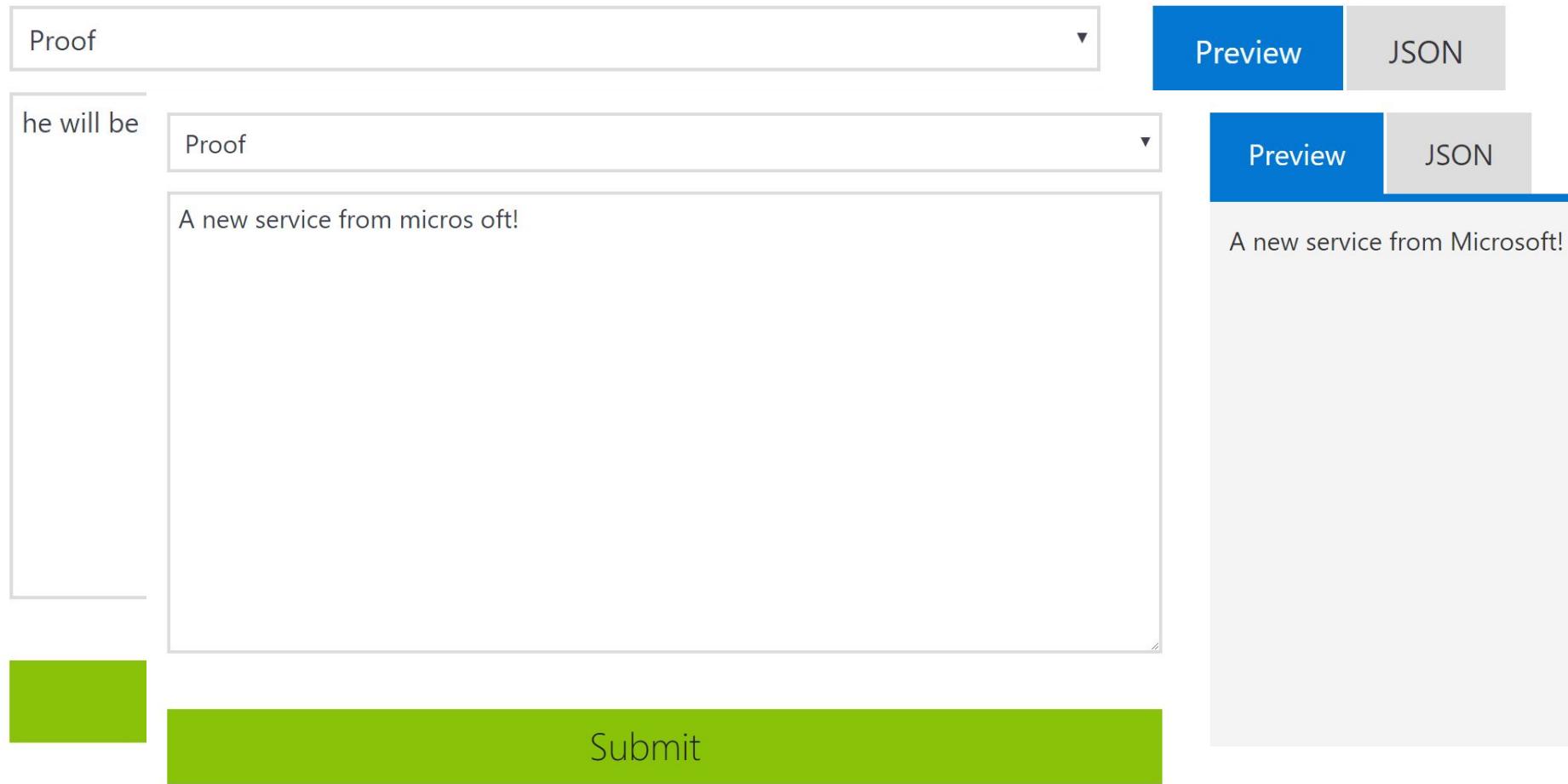
Proof

A new service from micros oft!

Submit

Preview JSON

Preview JSON



# Cloud API Demos

- Text Analytics API on Azure.
  - <https://github.com/Microsoft/cognitive-services-notebooks>
  - <https://docs.microsoft.com/en-us/azure/cognitive-services/text-analytics/quickstarts/python>
  - Use cognitive-services-notebooks-master\TextAnalytics.ipynb
- Google Vision API
  - <https://cloud.google.com/vision/>
  - Use googleDemolImage.png
- Google translate API
  - <https://cloud.google.com/translate/>
  - Try “Ram is going to school.” to hindi.

# Google Speech to text API demo

<https://cloud.google.com/speech-to-text/>

<https://www.youtube.com/watch?v=T0J0JEDILO4>

Use speech.mp4

Code samples to use GCP APIs

<https://github.com/GoogleCloudPlatform/python-docs-samples>

The screenshot shows the Google Cloud Speech-to-Text API demo interface. At the top, there are configuration options: 'Input type' (Microphone is off, File upload is selected), 'Language' (English (United States)), 'Speaker diarization' (BETA, Off), 'Speakers' (1 speaker), and 'Punctuation' (on). Below these are buttons for 'Show JSON' and 'CHOOSE FILE'. A 'Models' dropdown menu is open, showing 'Default' (selected), 'Command / Search', 'Phone call', and 'Video'. The main area displays two transcription results:  
1. "I want to tell the world community that while we will always put America's interest first. We will deal fairly with everyone with everyone."  
2. "Well people build a wall and all other nations build a wall. We will see Common Ground not hostility partnership not conflict build a wall."

# Setting up Google Vision API

- <https://cloud.google.com/vision/docs/quickstart-client-libraries>
- Create a GCP project
- Enable billing
- Enable API
- Create service account key
- Set the environment variable ***GOOGLE\_APPLICATION\_CREDENTIALS***
  - `export GOOGLE_APPLICATION_CREDENTIALS="/mnt/c/Users/gmanish/Downloads/VisionProject-3e6107693142.json"`
- Install client library
- Run Python (or c#, Go, Java, etc.) code.
- GCP dashboard: <https://console.cloud.google.com/home/dashboard>
- `python testGoogle.py`
- `python detect.py web landmark.jpg`

# Twitter APIs

<https://developer.twitter.com/en/docs.html>

- Sentiment analysis demo.

## Search Tweets

Use the Search API to find historical Tweets. Free to enterprise versions available.

[Learn more](#)

## Filter realtime Tweets

Get only the Tweets you need by using advanced filtering tools with the realtime streaming API.

[Learn more](#)

## Account Activity API

Have 15+ account activities delivered to you in realtime via a webhook connection.

[Learn more](#)

## Direct Message API

Build personalized customer experiences with our Direct Message platform.

[Learn more](#)

## Twitter for websites

Embed Tweets, Timelines, and more within your website.

[Learn more](#)

## Ads API

Programmatically create and manage your ad campaigns.

[Learn more](#)

# Twitter Account Activity API

<https://developer.twitter.com/en/docs/accounts-and-users/subscribe-account-activity/overview>

The Account Activity API provides you the ability to subscribe to realtime activities related to a user account via webhooks. This means that you can receive realtime Tweets, Direct Messages, and other account events from one or more of your owned or subscribed accounts through a single connection.

You will receive all related activities below for each user subscription on your webhook registration:

<b>Activity types</b>	
<ul style="list-style-type: none"><li>• Tweets (by user)</li><li>• Tweet deletes (by user)</li><li>• @mentions (of user)</li><li>• Replies (to or from user)</li><li>• Retweets (by user or of user)</li><li>• Quote Tweets (by user or of user)</li><li>• Retweets of Quoted Tweets (by user or of user)</li><li>• Likes (by user or of user)</li><li>• Follows (by user or of user)</li><li>• Unfollows (by user)</li></ul>	<ul style="list-style-type: none"><li>• Blocks (by user)</li><li>• Unblock (by user)</li><li>• Mutes (by user)</li><li>• Unmutes (by user)</li><li>• Direct Messages sent (by user)</li><li>• Direct Messages received (by user)</li><li>• Typing indicators (to user)</li><li>• Read receipts (to user)</li><li>• Subscription revokes (by user)</li></ul>

# **data.gov API**

- Data.gov Fuel Stations API:  
[https://developer.nrel.gov/api/alt-fuel-stations/v1/nearest.json?api\\_key=ghyAVigJ8llaPcTOAd4r4HJa72gwBCadMkj8vcCE&location=Denver+CO](https://developer.nrel.gov/api/alt-fuel-stations/v1/nearest.json?api_key=ghyAVigJ8llaPcTOAd4r4HJa72gwBCadMkj8vcCE&location=Denver+CO)
- Data.gov Utility Rates API:  
[https://developer.nrel.gov/api/utility\\_rates/v3.json?api\\_key=ghyAVigJ8llaPcTOAd4r4HJa72gwBCadMkj8vcCE&address=1600+Amphitheatre+Park+way,+Mountain+View,+CA](https://developer.nrel.gov/api/utility_rates/v3.json?api_key=ghyAVigJ8llaPcTOAd4r4HJa72gwBCadMkj8vcCE&address=1600+Amphitheatre+Park+way,+Mountain+View,+CA)
- School API:  
[https://api.data.gov/ed-collegescorecard/v1/schools?api\\_key=ghyAVigJ8llaPcTOAd4r4HJa72gwBCadMkj8vcCE&school.name=North%20Dakota%20State%20University](https://api.data.gov/ed-collegescorecard/v1/schools?api_key=ghyAVigJ8llaPcTOAd4r4HJa72gwBCadMkj8vcCE&school.name=North%20Dakota%20State%20University)

# NYTimes APIs

<https://developer.nytimes.com/apis>



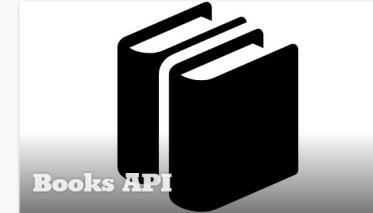
**Archive API**

Get all NYT article metadata for a given month.



**Article Search API**

Search for New York Times articles.



**Books API**

Get NYT Best Sellers Lists and lookup book reviews.



**Community API**

Get user comments. (DEPRECATED)



**Geo API**

Geographic linked data.



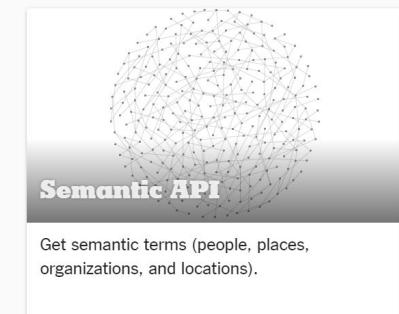
**Most Popular API**

Get most emailed, shared, or viewed articles.



**Movie Reviews API**

Search for movie reviews.



**Semantic API**

Get semantic terms (people, places, organizations, and locations).



**Times Tags API**

NYT controlled vocabulary.



**Times Wire API**

Real-time feed of NYT article publishes.



**Top Stories API**

Get articles currently on the specified section (home, arts, ...).

# More APIs

- Large list of APIs are available on the web
  - <https://www.programmableweb.com/apis/directory>
  - <https://github.com/toddmotto/public-apis>
  - <https://github.com/abhishekbanthia/Public-APIs>