微軟感知服務

CT Huang, TA
Microsoft Technology Center

Agenda

- Cognitive service introduction
- How to use cognitive service
- Demo

感知服務

Give your solutions a human side

微軟感知服務

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

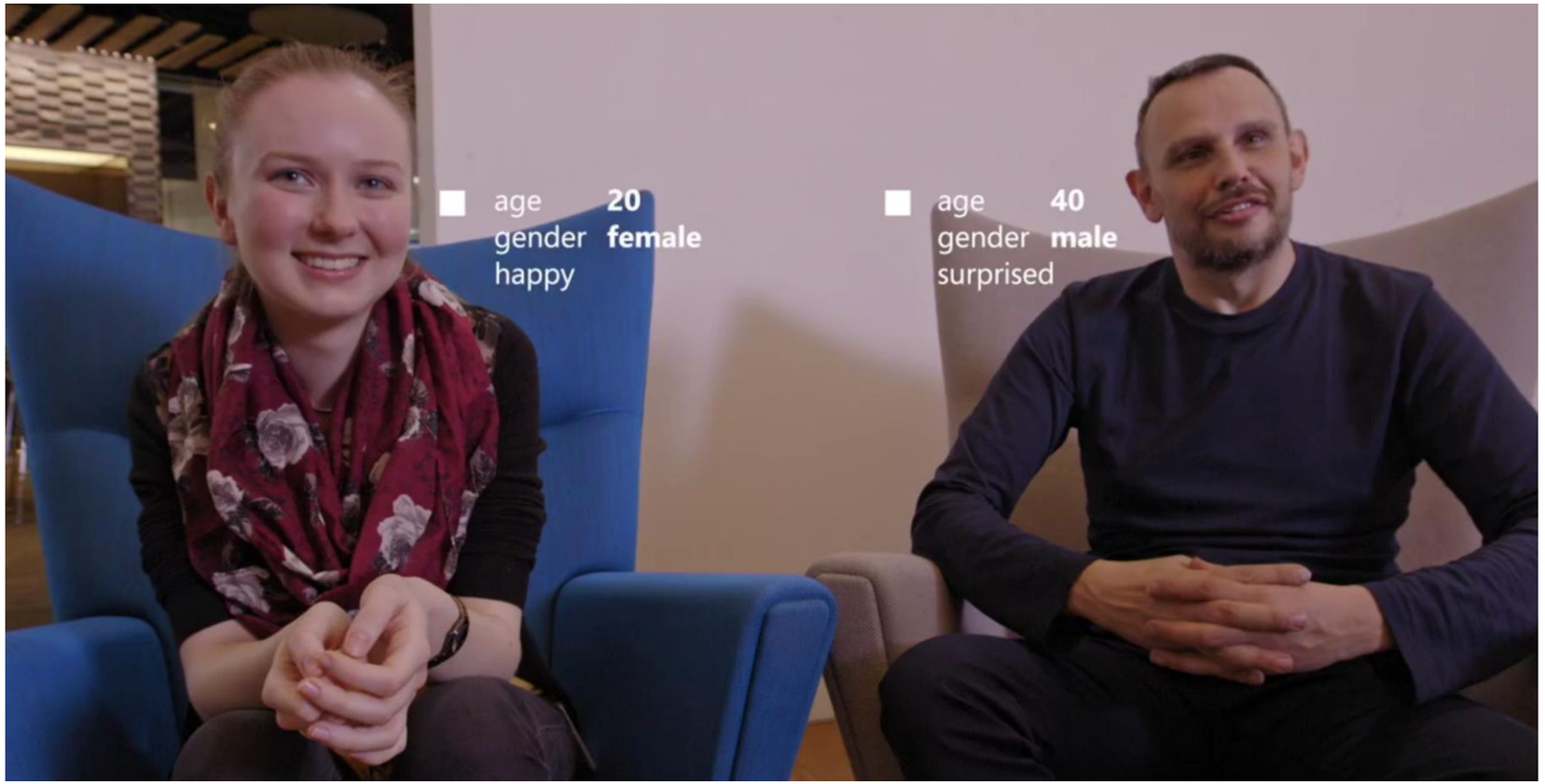
Tap into rich knowledge amassed from the web, academia, or your own data

Search

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

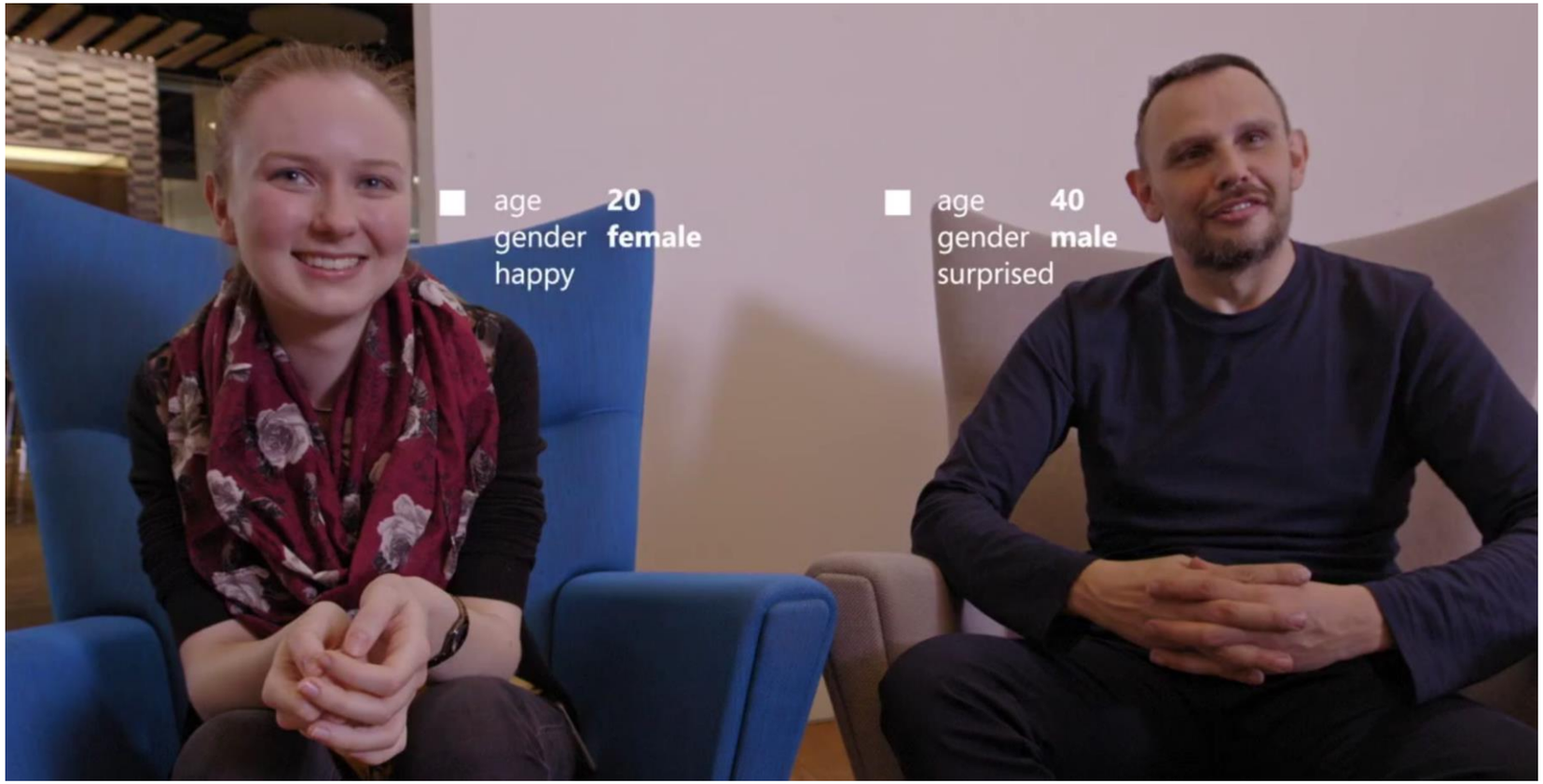

BIRKSEN

人臉辨識




```
{
  "faceAttributes": {
    "age": 40.1,
    "gender": "male",
    "smile": 0.132,
    "facialHair": {
      "moustache": 0.6,
      "beard": 0.4,
      "sideburns": 0.5
    },
    "glasses": "NoGlasses"
  }
}
```

情緒辦識



"scores": {
"anger": 3.91218258e-8,
"contempt": 5.70615271e-7,
"disgust": 0.00000119039,
"fear": 3.6326657e-11,
"happiness": 0.9999981,
"neutral": 5.93603779e-8,
"sadness": 9.12828e-9,
"surprise": 1.5834166e-8
}

電腦視覺

0.85: a young man jumping in the air with a skateboard

圖片內容:


```
[ { "name": "skating", "confidence": 0.9999401569366455, "hint": "sport" },
  { "name": "building", "confidence": 0.9995344877243042 },
  { "name": "person", "confidence": 0.9946449995040894 },
  { "name": "outdoor", "confidence": 0.9884318709373474 },
  { "name": "jumping", "confidence": 0.975173830986023, "hint": "sport" },
  { "name": "sport", "confidence": 0.95017409324646 },
  { "name": "air", "confidence": 0.9217389822006226 },
  { "name": "young", "confidence": 0.8677972555160522 },
  { "name": "trick", "confidence": 0.8257086873054504 },
   { "name": "athletic game", "confidence": 0.7875141501426697, "hint": "sport"
  { "name": "doing", "confidence": 0.7109339237213135 } ]
```

語音辨識服務

- 將語音轉換為文字
- 與 Cortana 採用相同技術
- 支援 28 種語言(繁中)

語意分析 - LUIS


我需要XXX，
請問還有嗎?!
我想要買XXX，
但我不知道它
放在哪?!
有賣XXX嗎?!
(但我不敢問店員...)
有沒有XXX，
我找了好久
找不到?!


告訴我標題

微軟感知服務

microsoft.com/cognitive

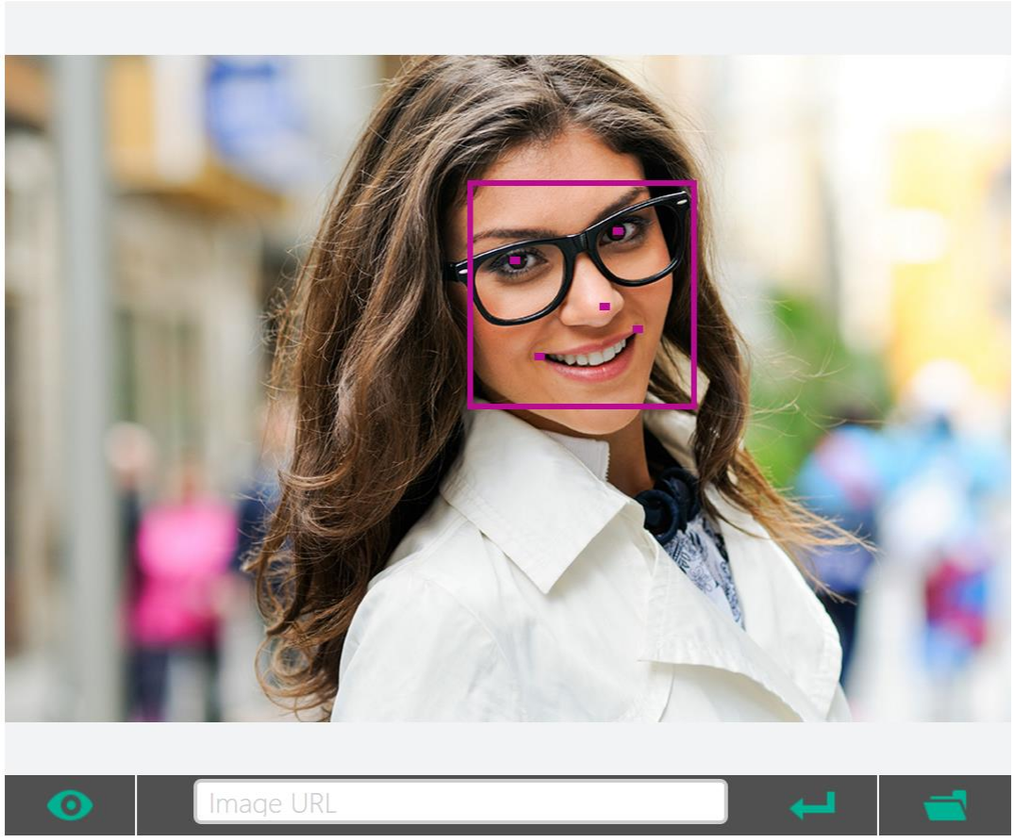
Vision	Speech	Language	Knowledge	Search
電腦視覺	自訂語音辨識	Bing 拼字檢查	學術論文分析	Bing 網頁搜尋
情緒辨識	以語音辨識發話者	語意分析	英文字關聯分析 Entity Linking	Bing 圖片搜尋
人臉辨識	Bing 語音辨識	理解人類語言 LUIS	互動式搜尋	Bing 影片搜尋
影片辨識	Bing 即時翻譯	文字分析	推薦	Bing 新聞搜尋
		WebLM 網頁英文文字解析		Bing 自動推薦

How to use it?

Step1: Play on the web

Play It on the Web

https://www.microsoft.com/cognitive-services/en-us/face-api




```
Detection Result:
JSON:
[
  {
    "faceId": "48cdf8c8-841c-4d33-b875-1710a3fc6542",
    "faceRectangle": {
      "width": 228,
      "height": 228,
      "left": 460,
      "top": 125
    },
    "faceLandmarks": {
      "pupilLeft": {
        "x": 507,
        "y": 204.9
      },
      "pupilRight": {
        "x": 609.8,
        "y": 175.4
      },
      "noseTip": {
        "x": 596.4,
        "y": 250.9
```







Step2: Test API via Web

API Documentation

https://westus.dev.cognitive.microsoft.com/docs/services/563879b61984550e40cbbe8d/operations/563879b61984550f30395236

Face API - V1.0

API definition

Face - Detect

Detect human faces in an image and returns face locations, and optionally with faceIds, landmarks, and attributes.

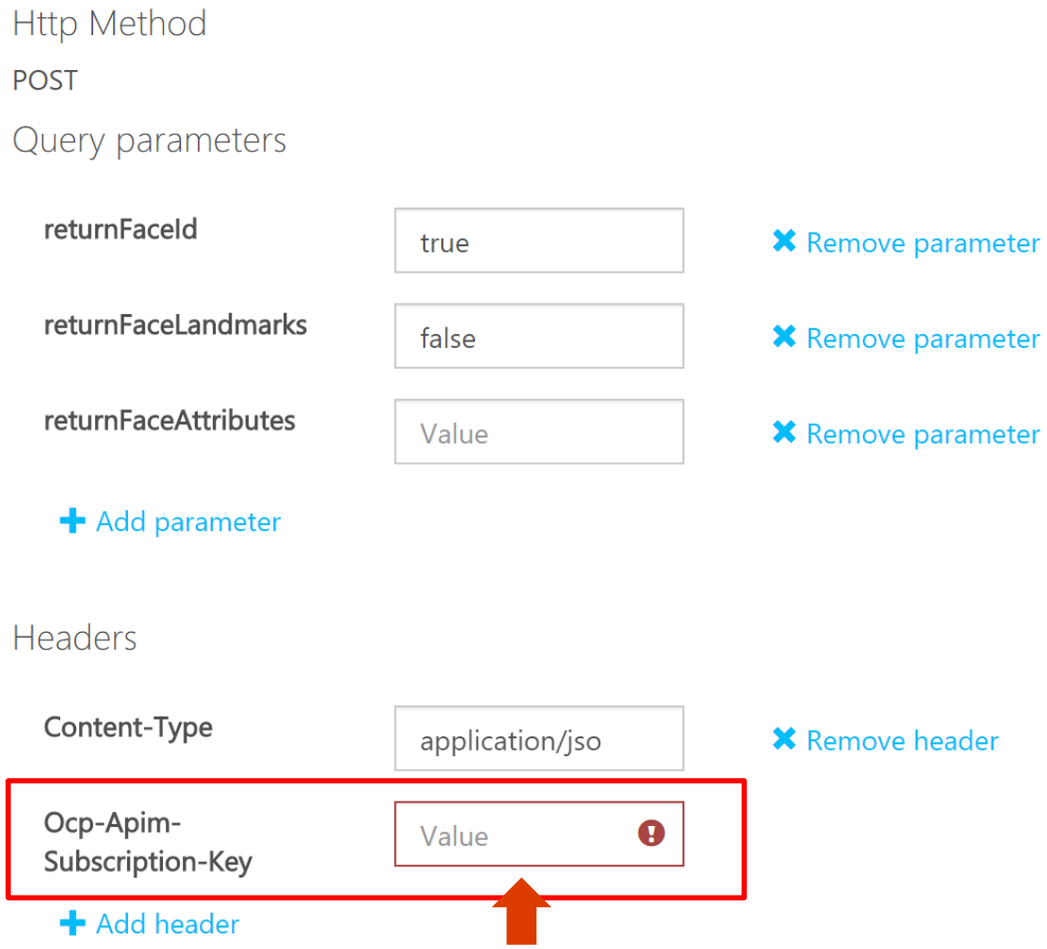
- Optional parameters for returning faceId, landmarks, and attributes. Attributes include age, gender, smile intensity, facial hair, head pose and glasses. faceId is for other APIs use including Face - Identify, Face - Verify, and Face - Find Similar. The faceId will expire in 24 hours after detection call.
  - JPEG, PNG, GIF(the first frame), and BMP are supported. The image file size should be larger than or equal to 1KB but no larger than 4MB.
  - The detectable face size is between 36x36 to 4096x4096 pixels. The faces out of this range will not be detected.
  - A maximum of 64 faces could be returned for an image. The returned faces are ranked by face rectangle size in descending order.
  - Some faces may not be detected for technical challenges, e.g. very large face angles (head-pose) or large occlusion. Frontal and near-frontal faces have the best results.
  - Attributes (age, gender, headPose, smile, facialHair, and glasses) are still experimental and may not be very accurate. HeadPose's pitch value is a reserved field and will always return 0.

Http Method

POST

Open API Testing Console

Swagger API console

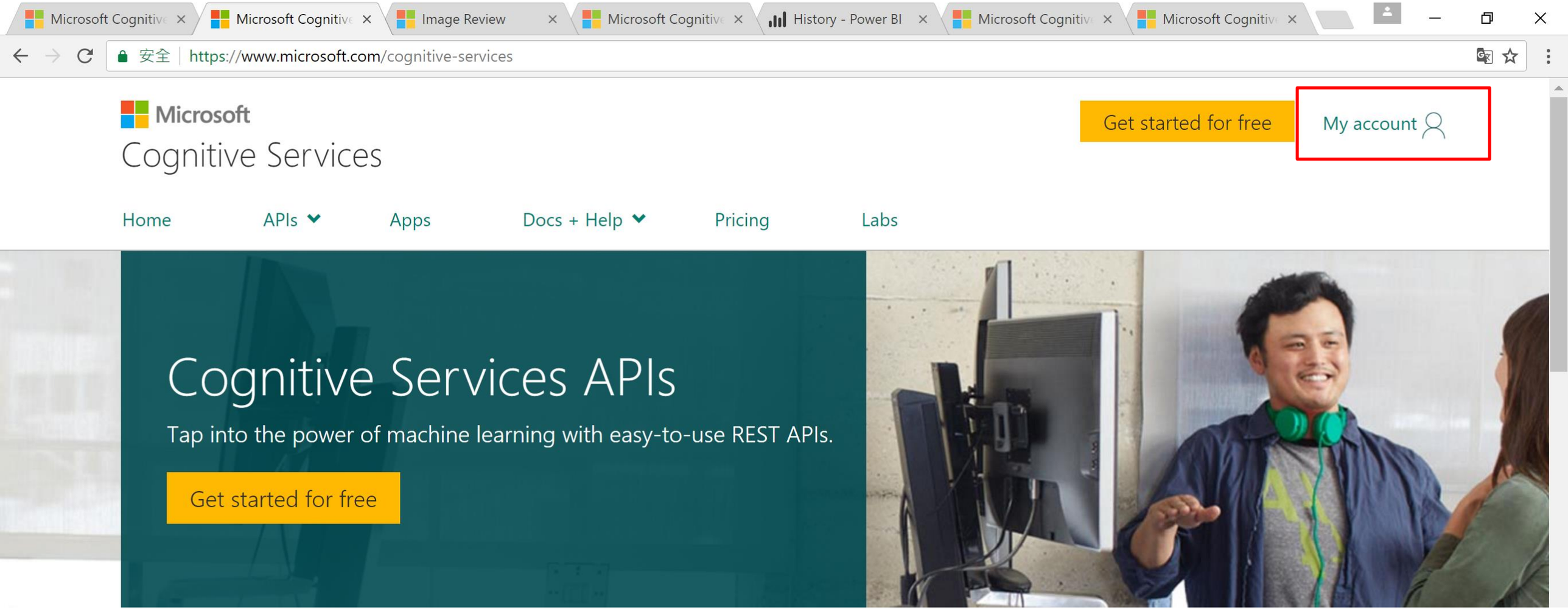


You need to provide a key to use the service

Get your key for services

- Sign in to the cognitive service web
  - https://www.microsoft.com/cognitive-services/
- Subscribe to new free trials
- Request new trials
- Copy the key

Sign in to the cognitive service web



Subscribe to new free trials

Free trials Labs

Subscribe to new free trials

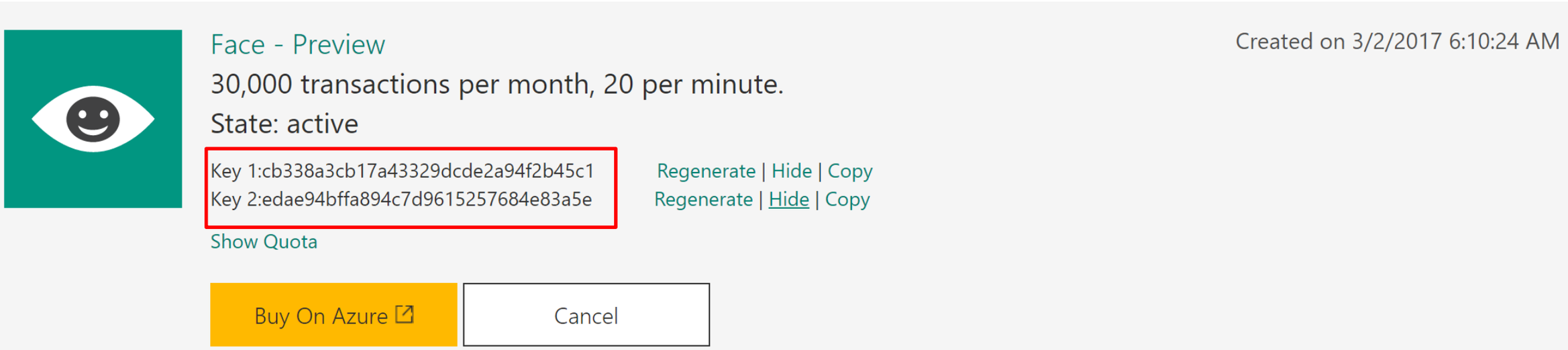
Tab into the power of machine learning with easy to use REST APIs

Request new trials

☐	Bing Search - Free	Across all Bing Search APIs (Web, Image, Video, News): 1,000 transactions per month, 5 per second. Trial keys expire after a 90 day period, after which a subscription may be purchased on the Azure portal.
☑	Bing Speech - Free	5,000 transactions per month, 20 per minute for each feature for a total of 60 per minute.
☐	Bing Spell Check - Free	5,000 transactions per month, 7 per minute.
☐	Academic - Preview	10,000 transactions per month, 3 per second for interpret, 1 per second for evaluate, 6 per minute for calcHistogram.
☐	Emotion - Preview	30,000 transactions per month, 20 per minute.
☐	Entity Linking - Preview	1000 transactions per day, 10KB text limit.

Copy the key

- Just need one key to use the service



Step3: Write your own program

Sample Code

Code samples

Curl | C# | Java | JavaScript | ObjC | PHP | Python | Ruby

```
<!DOCTYPE html>
<html>
<head>
    <title>JSSample</title>
    <script src="http://ajax.googleapis.com/ajax/libs/jquery/1.9.0/jquery.min.js"></script>
</head>
<body>

<script type="text/javascript">
    $(function() {
        var params = {
```

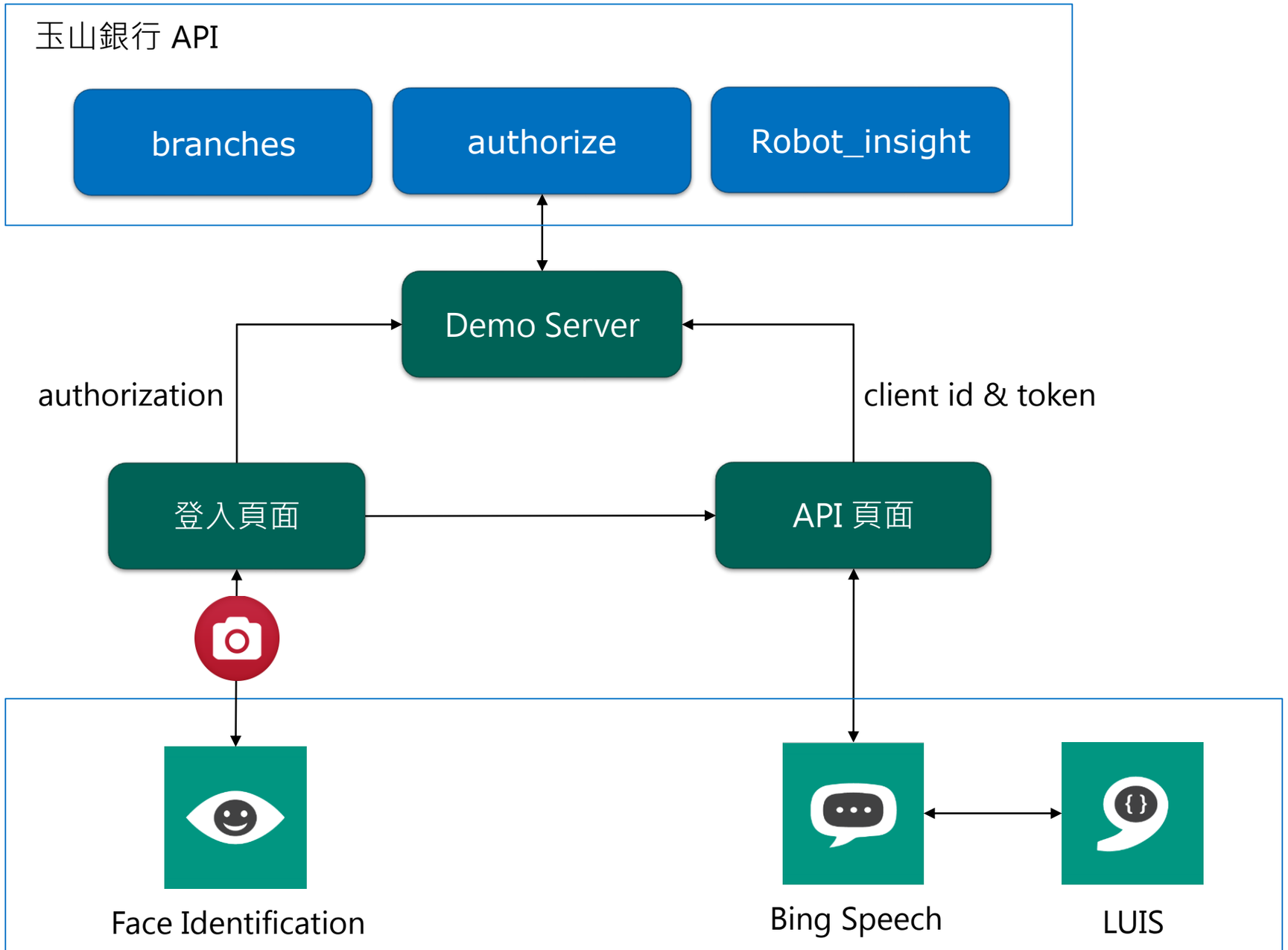
Write your program

```
import sys
import json
import http.client, urllib.request, urllib.parse, urllib.error, base64

url = "http://www.mymypic.net/data/attachment/forum/201603/22/0820124f4x5ald665ndux5.jpg"

headers = {
    'Content-Type': 'application/json',
    'Ocp-Apim-Subscription-Key': "703204606cee49d1819bf1d0c7fdd4f3",
}
body = {
    'url': url
}
params = urllib.parse.urlencode({
    'returnFaceId': 'true',
    'returnFaceLandmarks': 'false',
    'returnFaceAttributes': 'age,gender,smile',
})

try:
    conn = http.client.HTTPSConnection('westus.api.cognitive.microsoft.com')
    conn.request("POST",  "/face/v1.0/detect?%s" % params, json.dumps(body), headers)
    response = conn.getresponse()
    data = response.read()
    result = json.loads(data)
    print(json.dumps(result, indent=2, sort_keys=True))
    conn.close()
except Exception as e:
    print(e)
```

Demo

https://github.com/reddum/ESHackthon

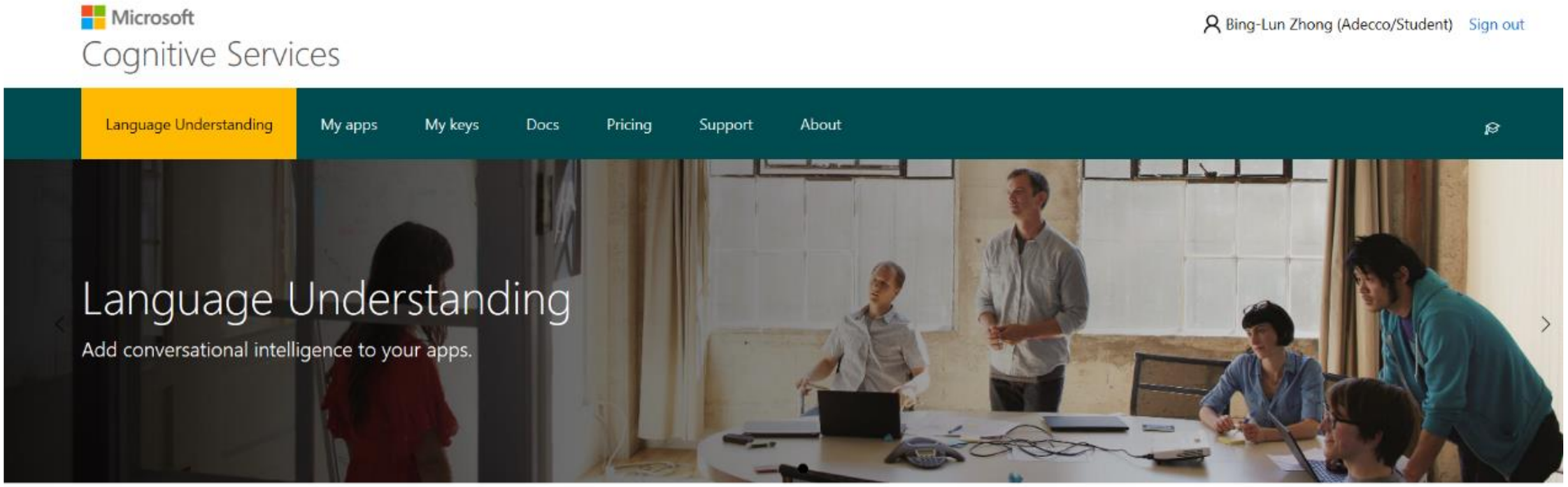
Demo Program Architecture



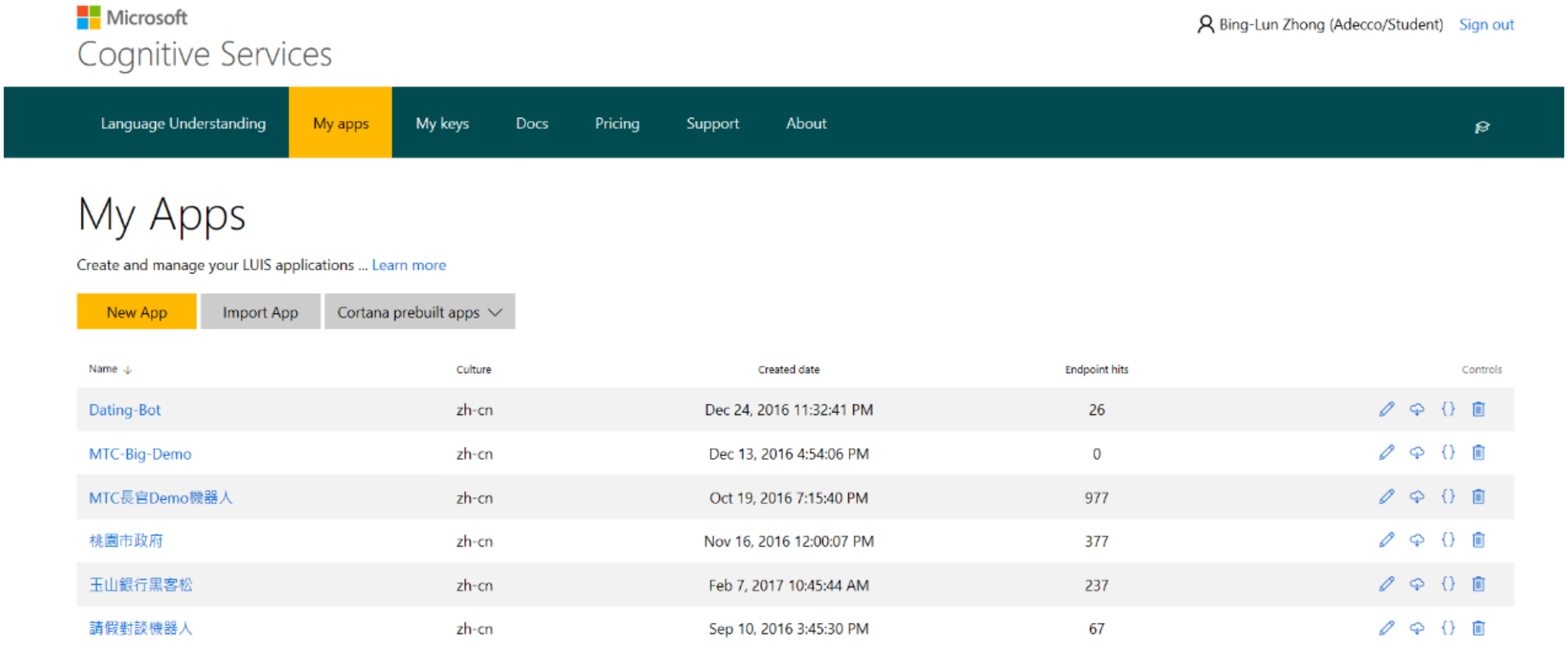
Face

```
var identify_reqbody = {
    "personGroupId": personGroupId,
    "faceIds": faceIds,
    "maxNumOfCandidatesReturned": maxNumOfCandidatesReturned,
    "confidenceThreshold": confidenceThreshold
};
$.ajax({
        url: "https://api.projectoxford.ai/face/v1.0/identify",
        beforeSend: function(xhrObj) {
            // Request headers
            xhrObj.setRequestHeader("Content-Type", "application/json");
            xhrObj.setRequestHeader("Ocp-Apim-Subscription-Key", FACE_KEY);
        },
        type: "POST",
        // Request body
        data: JSON.stringify(identify_reqbody),
    })
    .done(function(data) {
        //alert("success");
        var Jsondata = JSON.parse(JSON.stringify(data));
        console.log(Jsondata);
        if (Jsondata[0].candidates.length == 0) {
            $("#Console").val("查無此人");
        } else {
            console.log(Jsondata[0].candidates[0].personId);
            getPersonInfo(personGroupId, Jsondata[0].candidates[0].personId);
        }
    })
    .fail(function() {
        alert("error");
    });
```

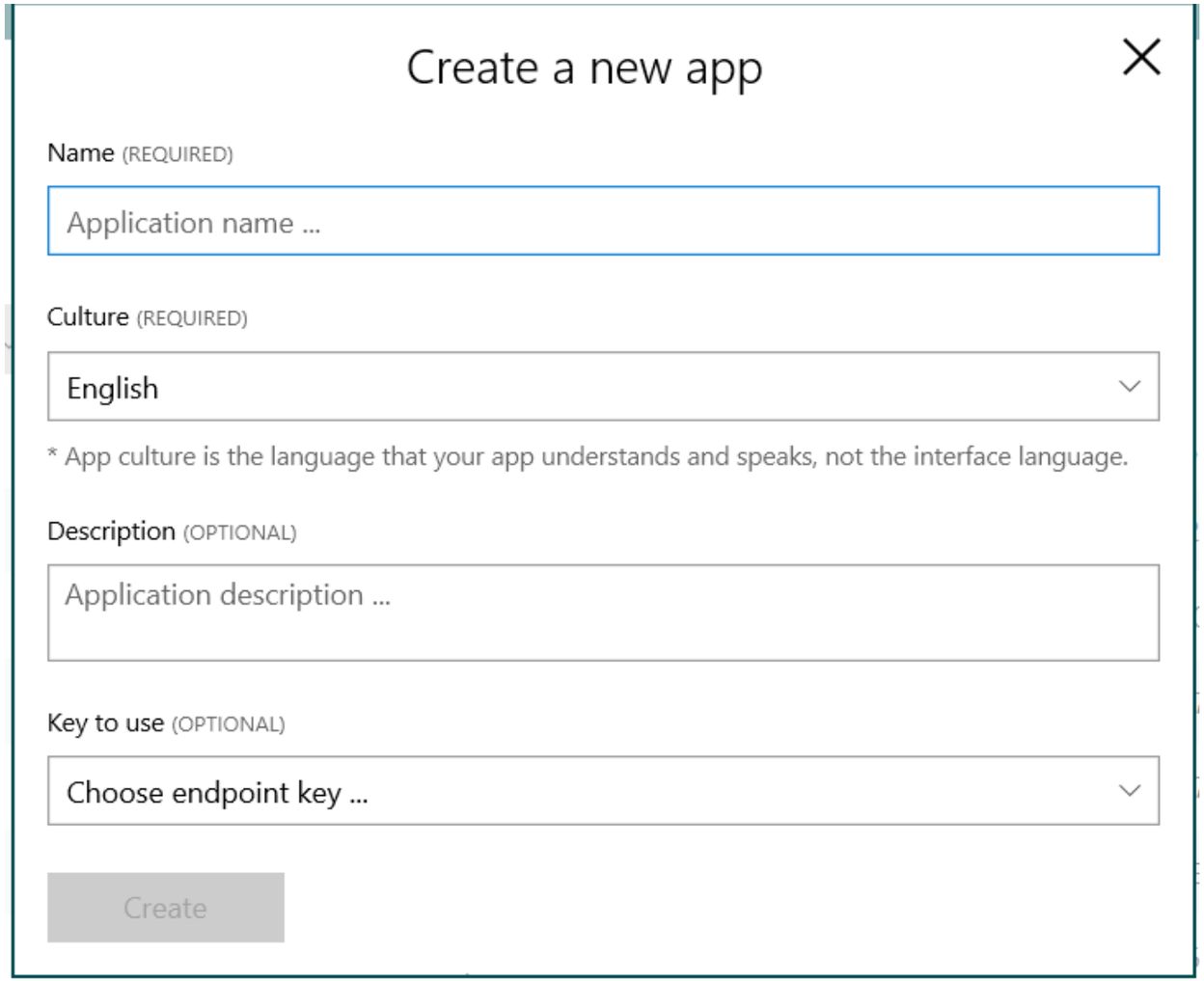
Luis.ai


Microsoft
Cognitive Services
Bing-Lun Zhong (Adecco/Student) Sign out
Language Understanding
My apps
My keys
Docs
Pricing
Support
About
Language Understanding
Add conversational intelligence to your apps.
Create language understanding models.
Create models for your application to better understand intents or entities.
Use pre-built, world-class models from Bing.
Use pre-built, world-class models to recognize entities like places, times, etc.
Deploy your models to an HTTP endpoint.
Deploy models to an HTTP endpoint with one click. LUIS returns easy-to-use JSON.
Activate your models on any device.
Activate your language understanding models from your application on any device.

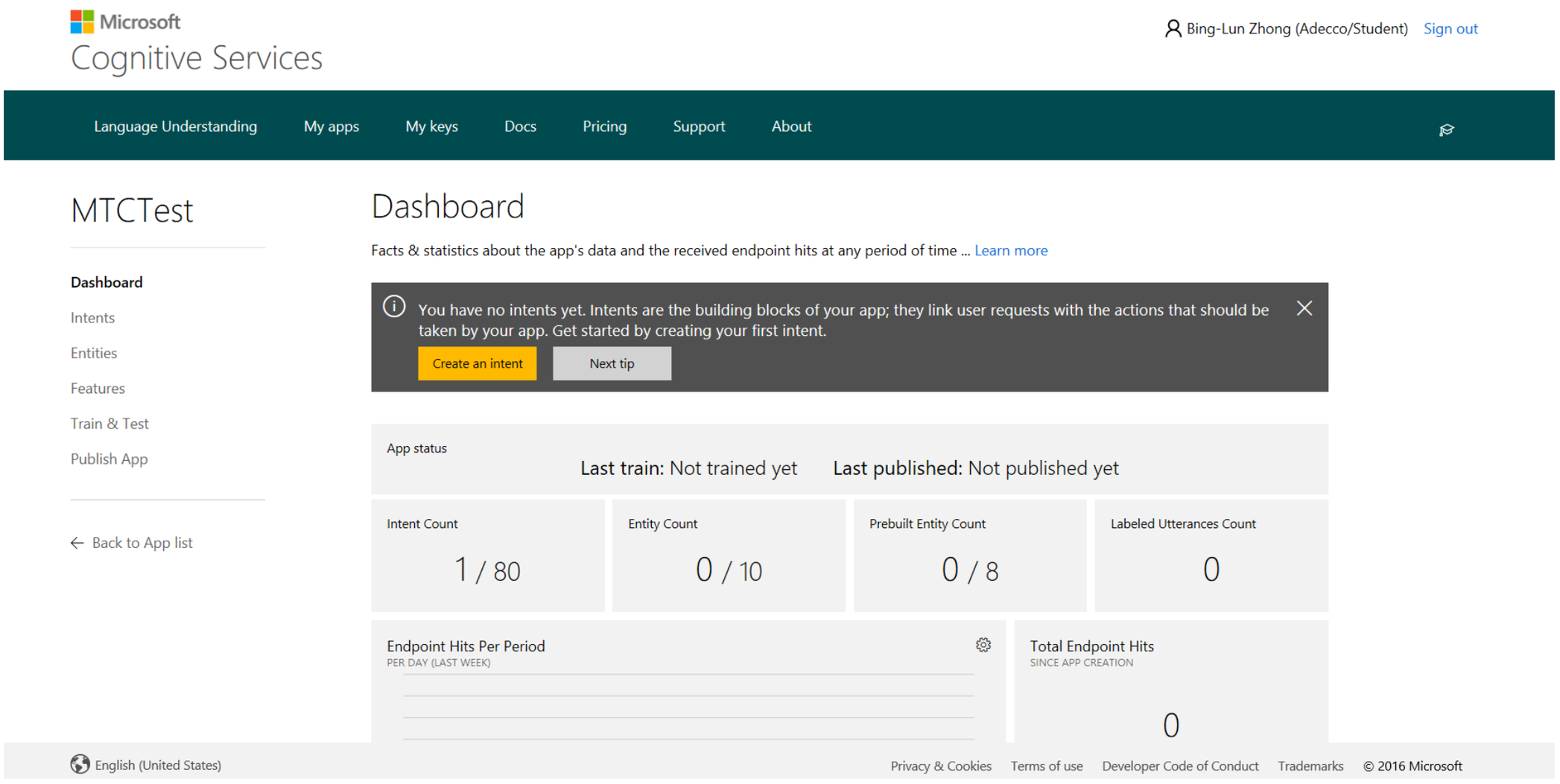
Luis App List



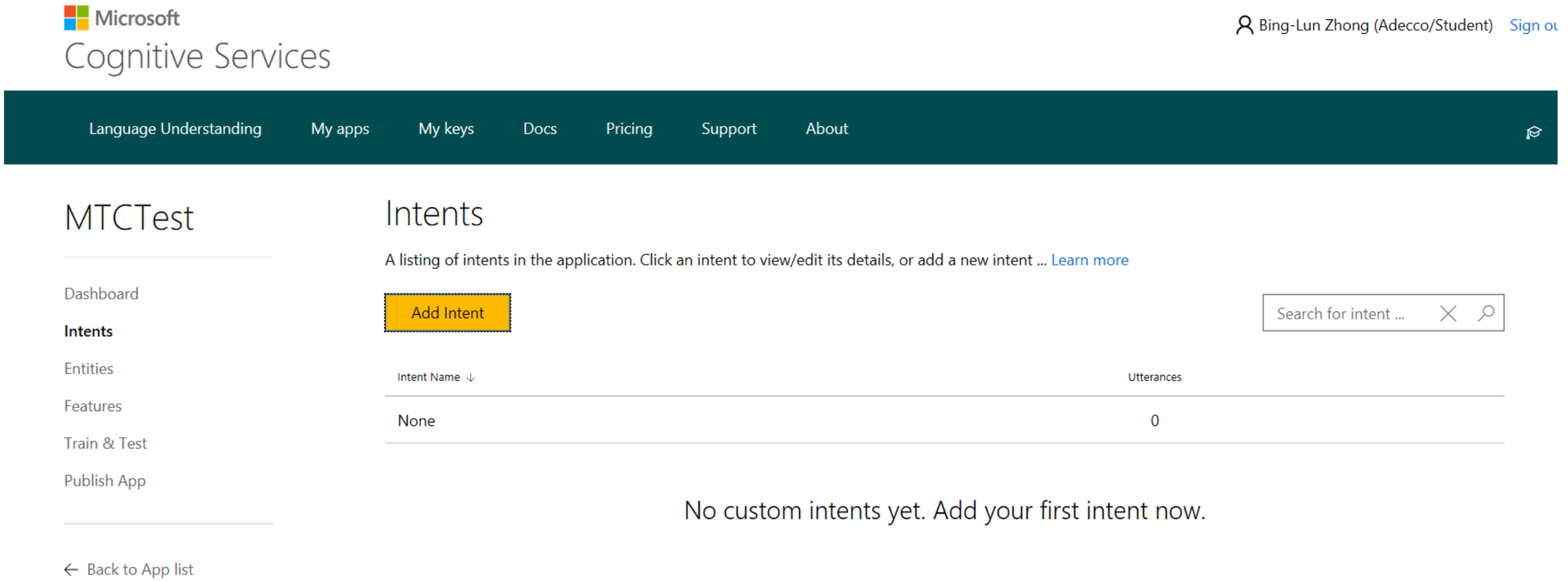
新增一個Luis App



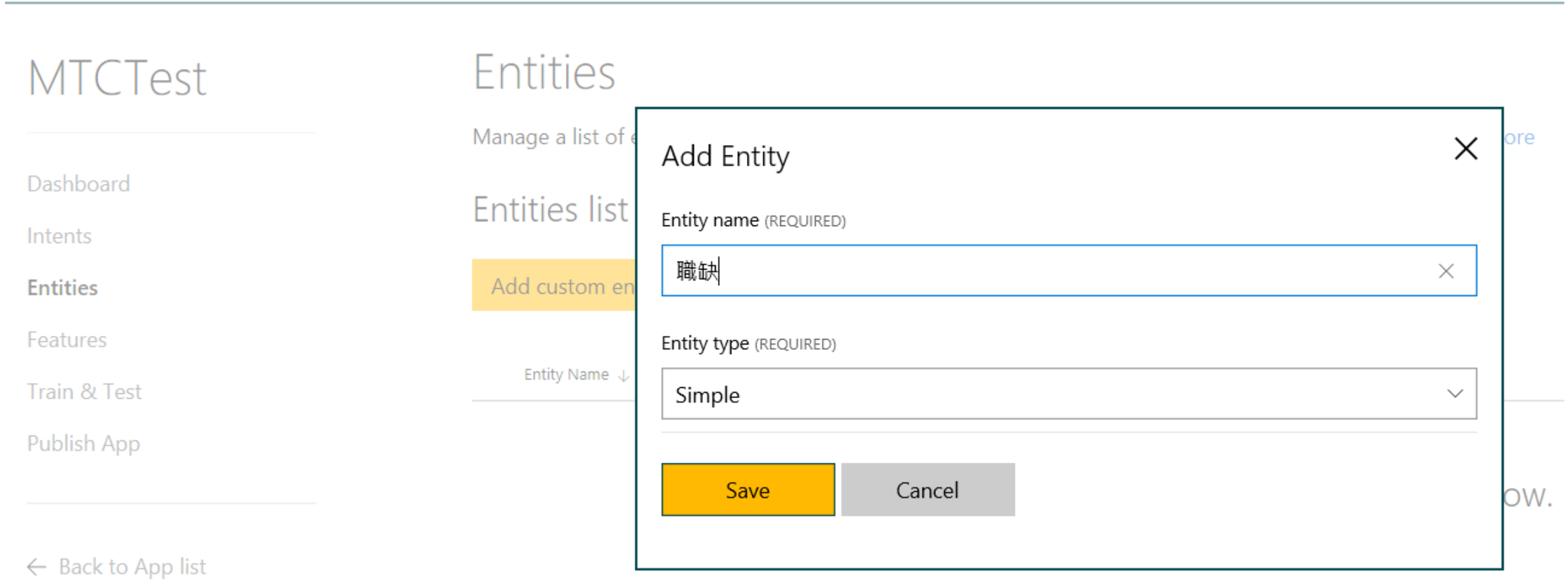
Luis App 頁面


Microsoft
Cognitive Services
Bing-Lun Zhong (Adecco/Student)
Sign out
Language Understanding
My apps
My keys
Docs
Pricing
Support
About
MTCTest
Dashboard
Intents
Entities
Features
Train & Test
Publish App
Back to App list
Dashboard
Facts & statistics about the app's data and the received endpoint hits at any period of time ... Learn more
You have no intents yet. Intents are the building blocks of your app; they link user requests with the actions that should be taken by your app. Get started by creating your first intent.
Create an intent
Next tip
App status
Last train: Not trained yet
Last published: Not published yet
Intent Count
1 / 80
Entity Count
0 / 10
Prebuilt Entity Count
0 / 8
Labeled Utterances Count
0
Endpoint Hits Per Period
PER DAY (LAST WEEK)
Total Endpoint Hits
SINCE APP CREATION
0
English (United States)
Privacy & Cookies
Terms of use
Developer Code of Conduct
Trademarks
© 2016 Microsoft

新增intent


Microsoft
Cognitive Services
Bing-Lun Zhong (Adecco/Student)
Sign ou
Language Understanding
My apps
My keys
Docs
Pricing
Support
About
MTCTest
Dashboard
Intents
Entities
Features
Train & Test
Publish App
Back to App list
Intents
A listing of intents in the application. Click an intent to view/edit its details, or add a new intent ... Learn more
Add Intent
Search for intent ...
Intent Name
Utterances
None
0
No custom intents yet. Add your first intent now.

新增Entity

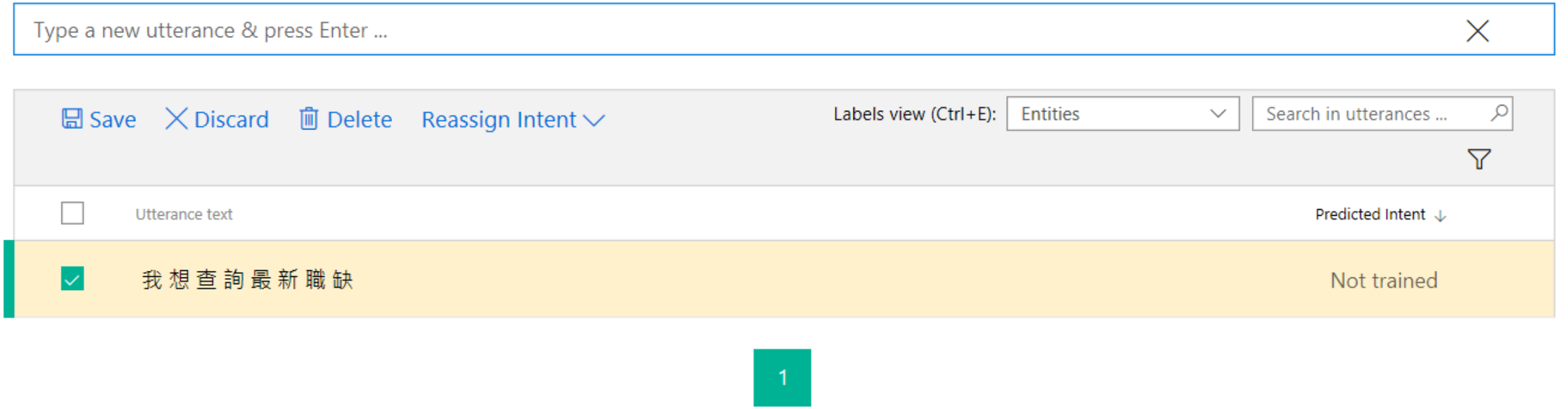

MTCTest
Dashboard
Intents
Entities
Features
Train & Test
Publish App
Back to App list
Entities
Manage a list of
Entities list
Add custom en
Entity Name
Add Entity
Entity name (REQUIRED)
職缺
Entity type (REQUIRED)
Simple
Save
Cancel

訓練句子

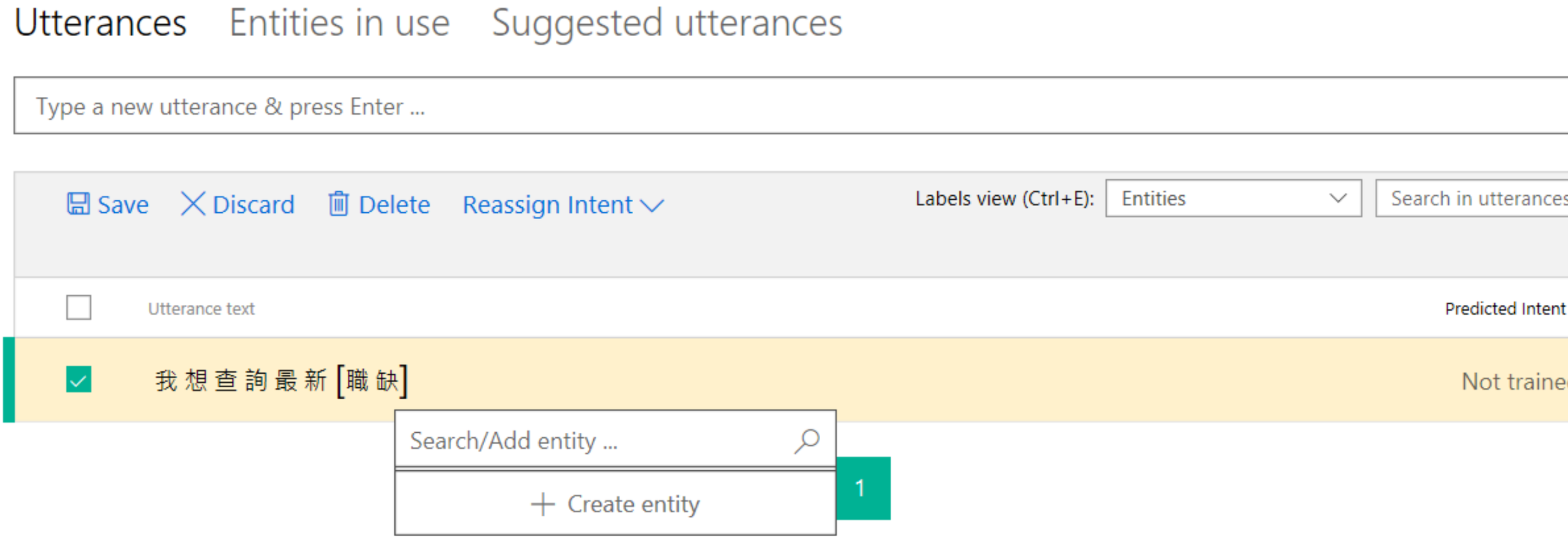
查詢

Here you are in full control of this intent; you can manage its utterances, used entities and suggested utterances ... Learn more

Utterances Entities in use Suggested utterances



標注Entity


Utterances
Entities in use
Suggested utterances
Type a new utterance & press Enter ...
Save
Discard
Delete
Reassign Intent
Labels view (Ctrl+E):
Entities
Search in utterances
Utterance text
Predicted Intent
我想查詢最新[職缺]
Not traine
Search/Add entity ...
Create entity
1

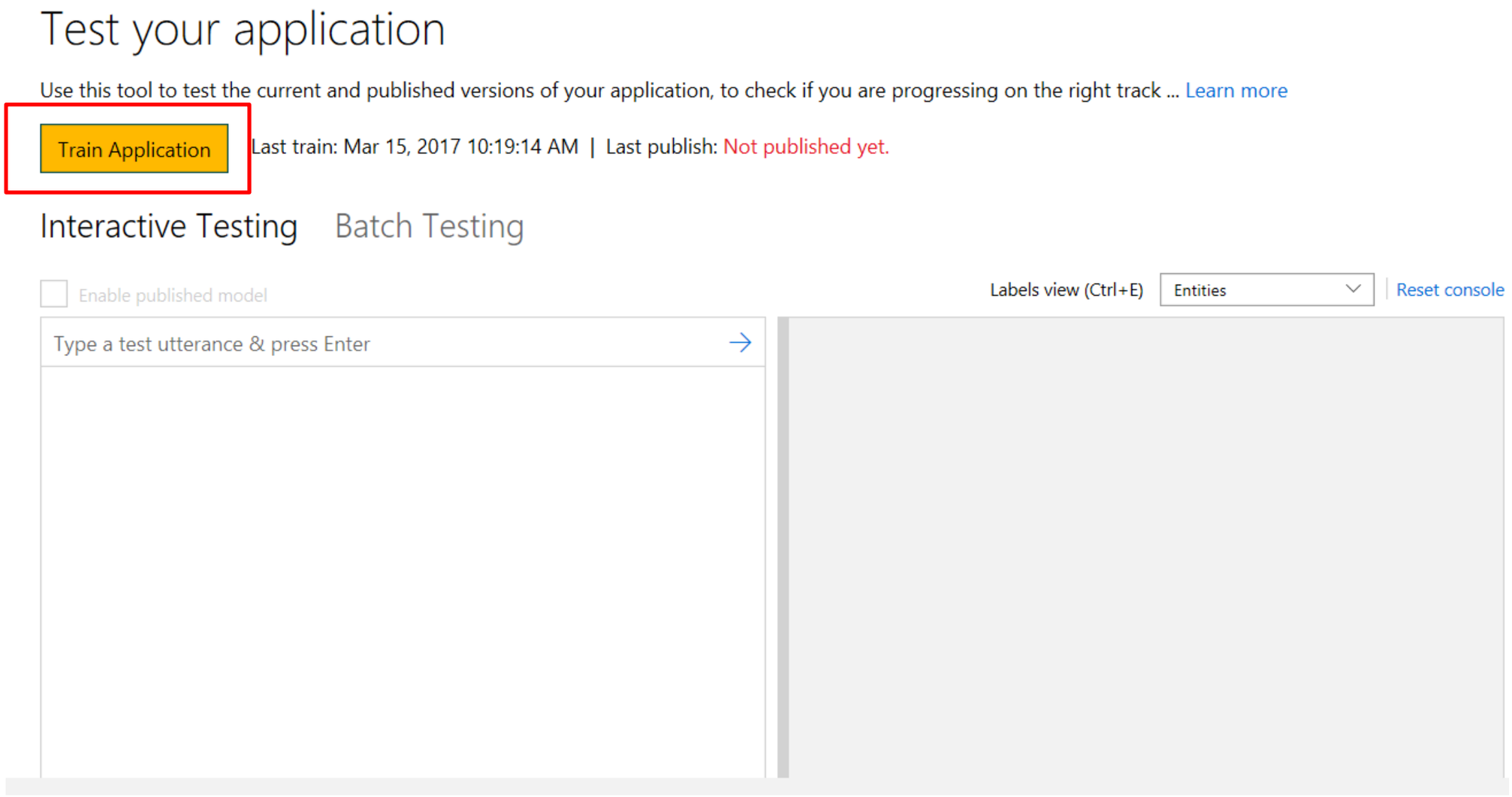
完成訓練句子

查詢

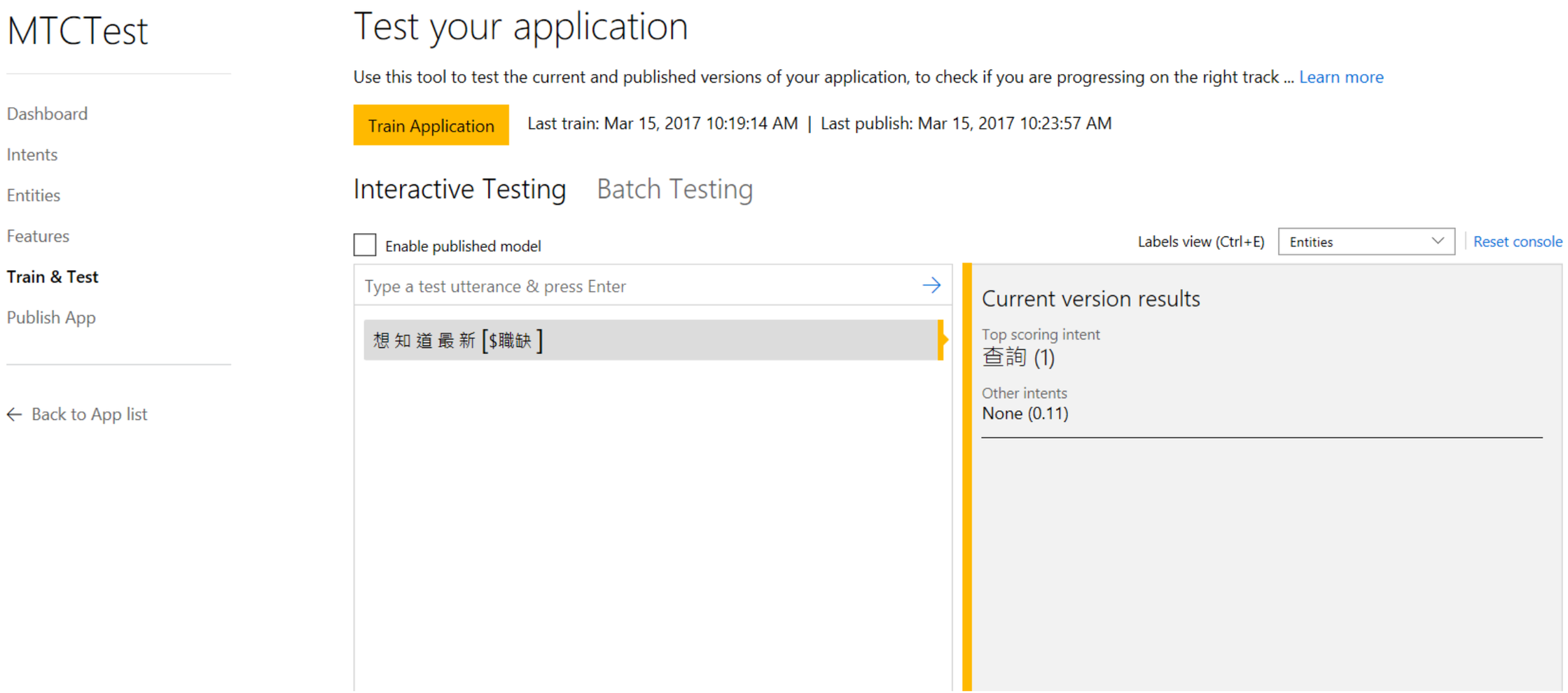
Here you are in full control of this intent; you can manage its utterances, used entities and suggested utterances ... Learn more

Utterances　Entities in use　Suggested utterances

Train Luis App



測試Luis App


MTCTest
Dashboard
Intents
Entities
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: Mar 15, 2017 10:19:14 AM | Last publish: Mar 15, 2017 10:23:57 AM
Interactive Testing
Batch Testing
Enable published model
Labels view (Ctrl+E)
Entities
Reset console
Type a test utterance & press Enter
想 知 道 最 新 [$職缺]
Current version results
Top scoring intent
查詢 (1)
Other intents
None (0.11)

發佈Luis App

MTCTest

- Dashboard
- Intents
- Entities
- Features
- Train & Test
- **Publish App**

← Back to App list

Publish App

Publish your app as a web service or as a chat bot. You can publish a new app or an updated version of a published app ... Learn more

Essentials

Latest publish: You haven't published your application yet

Endpoint Key (REQUIRED)

Choose a key to assign to application ...

Add a new key to your account

Publish settings

Endpoint slot

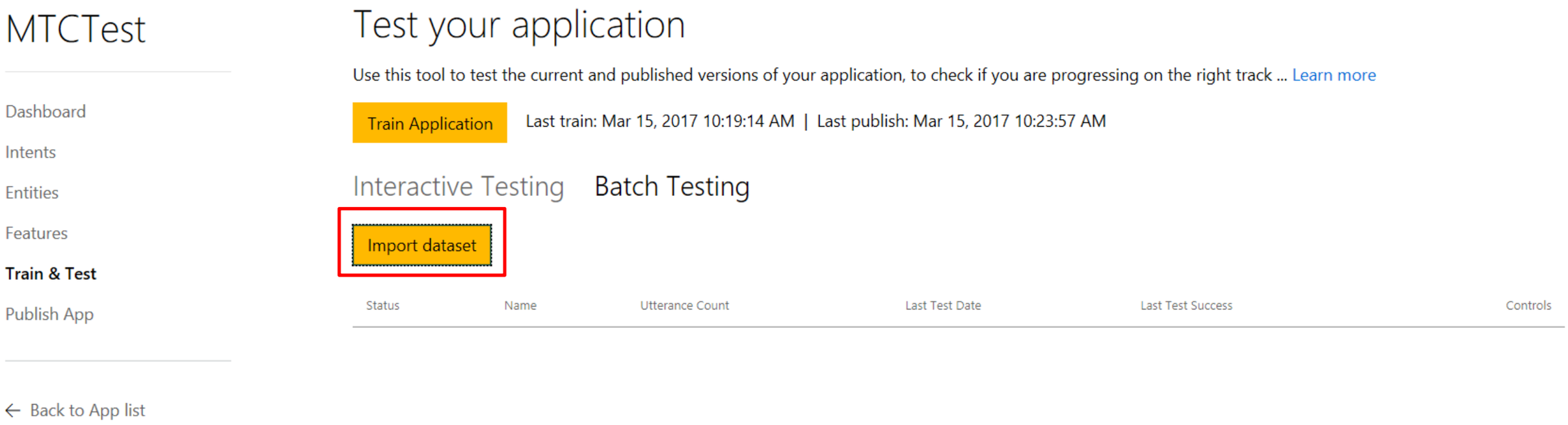
Production

This slot has no published application.

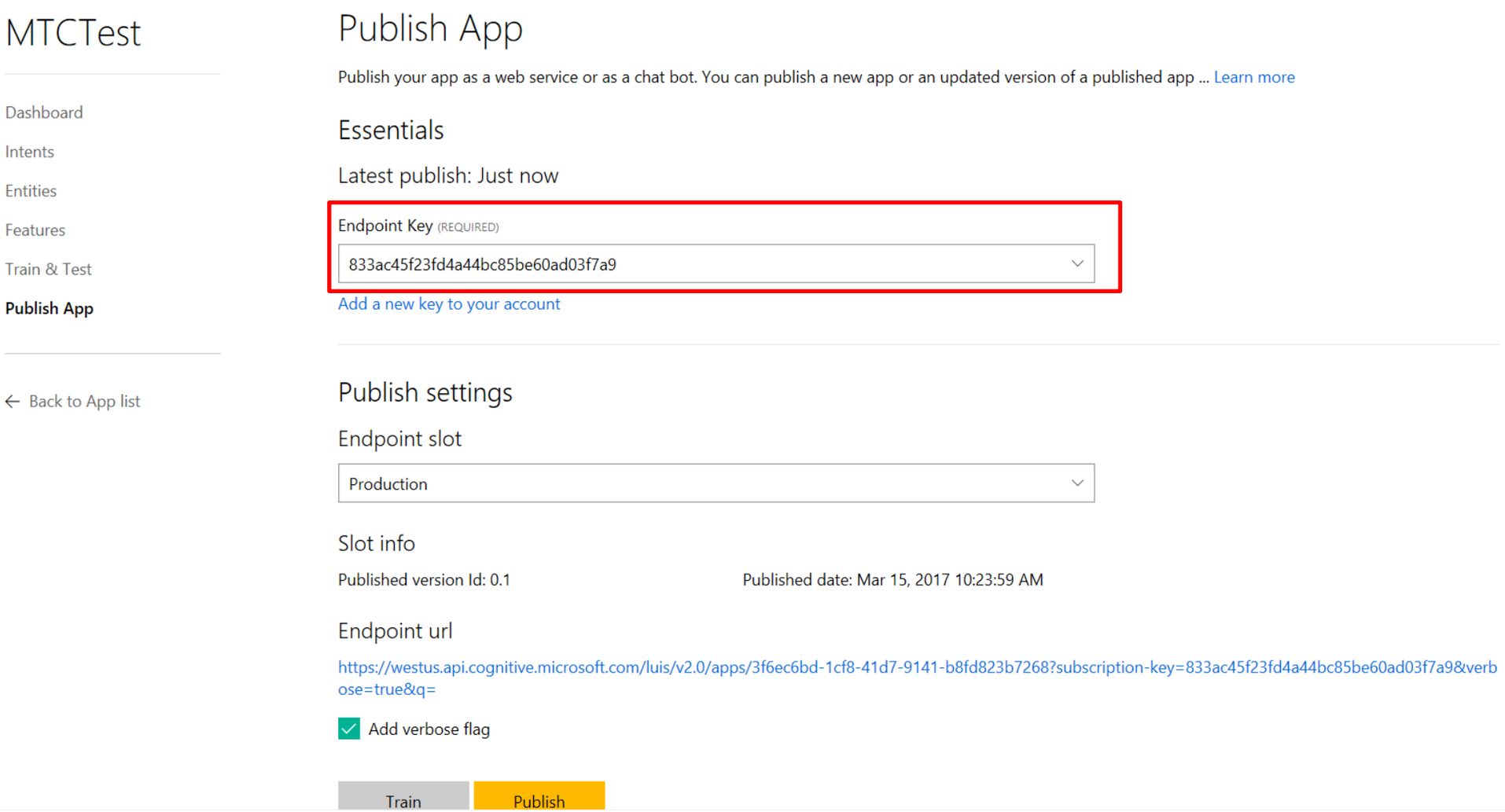
Train | Publish

Please assign a key to your app to publish.

也可以匯入完成的App



取得Luis App ID & Key



Speech API

	REST API	Client Library
支援平台	任何平台皆可用	Windows, Android, iOS
real-time streaming	No	Yes
麥克風收音支援	No	Yes
麥克風靜音偵測	No	Yes
適用之語音長短	較短	長短皆可
回傳內容	n-best	multiple partial results, n-best (short) and multiple phrases (long)

Windows 10 已經內建 Speech API

Speech

```
if (luisCfg) {
    client = Microsoft.CognitiveServices.SpeechRecognition.SpeechRecognitionServiceFactory.createMicrophoneClientWithIntent(
        getLanguage(),
        getKey(),
        luisCfg.appid,
        luisCfg.subid);
} else {
    client = Microsoft.CognitiveServices.SpeechRecognition.SpeechRecognitionServiceFactory.createMicrophoneClient(
        mode,
        getLanguage(),
        getKey());
}
```

```
client.onFinalResponseReceived = function(response) {
    //  setText(JSON.stringify(response));
}

client.onIntentReceived = function(response) {
    setText(response);
    var Jsondata = JSON.parse(response);
    Esun_action(Jsondata)
    console.log(Jsondata.topScoringIntent.intent);
};
```

```
LuisClient.kServiceUrl = "https://westus.api.cognitive.microsoft.c
//westus.api.cognitive.microsoft.com/luis/v2.0/apps/6cca83a7-1c07-
//api.projectoxford.ai/luis/v1/application?subscription-key=
LuisClient.prototype.getIntent = function (text) {
    var task = new Task();
    var request = new XMLHttpRequest();
    request.open('GET', [
        LuisClient.kServiceUrl,
        this._prefs.luisSubscriptionId,
        "&id=",
        this._prefs.luisAppId,
        "&q=",
        text
    ].join(""), true);
```


Microsoft