

System Integration - ITIS 6177

Final Project Documentation

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API Name: Computer Vision

Microsoft Azure Documentation [click here](#)

Introduction:

The Computer Vision service in Azure allows users to use complex ways to analyze images and deliver data depending on the visual elements you are concerned with.

My project contains two API's

1. Text extraction- Optical character recognition((OCR)
2. Image understanding

Text extraction - Optical character recognition(OCR) :

Information is extracted via photos using the Optical Character Recognition (OCR) provider.

Users can retrieve printed and handwritten text from photographs and docs using the new Read API.

Image understanding:

Your photographs can be analyzed using the Computer Vision Image Analysis service to retrieve a diverse range of visual characteristics. It could, for instance, assess if such an image contains adult content, locate specific brands or items, and locate human faces.

Method: Post

Body Parameter: Json

This project contains three endpoints:

1. **/ocr-analyze**
 - a. This endpoint is used to analyze the image provided by the user.
 - b. The desired output of this endpoint will give a url to the cognitive services of the Azure which contains the detailed analysis of the image.

Input:

Optical Character Recognition

POST /ocr-analyze

Calls the Optical Character Recognition (OCR) API from Azure Text Analytics

Parameters

Name Description

body required
string(string)
(body) Input send to OCR API in Microsoft Azure.

Edit Value Model

```
{
  "url": "https://www.oracle.com/a/tech/img/og-computer-vision-facebook.jpg"
}
```

Cancel

Url:

```
{
  "url": "https://www.oracle.com/a/tech/img/og-computer-vision-facebook.jpg"
}
```

Response:

Responses

Response content type application/json

Curl

```
curl -X 'POST' \
  'http://137.184.125.91:3000/ocr-analyze' \
  -H 'accept: application/json' \
  -H 'Content-Type: application/json' \
  -d '{
    "url": "https://www.oracle.com/a/tech/img/og-computer-vision-facebook.jpg"
  }'
```

Request URL

http://137.184.125.91:3000/ocr-analyze

Server response

Code Details

200

Response body

```
{
  "url": "https://si-gau.cognitiveservices.azure.com/vision/v3.2/read/analyzeResults/994d0eda-93a7-4ccb-b98c-20eeb123db4f"
}
```

Response headers

```
access-control-allow-origin: *
connection: keep-alive
content-length: 121
content-type: application/json; charset=utf-8
date: Mon, 02 May 2022 01:45:06 GMT
etag: W/"79-amplw51dJtUMHiatUD+tHfP5w"
keep-alive: timeout=5
x-powered-by: Express
```

Download

2. /ocr-read

- This endpoint is provided with the response of /ocr-analyze as its input.
- This is used to retrieve the detailed analysis of the textual part in the image provided to the /ocr-analyze.
- The various properties of the image such as the text, its location, confidence scores are provided as responses to this endpoint.

Input:

Not Secure | 137.184.125.91:3000/api-docs/#/image%20Understanding%20Recognition/post_image_analyze

POST /ocr-read

Calls the Optical Character Recognition (OCR) API from Azure Text Analytics

Parameters

Name	Description
body <small>required</small> string[<small>string</small>] (<small>body</small>)	Input send to OCR API in Microsoft Azure.

Edit Value | Model

```
{
  "url": "https://ai-gau.cognitiveservices.azure.com/vision/v3.2/read/analyzeResults/994d0eda-93a7-4ccb-b98c-20eeb123db4f"
}
```

Cancel

Cancel

Url response from /ocr-analyze is the input for /ocr-read:

```
{
  "url":
"https://si-gau.cognitiveservices.azure.com/vision/v3.2/read/analyzeResults/994d0eda-93a7-4ccb-b98c-20eeb123db4f"
}
```

Response:

137.184.125.91:2000/api-docs/#!/image%20Understanding%20Recognition/post_image_analyze

Responses

Response content typeapplication/json

curl -X 'POST' \

'http://137.184.125.91:2000/ocr-read' \

-H 'accept: application/json' \

-H 'Content-Type: application/json' \

-d '{

"url": "https://si-gau.cognitiveservices.azure.com/vision/v3.2/read/analyzeResults/994b8da-93a7-4ccb-b98c-28eb123d4f"

}'

Request URL

http://137.184.125.91:2000/ocr-read

Server response

Code

Details

200

Response body

```
{
  "status": "Succeeded",
  "createdAtTime": "2022-05-02T01:45:06Z",
  "lastUpdatedTime": "2022-05-02T01:45:06Z",
  "analyzeResult": {
    "version": "3.2.0",
    "modelVersion": "2021-04-12",
    "readResults": [
      {
        "page": 1,
        "angle": 0,
        "width": 1100,
        "height": 630,
        "unit": "Pixel",
        "lines": [
          {
            "boundingBox": [
              410,
              15,
              431,
              17,
              433,
              26,
              421,
              421
            ]
          }
        ]
      }
    ]
  }
}
```

Response headers

```
Access-Control-Allow-Origin: *
Connection: keep-alive
Content-Length: 800
Content-Type: application/json; charset=utf-8
Date: Sun, 05 May 2023 01:45:05 GMT
etag: W/"1a80-8kyYom8oVvixc9Zmnp+Yt"
Keep-Alive: timeout=5
x-powered-by: Express
```

3. /image-analyze

- This endpoint is provided with a url of an image given by the user.
- This extracts a wide range of visual features from the provided image.
- Objects, faces, creatures, places are recognised as the responses for this endpoint.

Input:

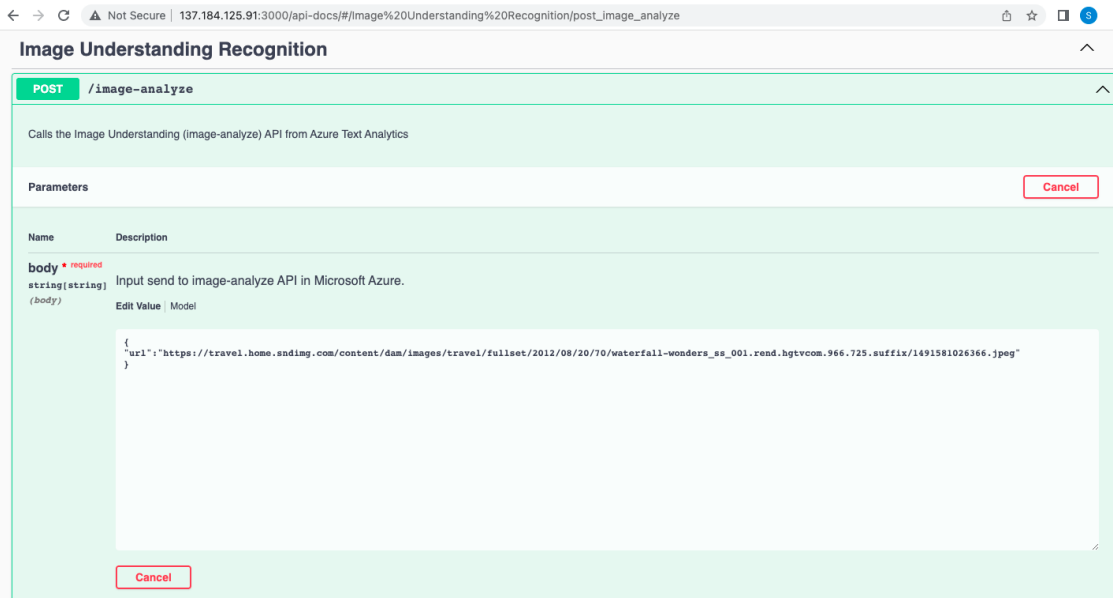


Image Understanding Recognition

POST /image-analyze

Calls the Image Understanding (image-analyze) API from Azure Text Analytics

Parameters

Name Description

body required
string(string)
(body) Input send to image-analyze API in Microsoft Azure.

Edit Value Model

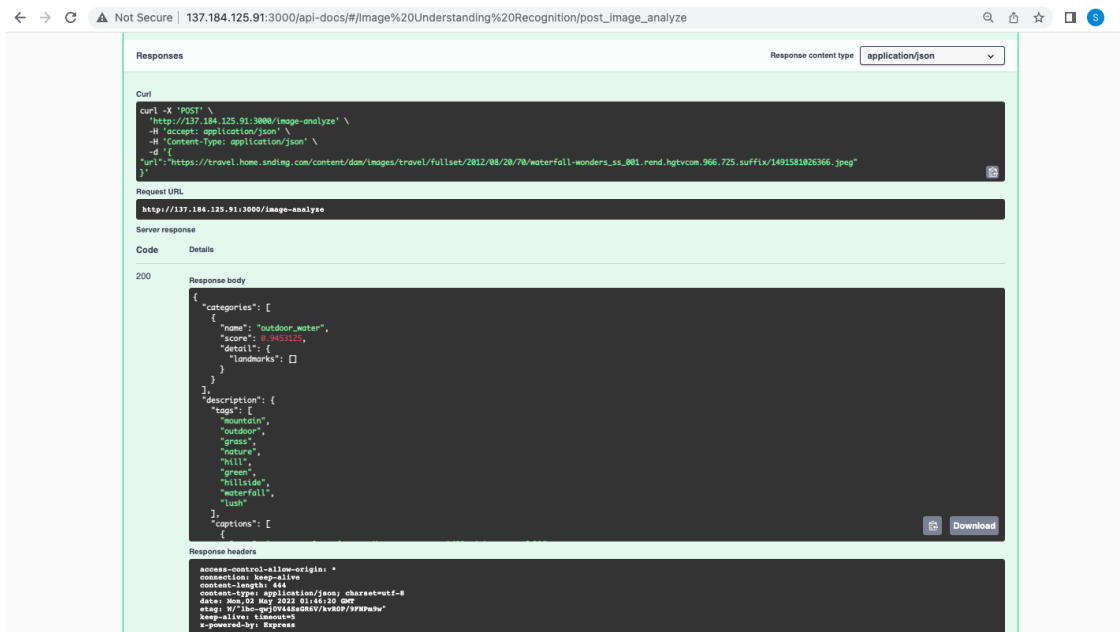
```
{
  "url": "https://travel.home.sndimg.com/content/dam/images/travel/fullset/2012/08/20/70/waterfall-wonders_ss_001.rend.hgtvcom.966.725.suffix/1491581026366.jpeg"
}
```

Cancel

Url:

```
{
  "url": "https://travel.home.sndimg.com/content/dam/images/travel/fullset/2012/08/20/70/waterfall-wonders_ss_001.rend.hgtvcom.966.725.suffix/1491581026366.jpeg"
}
```

Response:



Responses

Response content type: application/json

Curl

```
curl -X 'POST' \
  http://137.184.125.91:3000/image-analyze \
  -H 'accept: application/json' \
  -H 'Content-Type: application/json' \
  -d '{
    "url": "https://travel.home.sndimg.com/content/dam/images/travel/fullset/2012/08/20/70/waterfall-wonders_ss_001.rend.hgtvcom.966.725.suffix/1491581026366.jpeg"
  }'
```

Request URL

http://137.184.125.91:3000/image-analyze

Server response

Code Details

200

Response body

```
{
  "categories": [
    {
      "name": "outdoor_water",
      "score": 0.9851125,
      "detail": {
        "landmarks": []
      }
    }
  ],
  "description": {
    "tags": [
      "outdoor",
      "green",
      "nature",
      "hill",
      "green",
      "hillside",
      "waterfall",
      "lush"
    ],
    "options": [
    ]
  }
}
```

Response headers

```
access-control-allow-origin: *
connection: keep-alive
content-length: 444
content-type: application/json; charset=utf-8
date: Mon, 02 May 2022 01:16:20 GMT
etag: W/"1b0-qeJ0V46G8M9/kv8P/3rWwW"
keep-alive: 100ms
x-powered-by: Express
```

Status Codes:

1. 200: Image Information Successfully Retrieved
2. 400: Request body is invalid
3. 401: Access denied due to invalid subscription key

Tools, Languages and Frameworks Used:

1. **Node.js** - For implementing the API
2. **Digital Ocean** - For deploying the project
3. **Npm** - For dependencies in node js application
4. **Swagger** - For API documentation and testing
5. **Git** - For code evaluation

References:**Azure documentation**

<https://docs.microsoft.com/en-us/azure/cognitive-services/computer-vision/overview-ocr>

Source Code:

Github link: <https://github.com/Sree-Gauthami-Gundaram/si-final-project>

Link to live API: <http://137.184.125.91:3000/api-docs/>