



Call for Code Founding Partner

시각인식으로
피해상황 파악하고
빠르게 대응하기

CALL FOR CODE

Watson Visual Recognition

COMMIT TO THE CAUSE. PUSH FOR CHANGE.

IBM Watson & Cloud Platform

Yunho Maeng

실습 자료 링크

References

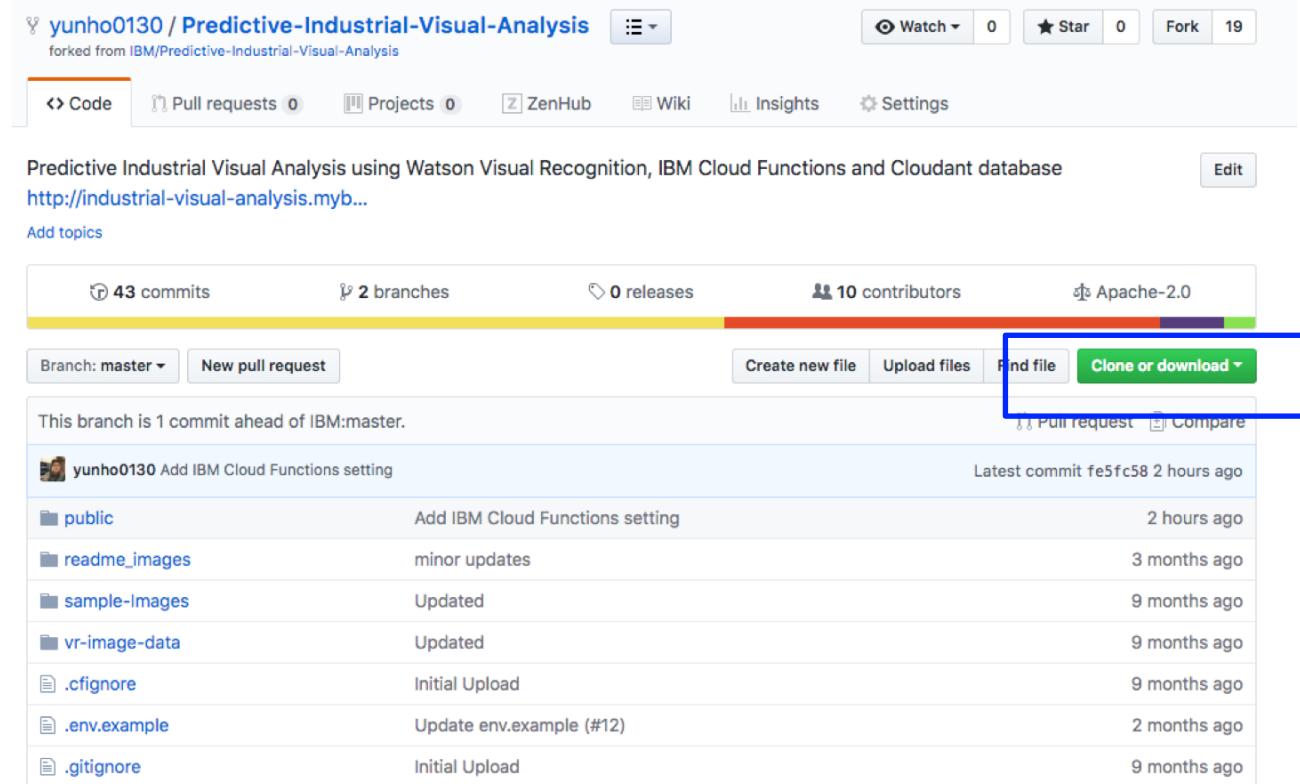
ibm.biz/201807dw

(<https://ibm.box.com/v/201807dw>)

- 준비사항
 - IBM Cloud 가입 꼭 해주셔야 실습 가능합니다.
 - <https://ibm.biz/BdYDgK>
 - 콘솔 <https://console.bluemix.net/>
 - bluemix.net
 - 크롬 설치 <https://www.google.co.kr/chrome/> (Firefox 도 무방하나 크롬 권장)
 - Bash shell 환경
 - Linux VM 을 사용하거나, Windows 경우는 Git Bash shell 을 쓰시는 것이 좋습니다.
 - 실습 VM 정보 <https://dwmeetup-hands-on.mybluemix.net/>
- 방송
 - 화면 + 강사 + 소리 = 페이스북 생방송 <https://www.facebook.com/groups/developerWorksKRUG/>
- 온라인으로 참여하는 분들은 방송에 댓글 남겨주시면 실습코드 제공해 드립니다.
- IBM Code
 - 블록체인으로 안전하고 투명한 구호기금 금융 공급망 구축하기
 - <https://github.com/jgkong/BlockchainNetwork-CompositeJourney/blob/jgkong-korean/README-ko.md>
 - <https://github.com/jgkong/BlockchainSmartContractTrading-CompositeJourney/blob/jgkong-korean/README-ko.md>
 - AI와 챗봇으로 긴급상황 속 실시간 커뮤니케이션 향상시키기
 - 데이터 사이언스로 구호물자, 의료서비스 수요 분석하고 예측하기
 - ▷ 시각인식으로 피해상황 파악하고 빠르게 대응하기
 - 산업 재해를 Watson 이미지 인식을 통해 예측해보기
 - Readme <https://github.com/yunho0130/Predictive-Industrial-Visual-Analysis/blob/master/README-ko.md>
 - Demo <https://maengdev-vr.mybluemix.net/>

Download repository

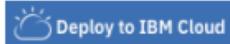
\$ git clone <https://github.com/yunho0130/Predictive-Industrial-Visual-Analysis>



<https://ibm.box.com/v/201807dw>

Deploy to IBM Cloud

IBM Cloud에 배포하기



먼저 manifest file 을 편집한 다음 cloud foundry cli 명령을 사용하여 앱을 IBM Cloud로 푸시합니다.

폴더에서 코드가 들어있는 manifest.yml 파일을 편집하고, 내가 지은 이름으로 애플리케이션 이름을 변경합니다. 입력하신 이름으로 애플리케이션의 URL - 예를 들면 내-애플리케이션-이름.mybluemix.net 이 결정됩니다. 또한 서비스 이름을 IBM Cloud에 있는 것과 일치하도록 업데이트합니다. manifest.yml 파일의 해당 부분은 다음과 같습니다:

```
applications:  
- path: .  
  memory: 256M  
  instances: 1  
  domain: mybluemix.net  
  name: {industrial-visual-analysis}  
  disk_quota: 1024M  
  services:  
  - {cloudant-service}  
  - {visual-recognition-service}
```

주의: 여기에서 service는 cloudfoundry의 service입니다.

Visual Recognition 서비스의 별칭으로 클라우드 파운드리 서비스를 생성합니다:

```
ibmcloud resource service-alias-create "{visual-recognition-service}" --instance-name "{visual-recognition-
```

The screenshot shows the IBM Cloud deployment interface. At the top, there are tabs for IBM Cloud, Catalog, Docs, Support, Manage, and a search bar. The user ID 1646453 - IBM is visible. A blue box highlights the 'Toolchain Name' field containing 'maengdev-3'. Another blue box highlights the 'App name' field containing 'maengdev-3'. A third blue box highlights the 'Create' button. The interface includes sections for 'Select Region' (set to US South), 'Select a resource group' (set to Default), 'Tool Integrations' (listing Git Repos and Issue Tracking, Eclipse Orion Web IDE, and Delivery Pipeline), and a note about the Delivery Pipeline automating continuous deployment. The 'Region' dropdown shows 'US South (Production)', the 'Organization' dropdown shows 'innis', and the 'Space' dropdown shows 'dev'.

<https://bluemix.net/deploy?repository=https://github.com/IBM/Predictive-Industrial-Visual-Analysis>

Watson Visual Recognition

IBM Cloud Catalog Docs Support Manage Search for resource... 1646453 - IBM 

Catalog

visual Filter

All Categories (9) >

- Compute
- Containers
- Networking
- Storage
- AI (1)
- Analytics (1)
- Databases
- Developer Tools (1)
- Integration
- Internet of Things
- Security and Identity (1)
- Starter Kits (2)
- Web and Mobile (2)
- Application Services (1)

AI

 **Visual Recognition**
Lite • IBM

Find meaning in visual content! Analyze images for scenes, objects, faces, and other content. Choose a default model off the...

Analytics

 **IBM Cognos Dashboard Embedded**
Lite • IBM

Bring data to life directly from your application with this powerful and easy-to-use visualization service.

FEEDBACK

<https://console.bluemix.net/catalog/?category=ai&search=visual>

Watson Visual Recognition

View all



Visual Recognition

Lite • IBM

Find meaning in visual content! Analyze images for scenes, objects, faces, and other content. Choose a default model off the shelf, or create your own custom classifier. Develop smart applications that analyze the visual content of images or video frames to understand what is happening in a scene.

[View Docs](#) [Terms](#)

AUTHOR IBM

PUBLISHED 07/18/2018

TYPE Service

Service name:

Visual Recognition-6n

Choose a region/location to deploy in:

US South

Select a resource group: [i](#)

Default

Pricing Plans

Monthly prices shown are for country or region: United States

Features

- General Model

Generate class keywords that describe the image. Use your own images, or extract relevant image URLs from publicly accessible webpages for analysis.

- Custom Model

Create custom, unique visual classifiers. Use the service to recognize custom visual concepts that are not available with general model.

- Face Model

Detect human faces in the image. This service also provides a general indication of age range and gender of faces.

- Food Model (Public Beta)

Utilize a specialized vocabulary of over 200 items to identify meals, food items, and dishes with accuracy.

- Explicit Model (Public Beta)

Assess whether an image contains objectionable adult content that may be unsuitable for general audiences.

- Text Model (Private Beta*)

Automatically detect and extract recognizable text within natural scene images. *Private Beta only program. Customers must have a Standard Plan to be eligible to use Private Beta features. To access to the Text Model Private Beta, please contact shantenu.agarwal@us.ibm.com

PLAN	FEATURES	PRICING
Lite	<p>1,000 Events per month towards: Pre-trained model classification (General, Face) (images) Custom Model classification (images) Custom Model training (images) 2 Custom Models 1 Lite Plan instance per IBM Cloud Organization Free Exports to Core ML.</p> <p>The Lite Plan gets you started with 1,000 events (images) per month and the ability to train two Custom Models. Users wishing to use more premium features or increase usage must upgrade to a Standard Plan or a Subscription Plan.</p> <p>Lite plan services are deleted after 30 days of inactivity.</p>	Free

Standard

Image Tagging Events Pay per Use

\$0.002

USD/GeneralTagging

Face Detection Events Pay per Use

\$0.004

USD/FaceRecognition

Training Events Pay per Use

\$0.10 USD/Training

\$0.002

USD/CustomTagging

Custom Tagging Events Pay per Use

Watson Visual Recognition

Watson /

Visual Recognition : Visual Recognition-6n

Resource Group: Default Location: US South

Get started with the service.

Plan: lite [Upgrade](#)

[Launch tool](#) [Getting started tutorial](#) [API reference](#)

Credentials

Show [Configure credentials](#)

```
{  
  "apikey": ".....",  
  "iam_apikey_description": "Auto generated apikey during resource-key operation for In",  
  "iam_apikey_name": "auto-generated-apikey-70879cd7-b2ad-4f70-83af-27950194dce8",  
  "iam_role_crn": "crn:v1:bluemix:public:iam::::serviceRole:Manager",  
  "iam_serviceid_crn": "crn:v1:bluemix:public:iam-identity::a:a57cd65e03203b14d535a869b",  
  "url": "https://gateway.watsonplatform.net/visual-recognition/api"  
}
```

Copied!

Visual Recognition : Visual Recognition-6n

Associated project : none

[Overview](#) [Credentials](#)

Custom

Create custom, unique visual classifiers. Use the service to recognize custom visual concepts that are not available with general model.

[Create Model](#) +

General

[Copy model ID](#)
Generate class keywords that describe the image. Use your own images, or extract relevant image URLs from publicly accessible webpages for analysis.

[Test](#)

Faces

[Copy model ID](#)
Detect human faces in the image. This service also provides a general indication of age range and gender of faces.

[Test](#)

Food BETA

[Copy model ID](#)
Utilize a specialized vocabulary of over 2000 foods to identify meals, food items, and dishes with enhanced accuracy.

[Test](#)

Explicit BETA

[Copy model ID](#)
Assess whether an image contains objectionable or adult content that may be unsuitable for general audiences.

[Test](#)

Text PRIVATE BETA

Automatically detect and extract recognized words within natural scene images.

[Request Access](#)

Watson Visual Recognition



Faces

[Overview](#) Test [Implementation](#)

Summary

Model ID	detect_faces
Status	Ready



Faces

[Overview](#) Test [Implementation](#)

Filter

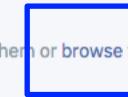
Threshold 0.0
0 1

Class

- Female
- Male



Drop image files here to let the classifier analyze them or [browse](#) to select files.



./kor-custom-training/obama_test0.jpg

Watson Visual Recognition

General

Overview **Test** Implementation

Filter

Threshold: 0.0

Class:

- alizarine red color
- candidate
- Indian red color
- official
- person
- politician
- president
- President of the United States

obama_test0.jpg



Clear results

person	0.80
alizarine red color	0.67
President of the United States	0.57
politician	0.55
president	0.53
Indian red color	0.51
official	0.51
candidate	0.50

Faces

Overview **Test** Implementation

Filter

Threshold: 0.0

Class:

- Female
- Male

obama_test0.jpg

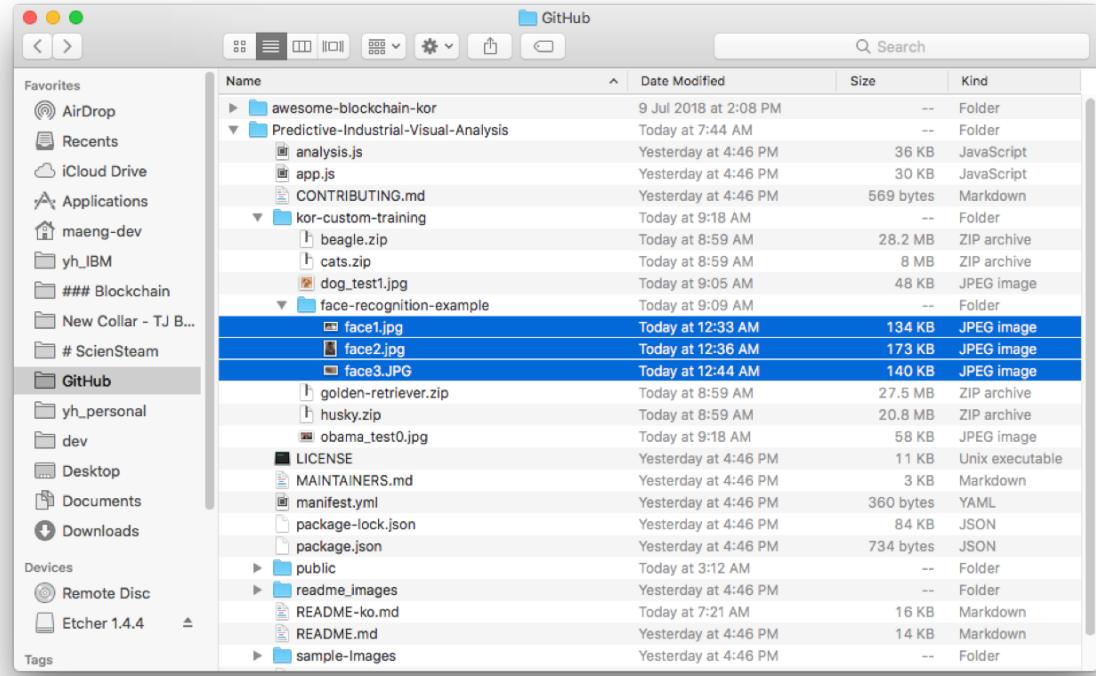


Clear results

Face 1

Age: 45 to 48	0.76
Male	1.00

Watson Visual Recognition: Face Recognition



Watson Visual Recognition: Face Recognition

face-recognition-example

Clear results

face3.JPG

Face 1

- Age: 20 to 23 0.81
- Male 1.00

Face 2

- Age: 26 to 31 0.51
- Male 0.82

Face 3

- Age: 26 to 30 0.77
- Male 0.69

face1.jpg

Face 1

- Age: 28 to 31 0.84
- Male 0.67

face2.jpg

Face 1

- Age: 22 to 31 0.22
- Female 0.76

Visual Recognition - Create a classifier using tool

Create a classifier

Visual Recognition : Visual Recognition-6n

Associated project : none

[Overview](#) [Credentials](#)

Custom
Create custom, unique visual classifiers. Use the service to recognize custom visual concepts that are not available with general model.

[Create Model +](#)

General
[Copy model ID](#)

Generate class keywords that describe the image. Use your own images, or extract relevant image URLs from publicly accessible webpages for analysis.

[Test](#)

Faces
[Copy model ID](#)

Detect human faces in the image. This service also provides a general indication of age range and gender of faces.

[Test](#)

Food BETA
[Copy model ID](#)

Utilize a specialized vocabulary of over 2000 foods to identify meals, food items, and dishes with enhanced accuracy.

[Test](#)

Explicit BETA
[Copy model ID](#)

Assess whether an image contains objectionable or adult content that may be unsuitable for general audiences.

[Test](#)

Text PRIVATE BETA

Automatically detect and extract recognized words within natural scene images.

[Request Access](#)

New project

Create a project for your custom model. A project is how you organize your resources to work with data and share assets with collaborators.

Define project details

Name
custom-training

85

Description

[Project description](#)

3000

Choose project options

Restrict who can be a collaborator (i)

Project will include integration with Cloud Object Storage for storing project assets and Watson Visual Recognition for model training and deployment.

Additional tools and services can be added in Project Settings after project creation.

Storage

cloud-object-storage-dsx

Define Watson Visual Recognition

Watson Visual Recognition service instance

Visual Recognition-6n

Visual Recognition - Create a classifier using tool

Create a classifier: Negative Model is important!

The screenshot illustrates the process of creating a custom classifier in the IBM Watson Visual Recognition tool. It shows two main steps:

- Step 1: Upload to project**
 - The first panel shows a warning: "Model is not yet ready to train. Learn why." A blue box highlights the "Train Model" button.
 - The second panel shows a message: "Model is ready to train." A blue box highlights the "Train Model" button.
- Step 2: Add from project**
 - The first panel shows a "Create a class" section with a "Negative (recommended)" option selected. A blue box highlights this section.
 - The second panel shows the "My Classes" section with two classes: "beagle" (50 images) and "Negative (recommended)" (50 images). A blue arrow points from the "Negative (recommended)" class to the "Negative (recommended)" section in the first panel.

Left Panel (Initial State):

- Header:** IBM Watson, Projects, Tools, Catalog, Community, Services, Manage, Support, Docs.
- Breadcrumbs:** Projects / custom-training / Default Custom Model.
- Title:** Default Custom Mo... ↗
- Associated Service:** Visual Recognition-6n
- Buttons:** Train Model, ⓘ
- Links:** My Classes, All Images
- Text:** Drag and drop zip files from your project. Total file size: 0.0/250 MB.
- Form:** Create a class (with a plus icon), Negative (recommended) (radio button selected).
- Info:** Use the negative class to train the model on images that do not depict the visual subject of any of the positive classes.

Right Panel (After Adding Images):

- Header:** IBM Watson, Projects, Tools, Catalog, Community, Services, Manage, Support, Docs.
- Breadcrumbs:** Projects / custom-training / Default Custom Model.
- Title:** Default Custom Mo... ↗
- Associated Service:** Visual Recognition-6n
- Buttons:** Train Model, ⓘ
- Links:** My Classes, All Images
- Text:** Drag and drop zip files from your project. Total file size: 0.0/250 MB.
- Form:** Create a class (with a plus icon).
- Image Grid:** 1 of 2 classes selected. Shows images for "beagle" and "Negative (recommended)".
- File List:** 0 selected. Shows two entries:
 - cats.zip (19 Jul 2018, 9:31:48 AM, 8.01 MB)
 - beagle.zip (19 Jul 2018, 9:31:25 AM, 28.17 MB)

Visual Recognition - Create a classifier using tool

Create a classifier

Services / Watson Services / Visual Recognition-6n

Visual Recognition : Visual Recognition-6n

Associated project : custom-training

Overview Credentials

Custom
Create custom, unique visual classifiers. Use the service to recognize custom visual concepts that are not available with general model.

General
[Copy model ID](#) [Test](#)
Generate class keywords that describe the image. Use your own images, or extract relevant image URLs from publicly accessible webpages for analysis.

Faces
[Copy model ID](#) [Test](#)
Detect human faces in the image. This service also provides a general indication of age range and gender of faces.

Food BETA
[Copy model ID](#) [Test](#)
Utilize a specialized vocabulary of over 2000 foods to identify meals, food items, and dishes with enhanced accuracy.

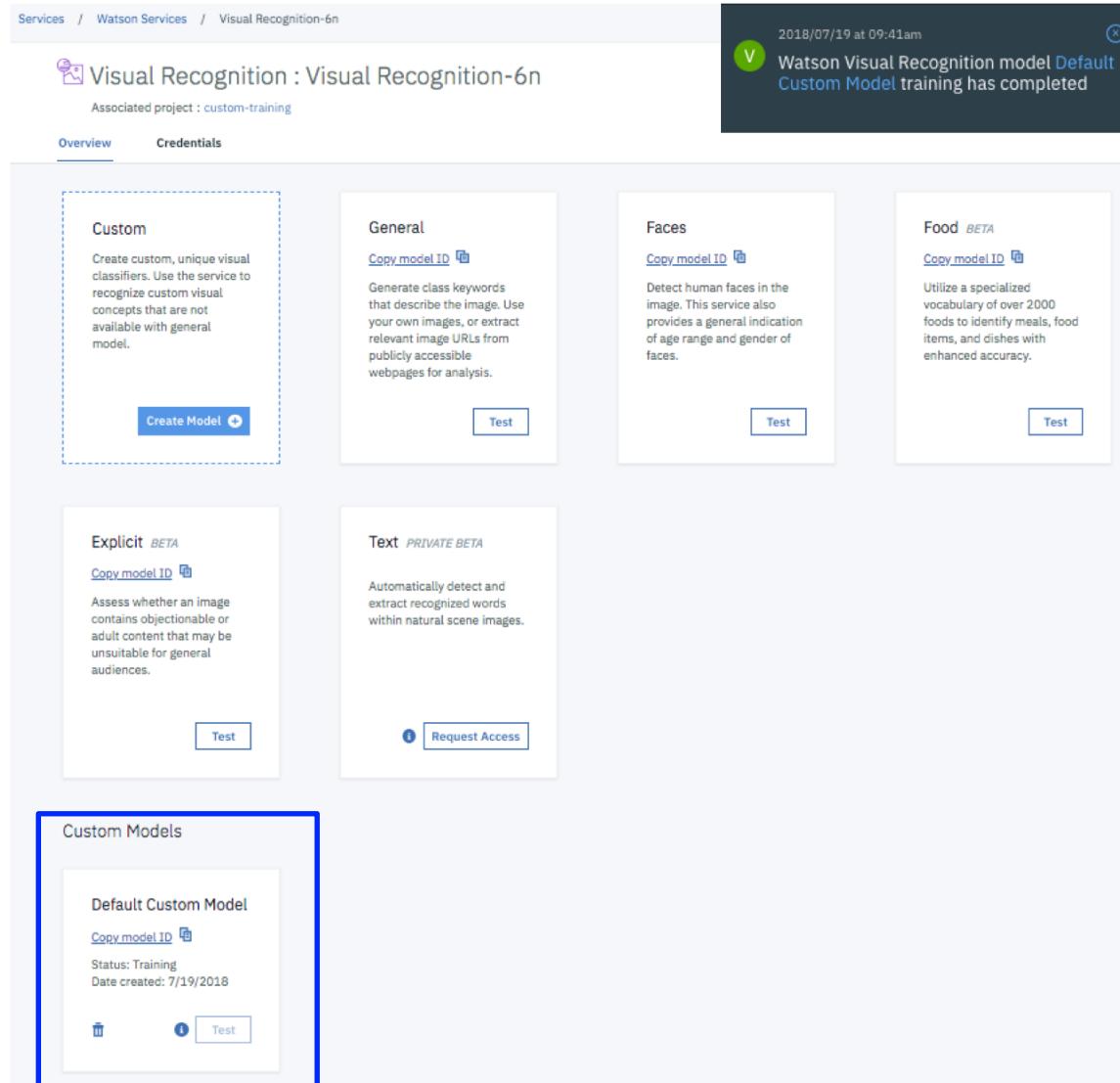
Explicit BETA
[Copy model ID](#) [Test](#)
Assess whether an image contains objectionable or adult content that may be unsuitable for general audiences.

Text PRIVATE BETA
[Request Access](#)
Automatically detect and extract recognized words within natural scene images.

Custom Models

Default Custom Model
[Copy model ID](#) [Test](#)
Status: Training
Date created: 7/19/2018

[Delete](#) [Edit](#) [Test](#)



Default Custom Model

Associated Service : Visual Recognition-6n

[Edit and Retrain](#)

[Overview](#) **Test** [Implementation](#)

Summary

[Search Summary](#)

Model ID	DefaultCustomModel_991333701
Status	Ready
Explanation	This model is ready for use.
Created by	wtsl2k@kr.ibm.com
Created on	7/19/2018, 9:34:25 AM
Number of classes	1
Number of images	100

Classes

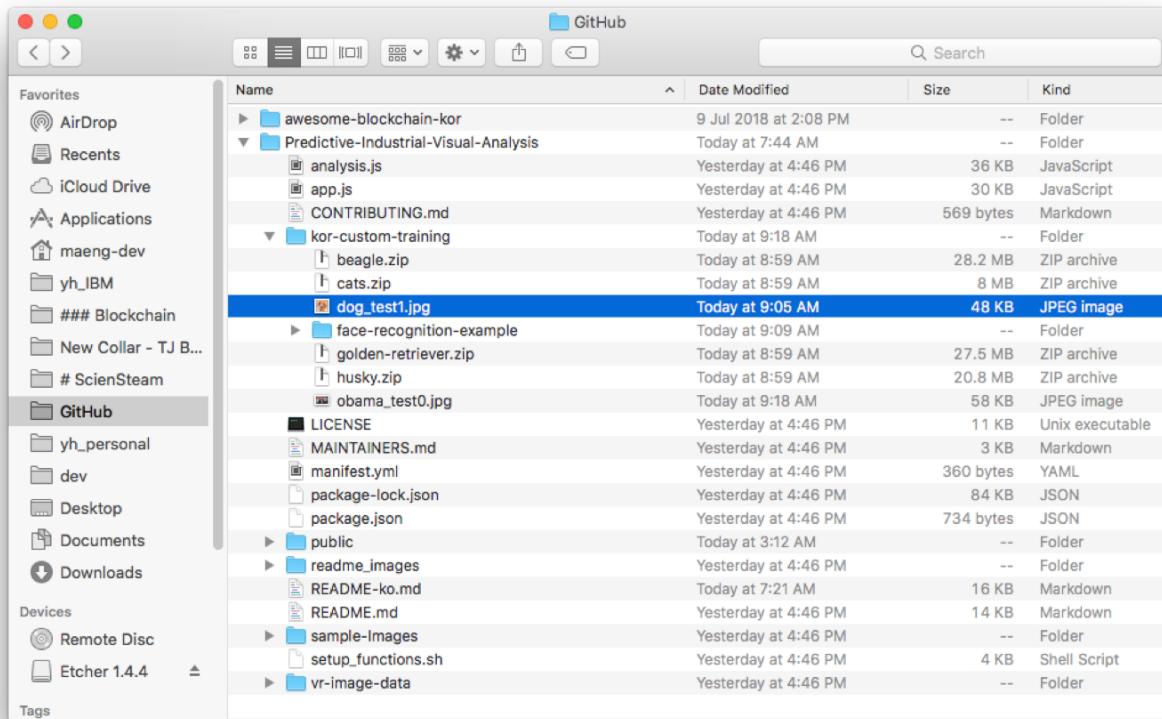
[Search Classes](#)

CLASS	NUMBER OF EXAMPLES
beagle	50



Visual Recognition - Create a classifier using tool

Create a classifier



Default Custom Model

Associated Service : Visual Recognition-6n

Edit and Retrain

Overview Test Implementation

Filter

Threshold 0.0

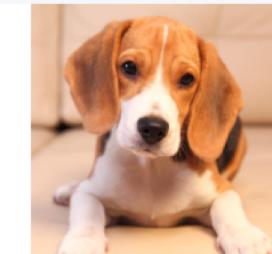
0 1

Class

beagle

Clear results

dog_test1.jpg



beagle

0.92

Visual Recognition - Create a classifier using curl



Create a classifier

```
curl -X POST -u "apikey:{apikey}" -F  
"beagle_positive_examples=@beagle.zip" -F  
"goldenretriever_positive_examples=@golden-  
retriever.zip" -F "husky_positive_examples=@husky.zip"  
-F "negative_examples=@cats.zip" -F "name=dogs"  
"https://gateway.watsonplatform.net/visual-  
recognition/api/v3/classifiers?version=2018-03-19"
```

Classify the image

```
curl -X POST -u "apikey:{apikey}" -F  
"images_file=@dog_test1.jpg" -F "threshold=0.6" -F  
"owners=me"  
"https://gateway.watsonplatform.net/visual-  
recognition/api/v3/classify?version=2018-03-19"
```

<https://www.ibm.com/watson/developercloud/visual-recognition/api/v3/curl.html?curl#classify>

산업 설비의 Visual Recognition 분석

The screenshot shows a GitHub repository page for 'Predictive-Industrial-Visual-Analysis'. The repository was forked from 'IBM/Predictive-Industrial-Visual-Analysis'. The README file is displayed, showing a message about low-tier service usage and a section titled '산업 설비의 Visual Recognition 분석' (Industrial Equipment Visual Recognition Analysis) which discusses the use of Watson Visual Recognition for industrial inspection.

Branch: master | Predictive-Industrial-Visual-Analysis / README-ko.md | Find file | Copy path

yunho0130 Add IBM Cloud Functions setting fe5fc58 22 minutes ago

2 contributors

314 lines (215 sloc) | 15.5 KB | Raw | Blame | History

스킬 레벨: 초급
주의: 이 레파지토리에서 사용되는 모든 서비스는 Lite 플랜(무료)입니다.

산업 설비의 Visual Recognition 분석

다른 언어로 보기: English

이 코드 패턴에서는 머신러닝 분류 기술을 사용하여 산업용 장비의 시각적 이미지 검사를 통해 다양한 파손을 검사합니다. Watson Visual Recognition을 사용한 숙련된 분류기(classifier)로 이미지를 분석하여 정상, 파열, 부식, 손상된 코팅, 공동 실패 및 누출의 6가지 식별자(identifiers)로 오일 및 가스 파이프라인을 검사합니다. 손상 식별자 또는 정상 식별자와 각 이미지의 일치하는 정도를 백분율로 보게됩니다. 이 데이터는 대시보드에서 즉각적인 주의가 필요한 파이프라인이나 정상 파이프라인을 나타내는 데 사용됩니다.

<https://github.com/yunho0130/Predictive-Industrial-Visual-Analysis/blob/master/README-ko.md>

Predictive Industrial Visual Analysis Demo



Industrial Visual Analysis

analyze on sight...

[Upload New Image](#)

Dashboard

3

1

0

9

Need immediate attention May need attention Do not need attention Total Images

Latest Images

ID	Name	Analyzed?	Timestamp	Aircraft
41b5a3f12ddeb29d96b749d3908e961	fsdfasdf3	NO	2018-06-18 16:23:17 +0000	Phantom Drone PD148
5166a53193106ffeb8fccd3ce23d3f64	sdfjlkjsdjf3	NO	2018-06-19 02:10:35 +0000	Phantom Drone PD148
6647cb3c55660fd246418e7308b3216d	sdfe4	NO	2018-06-18 17:06:26 +0000	Phantom Drone PD148
97dc9ed7aea6578cc2bc1b61157d2c96	test555	YES	2018-06-18 17:19:08 +0000	Phantom Drone PD148

<https://maengdev-vr.mybluemix.net/>

Predictive Industrial Visual Analysis Demo



(View full resolution in a new window)

Watson Visual Recognition

Classifier: Oil Pipe Condition

Condition	Probability (%)	Icon
Bursted_Pipe	1.30%	
Corroded_Pipe	52.80%	
Damaged_Coating	21.70%	
Joint_Failure	59.40%	
Normal_Condition	0.10%	
Pipe_Leak	2.60%	

파이프 파열 1.30 %
파이프 부식 52.80 %
코팅 손상 21.70 %
조인트 결함 59.40 %
정상상태 0 %
파이프 누출 2.60 %

Watson Facial Recognition

No faces were recognized in this image.

Watson Text Recognition

No text was recognized in this image.

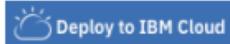
Aircraft: Phantom Drone PD148

Timestamp:	2018-06-18 17:45:34 +0000
Region:	uum5e
Longitude:	-95.34
Latitude:	47.626773
Altitude:	10 (m)
Heading:	152.6
Camera:	Head: 152.5 Pitch: 0

A map from Mapbox showing the location of the drone flight. The map includes state boundaries, county lines, and place names like "Grand Forks" and "Bemidji". A blue line on the map represents the flight path, which starts near Grand Forks and ends near Bemidji. A blue arrow points towards the flight path. The map also shows several lakes and rivers. A copyright notice at the bottom reads "© Mapbox © OpenStreetMap Improve this map".

Deploy to IBM Cloud

IBM Cloud에 배포하기



먼저 manifest file 을 편집한 다음 cloud foundry cli 명령을 사용하여 앱을 IBM Cloud로 푸시합니다.

폴더에서 코드가 들어있는 manifest.yml 파일을 편집하고, 내가 지은 이름으로 애플리케이션 이름을 변경합니다. 입력하신 이름으로 애플리케이션의 URL - 예를 들면 내-애플리케이션-이름.mybluemix.net 이 결정됩니다. 또한 서비스 이름을 IBM Cloud에 있는 것과 일치하도록 업데이트합니다. manifest.yml 파일의 해당 부분은 다음과 같습니다:

```
applications:
- path: .
  memory: 256M
  instances: 1
  domain: mybluemix.net
  name: {industrial-visual-analysis}
  disk_quota: 1024M
  services:
    - {cloudant-service}
    - {visual-recognition-service}
```

주의: 여기에서 service는 cloudfoundry의 service입니다.

Visual Recognition 서비스의 별칭으로 클라우드 파운드리 서비스를 생성합니다:

```
ibmcloud resource service-alias-create "{visual-recognition-service}" --instance-name "{visual-recognition-
```

The screenshot shows the IBM Cloud deployment interface. At the top, there are navigation links: IBM Cloud, Catalog, Docs, Support, Manage, and a search bar. The session ID 1646453 - IBM is also at the top right.

Below the header, there are fields for "Toolchain Name" (maengdev-3), "Select Region" (US South), and "Select a resource group" (Default). A note says "Select a CF Organization (deprecated)".

The "Tool Integrations" section includes icons for "Git Repos and Issue Tracking", "Eclipse Orion Web IDE", and "Delivery Pipeline". A note below states: "The Delivery Pipeline automates continuous deployment."

A large blue box highlights the "App name" field, which contains "maengdev-3". To the right of this field is a note: "App name을 되도록 짧게".

Below the app name field is an "IBM Cloud API Key" field containing a redacted string, with a "Create +" button to its right.

At the bottom, there are dropdown menus for "Region" (US South (Production)), "Organization" (innis), and "Space" (dev).

<https://bluemix.net/deploy?repository=https://github.com/IBM/Predictive-Industrial-Visual-Analysis>

Deploy to IBM Cloud

Toolchains / maengdev-vr-3

maengdev-vr-3

View app **⋮**

Your app is being created! Quick start: To watch the pipeline deploy your app, click **Delivery Pipeline**. After the app is deployed, you can see it running by clicking **View app**.

THINK

CODE

DELIVER

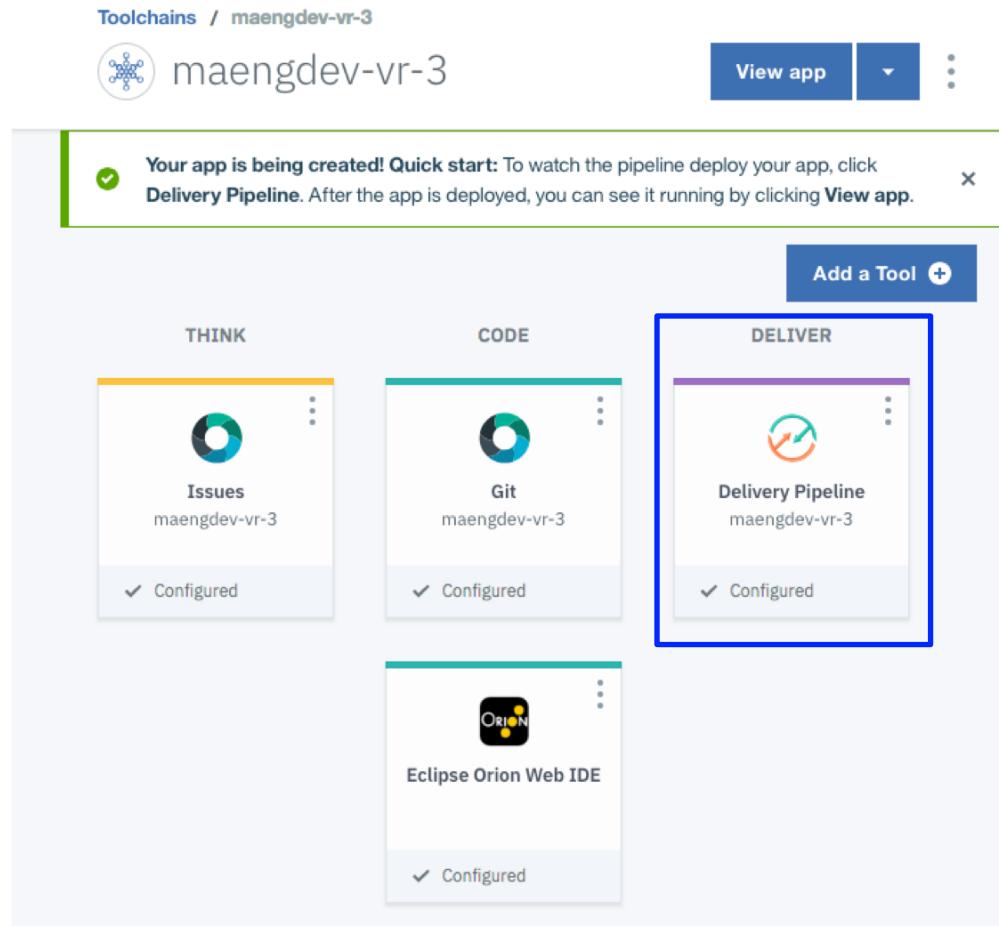
Add a Tool **+**

Issues
maengdev-vr-3
✓ Configured

Git
maengdev-vr-3
✓ Configured

Delivery Pipeline
maengdev-vr-3
✓ Configured

Eclipse Orion Web IDE
✓ Configured



Toolchains / maengdev-vr-3 / maengdev-vr-3

maengdev-vr-3 | Delivery Pipeline

Build Stage **STAGE PASSED**

LAST INPUT **Git URL**

Last commit by Sunah Jang 3d ago [adding Korean translated README \(#18\)...](#)

JOB Build Passed now

LAST EXECUTION RESULT Build 1

Deploy Stage **STAGE RUNNING...**

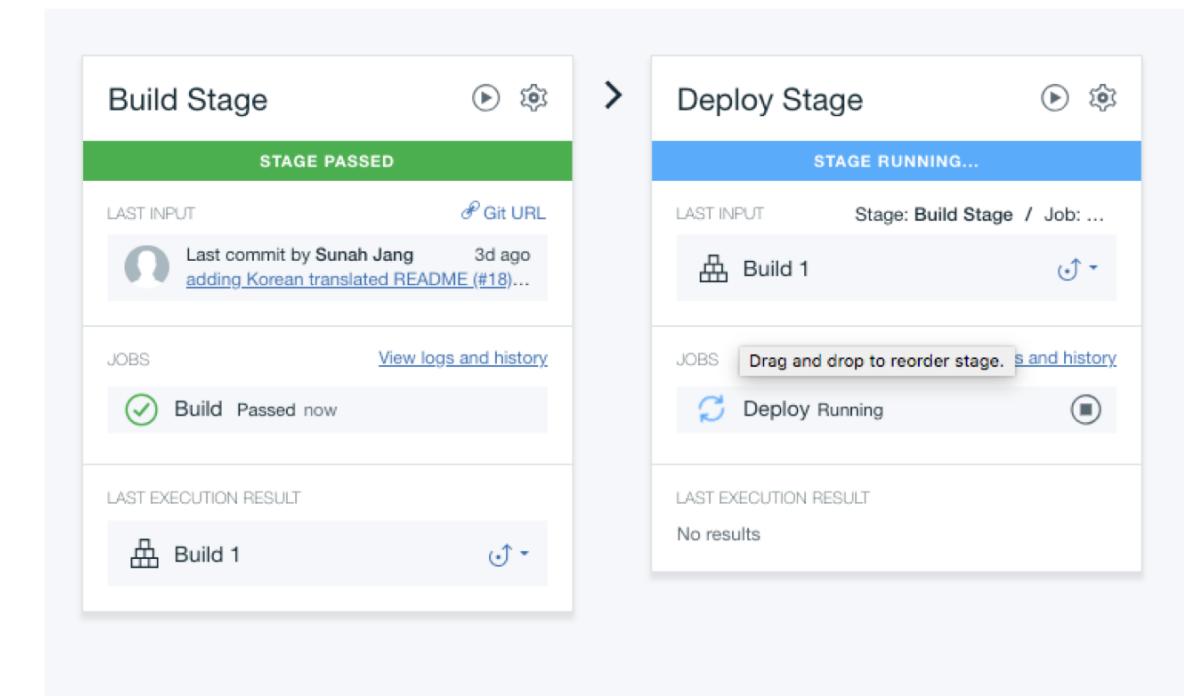
LAST INPUT Stage: Build Stage / Job: ...

Build 1

JOBS Drag and drop to reorder stage. [View logs and history](#)

Deploy Running

LAST EXECUTION RESULT No results



<https://bluemix.net/deploy?repository=https://github.com/IBM/Predictive-Industrial-Visual-Analysis>

Cloudant DB – Add new view

The screenshot shows the Cloudant interface for the database 'image_db'. On the left is a sidebar with various icons. The main area has a table with rows for 'All Documents', 'Query', 'Permissions', 'Changes', and 'Design Documents'. A context menu is open over the 'All Documents' row, with the 'Add New' option highlighted. The 'New View' option under 'Add New' is also highlighted.

New View

Design Document [?](#)

New document [?](#) _design/[image_db_images](#)

Index name [?](#) image_db.images

Map function [?](#)

```
1 function (doc) {  
2   if ( doc.type == 'image_db.image' ) {  
3     emit(doc);  
4   }  
5 }
```

Reduce (optional) [?](#)

NONE

Create Document and then Build Index [Cancel](#)

This screenshot shows the 'New View' dialog. It includes fields for the design document (_design/_image_db_images), the index name (image_db.images), and the map function. The map function is defined as a JavaScript code block:

```
1 function (doc) {  
2   if ( doc.type == 'image_db.image' ) {  
3     emit(doc);  
4   }  
5 }
```

At the bottom, there is a checkbox for 'Create Document and then Build Index' which is checked, and a 'Cancel' button.

IBM Cloud Functions – Upload images and analyze it

3. IBM Cloud Functions 설정하기

이제 Bluemix CLI를 사용하여 IBM Cloud Functions (OpenWhisk)를 설정해봅니다.

Bluemix CLI 설치 및 다운로드

- Cloud Functions 플러그인 설치하기

```
bx plugin install Cloud-Functions -r Bluemix
```

- IBM Cloud에 로그인하고, 지역 (예: api.ng.bluemix.net), 조직 (예: Raheel.Zubairy) 그리고 영역 (예: dev)을 선택합니다.

```
bx login -a {INSERT REGION} -o {INSERT ORGANIZATION} -s {INSERT SPACE}
```

API 인증 및 호스트

API 인증 키와 호스트가 필요합니다.

- API 호스트를 가져오는 명령어:

```
bx wsk property get --apihost
```

- API 인증 키를 가져오는 명령어:

```
bx wsk property get --auth
```

.env 파일 구성하기

Cloudant NoSQL 데이터베이스와 Watson Visual Recognition 서비스에 신임정보를 제공하고, 이전 단계의 Cloud Functions Host/Auth 정보를 `.env` file로 가져와야 합니다. 다음 명령어를 사용하여 샘플인 `.env.example` 파일을 복사합니다:

```
cp .env.example .env
```

나의 신임정보와 VR 분류기 이름을 입력합니다.

```
#From cloudant NoSQL database
CLOUDANT_USERNAME=
CLOUDANT_PASSWORD=
CLOUDANT_HOST=
CLOUDANT_URL=
CLOUDANT_DB=image_db
#From Watson Visual Recognition Service
VR_KEY=
VR_URL=
VR_CLASSIFIERS=OilPipeCondition_1063693116
#From OpenWhisk Functions Service in IBM Cloud
FUNCTIONS_APIHOST=
FUNCTIONS_AUTHORIZATION=
```

주의: 신임정보 편집시 `.env` 파일을 편집하세요

IBM Cloud Functions – Upload images and analyze it

FUNCTIONS_APIHOST, FUNCTIONS_AUTHORIZATION

3. IBM Cloud Functions 설정하기

이제 Bluemix CLI를 사용하여 IBM Cloud Functions (OpenWhisk)를 설정해봅니다.

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- Cloud Functions 플러그인 설치하기

```
bx plugin install Cloud-Functions -r Bluemix
```

- IBM Cloud에 로그인하고, 지역 (예: api.ng.bluemix.net), 조직 (예: Raheel.Zubairy) 그리고 영역 (예: dev)을 선택합니다.

```
bx login -a {INSERT REGION} -o {INSERT ORGANIZATION} -s {INSERT SPACE}
```

API 인증 및 호스트

API 인증 키와 호스트가 필요합니다.

- API 호스트를 가져오는 명령어:

```
bx wsk property get --apihost
```

- API 인증 키를 가져오는 명령어:

```
bx wsk property get --auth
```

Select an organization (or press enter to skip):

- wtsl2k@kr.ibm.com
 - innis
 - yhmaeng
- Enter a number > 1
Targeted org **wtsl2k@kr.ibm.com**

Targeted space **dev**

API endpoint:	https://api.ng.bluemix.net
Region:	us-south
User:	wtsl2k@kr.ibm.com
Account:	IBM (a57cd65e03203b14d535a869ba63023e) <-> 1646453
Resource group:	Default
CF API endpoint:	https://api.ng.bluemix.net (API version: 2.92.0)
Org:	wtsl2k@kr.ibm.com
Space:	dev

```
maengdevs-mbp:vr-image-data maeng-dev$ bx wsk property get --apihost
whisk API host          openwhisk.ng.bluemix.net
maengdevs-mbp:vr-image-data maeng-dev$ bx wsk property get --auth
whisk auth                8c062a72-e79f-4e8a-bda6-3742bb1cd60d:xAKYJlp602nDHxFzk
Pgi7fqUhWZH1X7MN44va7DZ1kBkLbKhxe92UBHUafu
maengdevs-mbp:vr-image-data maeng-dev$
```

IBM Cloud Functions – Upload images and analyze it

VR_KEY, VR_URL

Watson /

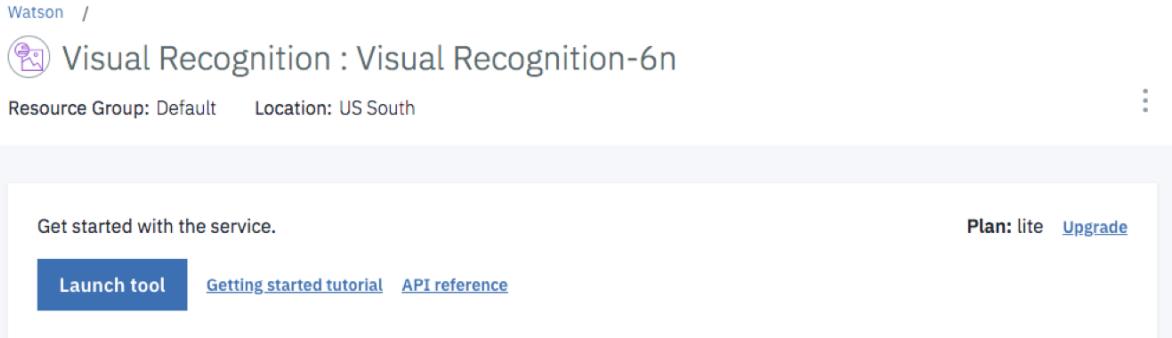
Visual Recognition : Visual Recognition-6n

Resource Group: Default Location: US South

Get started with the service.

Plan: lite [Upgrade](#)

[Launch tool](#) [Getting started tutorial](#) [API reference](#)



```
3 # VR
4 {
5   "apikey": "-oaApJAmu-HwiiPA0cZfazx2ehzd99j16c9SrqhPGqn0",
6   "iam_apikey_description": "Auto generated apikey during resource-key operation for Instance - crn:v1:bluemix:public:watson-vision-combined:us-south:a/a57cd65e03203b14d535a869ba63023e:29237e0f-8348-4562-9f13-7bddc4a3c8ab::",
7   "iam_apikey_name": "auto-generated-apikey-a30d4439-eb1a-482e-bb54-d36384214b41",
8   "iam_role_crn": "crn:v1:bluemix:public:iam::::serviceRole:Manager",
9   "iam_serviceid_crn": "crn:v1:bluemix:public:iam-identity::a/a57cd65e03203b14d535a869b
10  a63023e::serviceid:ServiceId-79b233d2-7037-4753-b832-d158a9254a0b",
11  "url": "https://gateway.watsonplatform.net/visual-recognition/api"
12 }
13 
```

Credentials

Show Configure credentials



{
 "apikey": ".....",
 "iam_apikey_description": "Auto generated apikey during resource-key operation for In
 "iam_apikey_name": "auto-generated-apikey-70879cd7-b2ad-4f70-83af-27950194dce8",
 "iam_role_crn": "crn:v1:bluemix:public:iam::::serviceRole:Manager",
 "iam_serviceid_crn": "crn:v1:bluemix:public:iam-identity::a/a57cd65e03203b14d535a869b
 "url": "https://gateway.watsonplatform.net/visual-recognition/api"
}

 Copied!

```
3 # VR
4 {
5   "apikey": "-oaApJAmu-HwiiPA0cZfazx2ehzd99j16c9SrqhPGqn0",
6   "iam_apikey_description": "Auto generated apikey during resource-key operation for Instance - crn:v1:bluemix:public:watson-vision-combined:us-south:a/a57cd65e03203b14d535a869ba63023e:29237e0f-8348-4562-9f13-7bddc4a3c8ab::",
7   "iam_apikey_name": "auto-generated-apikey-a30d4439-eb1a-482e-bb54-d36384214b41",
8   "iam_role_crn": "crn:v1:bluemix:public:iam::::serviceRole:Manager",
9   "iam_serviceid_crn": "crn:v1:bluemix:public:iam-identity::a/a57cd65e03203b14d535a869b
10  a63023e::serviceid:ServiceId-79b233d2-7037-4753-b832-d158a9254a0b",
11  "url": "https://gateway.watsonplatform.net/visual-recognition/api"
12 }
13 
```

Visual Recognition - Create a classifier using curl

VR_CLASSIFIERS

Move into image folder

```
cd Predictive-Industrial-Visual-Analysis/vr-image-data
```

Create a classifier

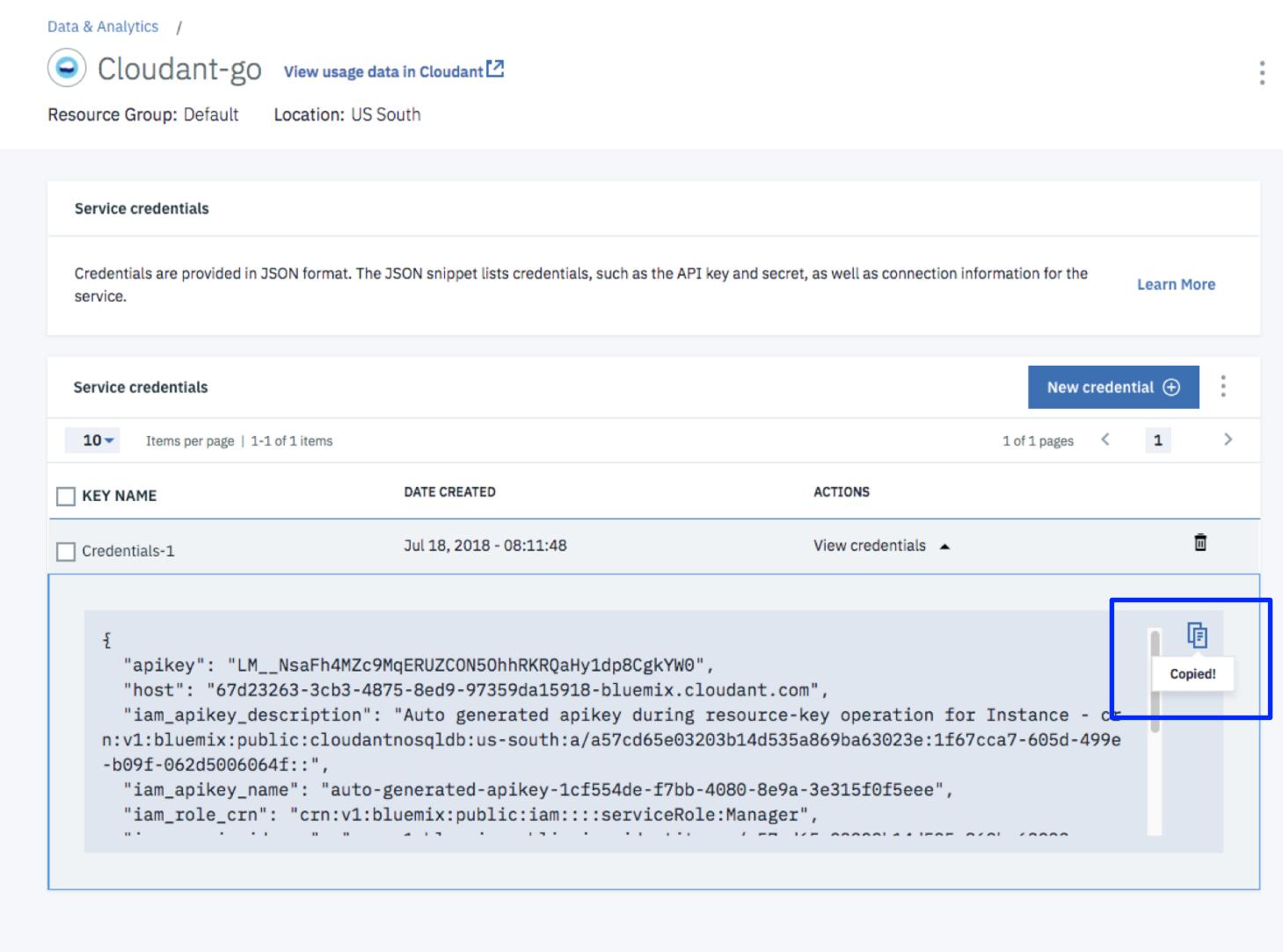
```
curl -X POST -u "apikey:{INSERT-YOUR-IAM-APIKEY-HERE}" -F  
"Bursted_Pipe_positive_examples=@Burst_Images.zip" -F  
"Corroded_Pipe_positive_examples=@Corrosion_Images.zip" -F  
"Damaged_Coating_positive_examples=@Damaged_Coating_Im  
ages.zip" -F  
"Joint_Failure_positive_examples=@Joint_Failure_Images.zip" -  
F "Pipe_Leak_positive_examples=@Leak_Images.zip" -F  
"Normal_Condition_positive_examples=@Normal_Condition.zip"  
-F "name=OilPipeCondition"  
"https://gateway.watsonplatform.net/visual-  
recognition/api/v3/classifiers?version=2018-03-19"
```

Check classifier_id

```
maengdevs-mbp:vr-image-data maeng-dev$ curl -X POST -u "apikey:-oaApJAmu-HwiIPR  
0c2fazx2ehzd99j16c9SrqhPGqn0" -F "Bursted_Pipe_positive_examples=@Burst_Images.  
zip" -F "Corroded_Pipe_positive_examples=@Corrosion_Images.zip" -F "Damaged_Coa  
ting_positive_examples=@Damaged_Coating_Images.zip" -F "Joint_Failure_positive_  
examples=@Joint_Failure_Images.zip" -F "Pipe_Leak_positive_examples=@Leak_Imag  
es.zip" -F "Normal_Condition_positive_examples=@Normal_Condition.zip" -F "name=O  
ilPipeCondition" "https://gateway.watsonplatform.net/visual-recognition/api/v3/  
classifiers?version=2018-03-19"  
{  
    "classifier_id": "OilPipeCondition_168377216",  
    "name": "OilPipeCondition",  
    "status": "training",  
    "owner": "29237e0f-8348-4562-9f13-7bddc4a3c8ab",  
    "created": "2018-07-19T01:03:16.313Z",  
    "updated": "2018-07-19T01:03:16.313Z",  
    "classes": [  
        {  
            "class": "Joint_Failure"  
        },  
        {  
            "class": "Damaged_Coating"  
        },  
        {  
            "class": "Corroded_Pipe"  
        },  
        {  
            "class": "Bursted_Pipe"  
        },  
        {  
            "class": "Normal_Condition"  
        },  
        {  
            "class": "Pipe_Leak"  
        }  
    ],  
    "core_ml_enabled": true  
}  
maengdevs-mbp:vr-image-data maeng-dev$
```

Visual Recognition - Create a classifier using curl

LOUDANT_USERNAME, CLOUDANT_PASSWORD, CLOUDANT_HOST, CLOUDANT_URL,



The screenshot shows the Cloudant-go service credentials page. It displays a JSON snippet of credentials and a table of service credentials. A 'Copied!' message is visible on the right.

```
{  
  "apikey": "LM__NsaFh4M7c9MqERUZCON50hhRKRQaHy1dp8CgkYW0",  
  "host": "67d23263-3cb3-4875-8ed9-97359da15918-bluemix.cloudant.com",  
  "iam_apikey_description": "Auto generated apikey during resource-key operation for Instance - crn:v1:bluemix:public:cloudantnosql:us-south:a/a57cd65e03203b14d535a869ba63023e:1f67cca7-605d-499e-b09f-062d5006064f:",  
  "iam_apikey_name": "auto-generated-apikey-1cf554de-f7bb-4080-8e9a-3e315f0f5eee",  
  "iam_role_crn": "crn:v1:bluemix:public:iam::::serviceRole:Manager",  
  "iam_serviceid_crn": "crn:v1:bluemix:public:iam-identity::a/a57cd65e03203b14d535a869ba63023e::serviceid:ServiceId-a670f80h-90h9-464f-a735-c0f2334a354h",  
  "password": "60d6e139a311eb7e593f4353f4976a381216df7c14d6f0d8cf431e2e03f62d80",  
  "port": 443,  
  "url": "https://67d23263-3cb3-4875-8ed9-97359da15918-bluemix.cloudant.com",  
  "username": "67d23263-3cb3-4875-8ed9-97359da15918-bluemix"
```

LOUDANT_USERNAME: 42번 라인
CLOUDANT_PASSWORD: 39번 라인
CLOUDANT_HOST: 34번 라인
CLOUDANT_URL: 41번 라인

IBM Cloud Functions – Upload images and analyze it

setup_functions.sh 실행

이제 `setup_functions.sh` 파일을 실행하여 이미지가 Cloudant 데이터베이스에 추가될 때 Visual Recognition 분석을 트리거하는 마이크로서비스를 설정합니다.

```
chmod +x setup_functions.sh  
./setup_functions.sh --install
```

위의 명령어를 실행하면 OpenWhisk 액션이 설정됩니다. CLI에서 초록색 OK라고 설치 완료 메시지가 뜨면 다른 작업을 진행할 필요가 없습니다.

```
$ chmod +x setup_functions.sh  
$ ./setup_functions.sh --install
```

The screenshot shows the IBM Cloud Functions overview page. The left sidebar has a 'Functions' section with 'Getting Started' expanded, showing 'Overview', 'Pricing', 'Concepts', 'Integrations', 'CLI', 'iOS SDK', 'API Key', and 'Documentation'. Below these are 'Actions', 'Triggers', 'Monitor', 'Logs', and 'APIs'. The main content area features a large 'Getting Started with IBM Cloud Functions' heading with a subtext about it being a Function-as-a-Service platform. It includes 'Start Creating' and 'Download CLI' buttons. To the right is a large graphic of a green 'f' inside a circle with arrows pointing to it. At the bottom, there's a 'What's New:' section with bullet points about updated action runtimes, new templates, logging service integration, ISO certifications, availability in Frankfurt, and increased execution time.

- [Catalogue] - [Functions] - [Web Action]- [Enabled] 확인

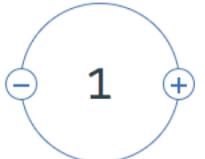
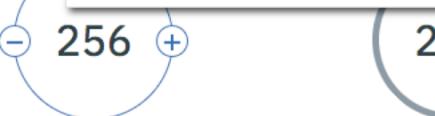
URL Routing

Cloud Foundry apps /

maengdev-vr-1 Running [Visit App URL](#)

Org: yhmaeng Location: US South Space: dev

Runtime

	 1	 256 MB MEMORY PER INSTANCE	 2 TOTAL ME 511.5 GB
BUILDPACK	INSTANCES	MB MEMORY PER INSTANCE	TOTAL ME
SDK for Node.js™	All instances are running Health is 100%		511.5 GB

Routes ▾ ⋮

- [maengdev-vr-1-unextensible-isopectic.mybluemix.net](#)
- [maengdev-vr-1-subchondral-scutage.mybluemix.net](#)
- [maengdev-vr-1.mybluemix.net](#)

Edit routes Manage domains

Edit routes

maengdev-vr-2-unsummisable-juju	.mybluemix.net	✓	✗
maengdev-vr-2-fluent-emu	.mybluemix.net	✓	✗
maengdev-vr-2-sweet-gazelle	.mybluemix.net	✓	✗
maengdev-vr-2-humble-panther	.mybluemix.net	✓	✗
maengdev-vr	.mybluemix.net	✓	✗
your-short-url	.apic.mybluemix.net	✓	✗

Add route +

Add custom domain 🔗

mybluemix.net

Cancel Save

Predictive Industrial Visual Analysis Demo



Industrial Visual Analysis

analyze on sight...

[Upload New Image](#)

Dashboard

3

1

0

9

Need immediate attention May need attention Do not need attention Total Images

Latest Images

ID	Name	Analyzed?	Timestamp	Aircraft
41b5a3f12ddeb29d96b749d3908e961	fsdfasdf3	NO	2018-06-18 16:23:17 +0000	Phantom Drone PD148
5166a53193106ffeb8fccd3ce23d3f64	sdfjlkjsdjf3	NO	2018-06-19 02:10:35 +0000	Phantom Drone PD148
6647cb3c55660fd246418e7308b3216d	sdfe4	NO	2018-06-18 17:06:26 +0000	Phantom Drone PD148
97dc9ed7aea6578cc2bc1b61157d2c96	test555	YES	2018-06-18 17:19:08 +0000	Phantom Drone PD148

<https://maengdev-vr.mybluemix.net/>

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- ◊ Personally implement your winning solution with an IBM Corporate Service Corps team
- ◊ Earn 50,000 BluePoints
- ◊ VIP all-access pass to Call for Code Award ceremony
- ◊ Receive a free pass to THINK 2019

IBMER SIGN UP

[w3.ibm.com/developer/
callforcode/register](http://w3.ibm.com/developer/callforcode/register)

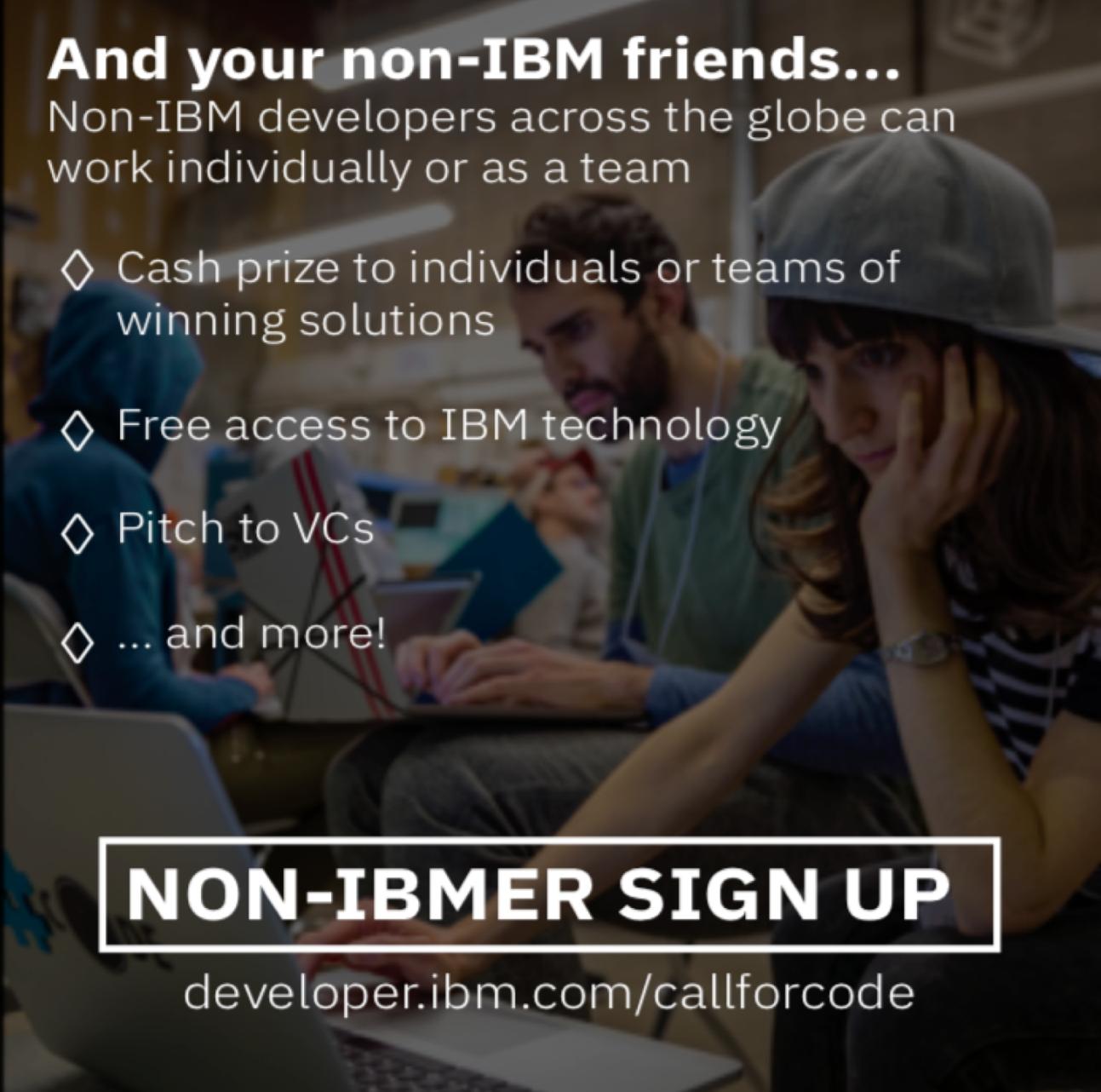
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- ◊ Cash prize to individuals or teams of winning solutions
- ◊ Free access to IBM technology
- ◊ Pitch to VCs
- ◊ ... and more!

NON-IBMER SIGN UP

developer.ibm.com/callforcode

A photograph showing a group of diverse young people (men and women) sitting around a table, looking at laptops and discussing something. They appear to be in a casual, collaborative environment like a hackathon or developer meet-up.

IBM



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Q & A

CALL FOR CODE

COMMIT TO THE CAUSE. PUSH FOR CHANGE.

IBM Watson & Cloud Platform

Yunho Maeng