Watson Visual Recognition API

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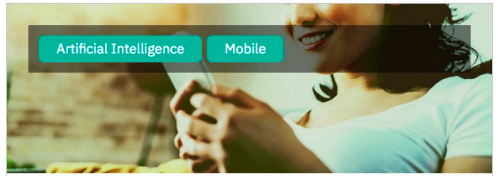
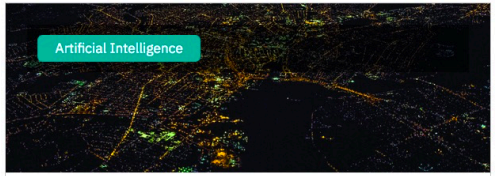
- 28 Analytics
- 9 API Management
- 54 Artificial Intelligence
- 23 Blockchain
- 18 Container Orchestration
- 17 Containers
- 28 Data Science
- 5 Data Store
- 25 Databases
- 1 DevOps



Build an iOS game powered by Core ML and Watson Visual Recognition

Use Watson Visual Recognition and Core ML to create a Kitura-based iOS game that has a user search for a predetermined list of objects.

⇒ Read more
⇒ Get the code



Identify cities from space

Create a custom classifier with IBM Watson Visual Recognition that identifies several cities based on their images at night.

Read more
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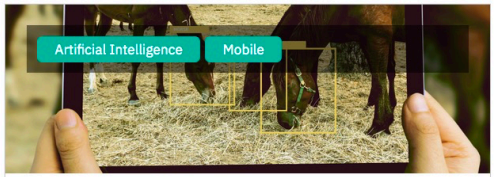
Optimize your visual recognition classification

Build training and prediction apps with Java, Watson IoT Platform, Node-RED, and Watson Visual Recognition service.

Read more
Get the code



Deploy a Core ML model with Watson Visual Recognition

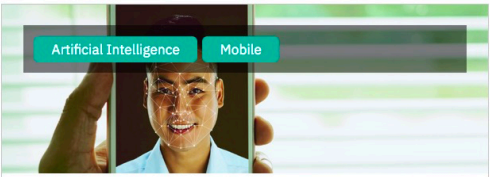
With Core ML, developers can integrate a trained machine learning model into an application. Watson Visual Recognition now supports exporting trained Core ML models. This code pattern shows you how to create a Core ML model using Watson Visual Recognition, which is then bundled into an application.

⇒ Read more
⇒ Get the code

Recycle with Watson

Create an iOS phone application that uses a Watson Visual Recognition custom classifier to sort waste into three categories (landfill, recycling, or compost).

⇒ Read more
⇒ Get the code



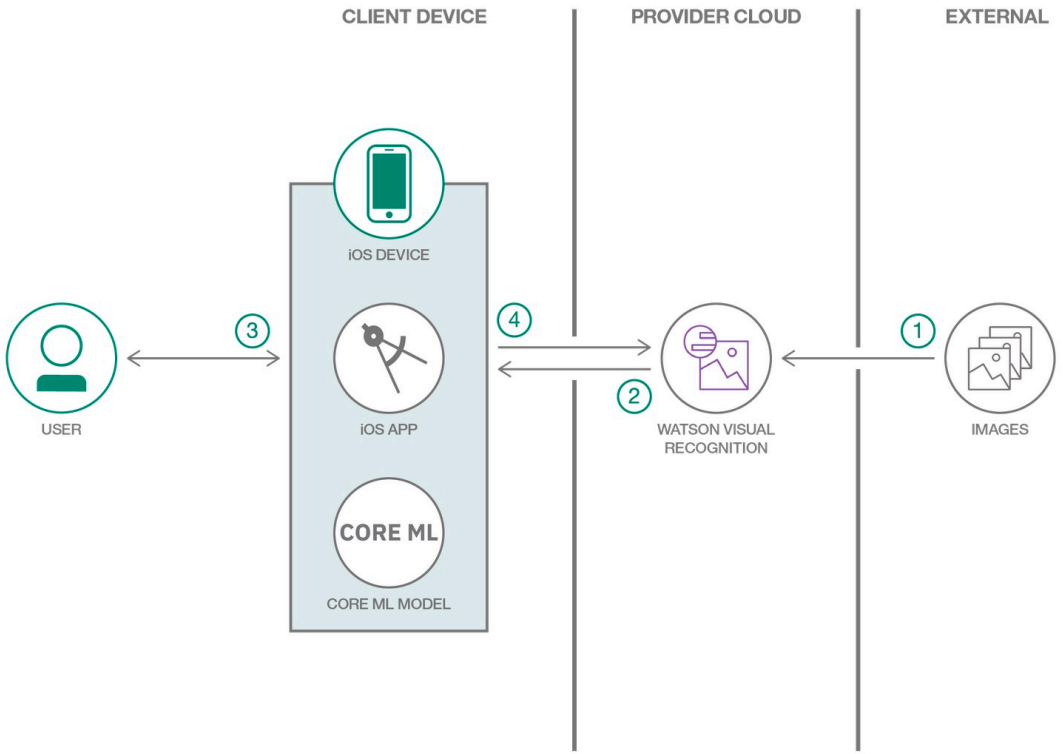
Create an augmented reality application with facial detection

Create an app that combines ARKit with Watson Visual Recognition and a Cloudant database to give you a complete augmented reality experience.

⇒ Read more
⇒ Get the code

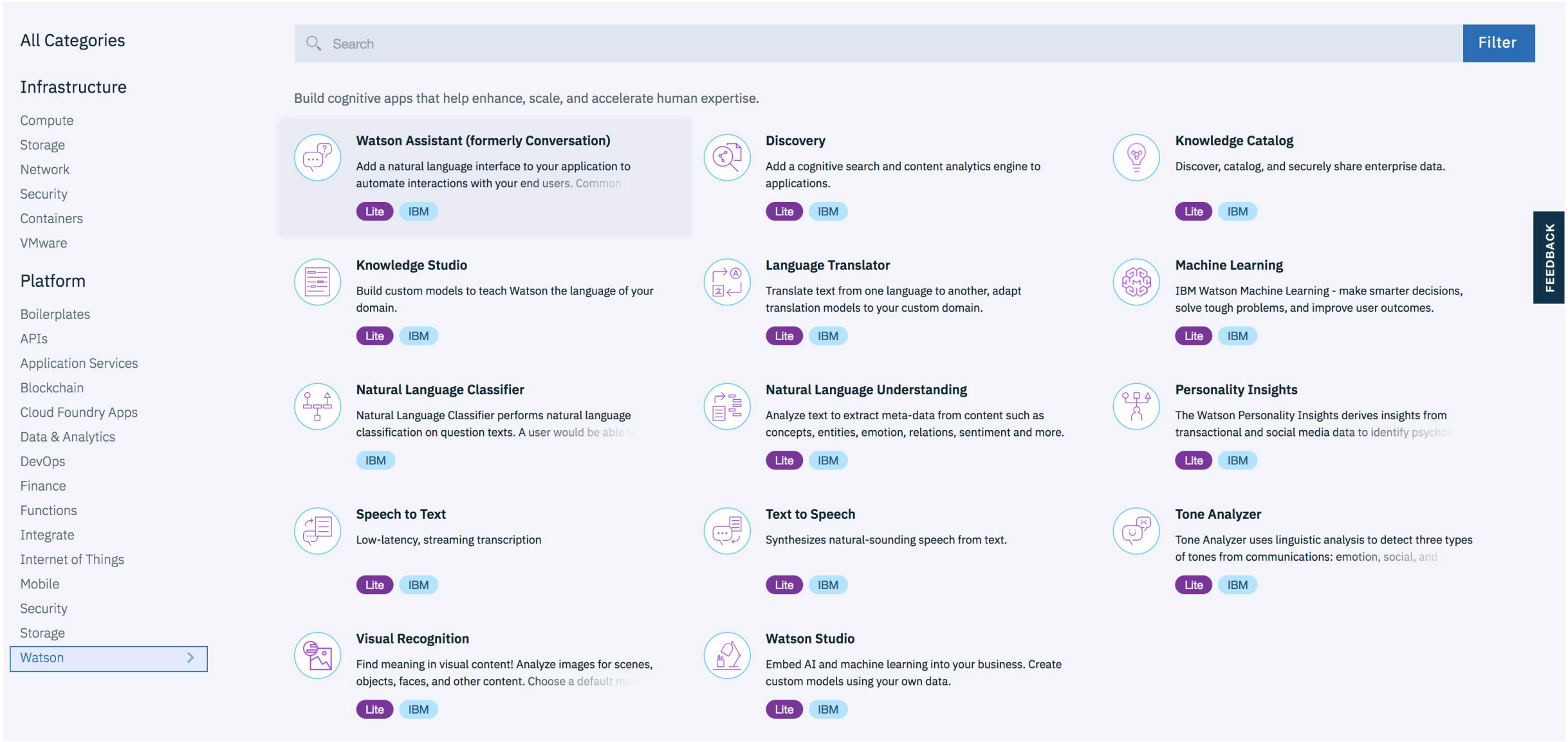
Classify offline with Watson Visual Recognition and Core ML

Flow

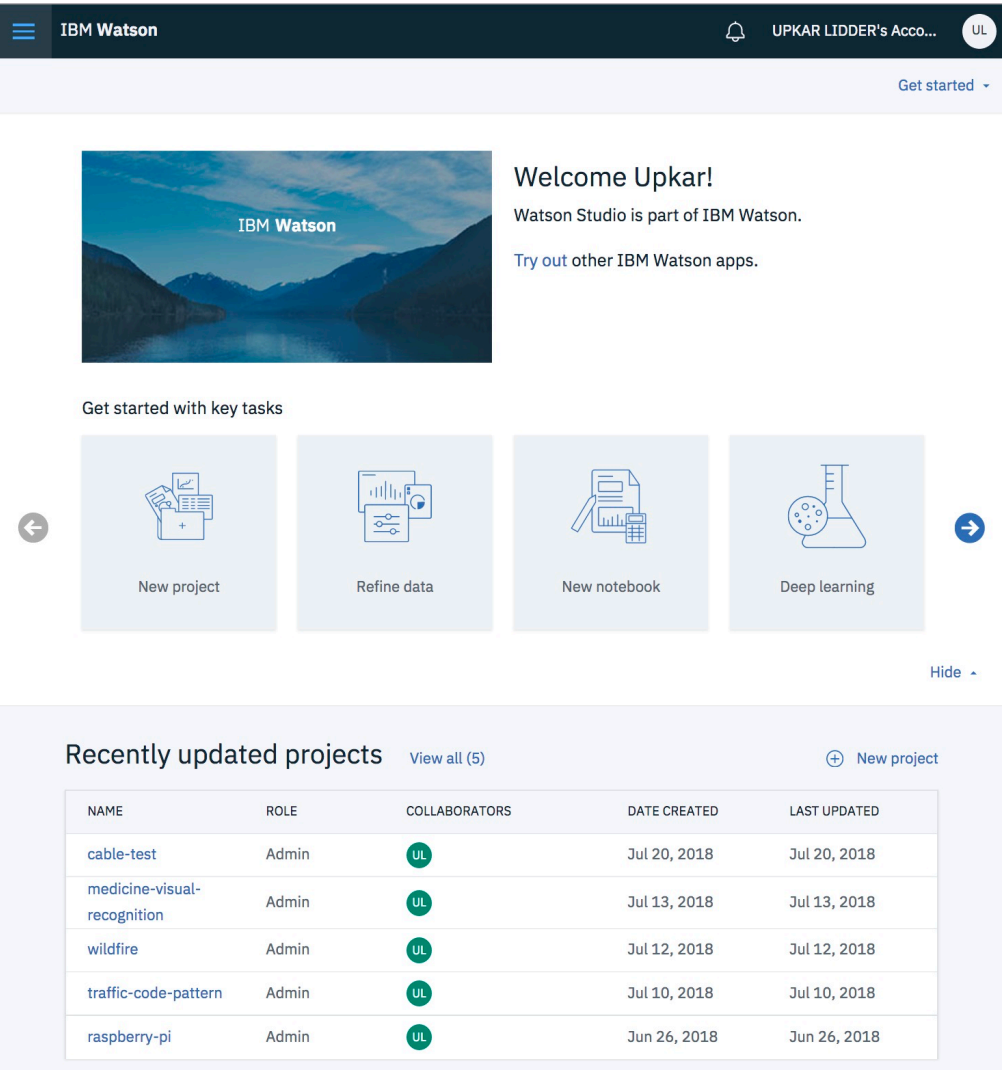


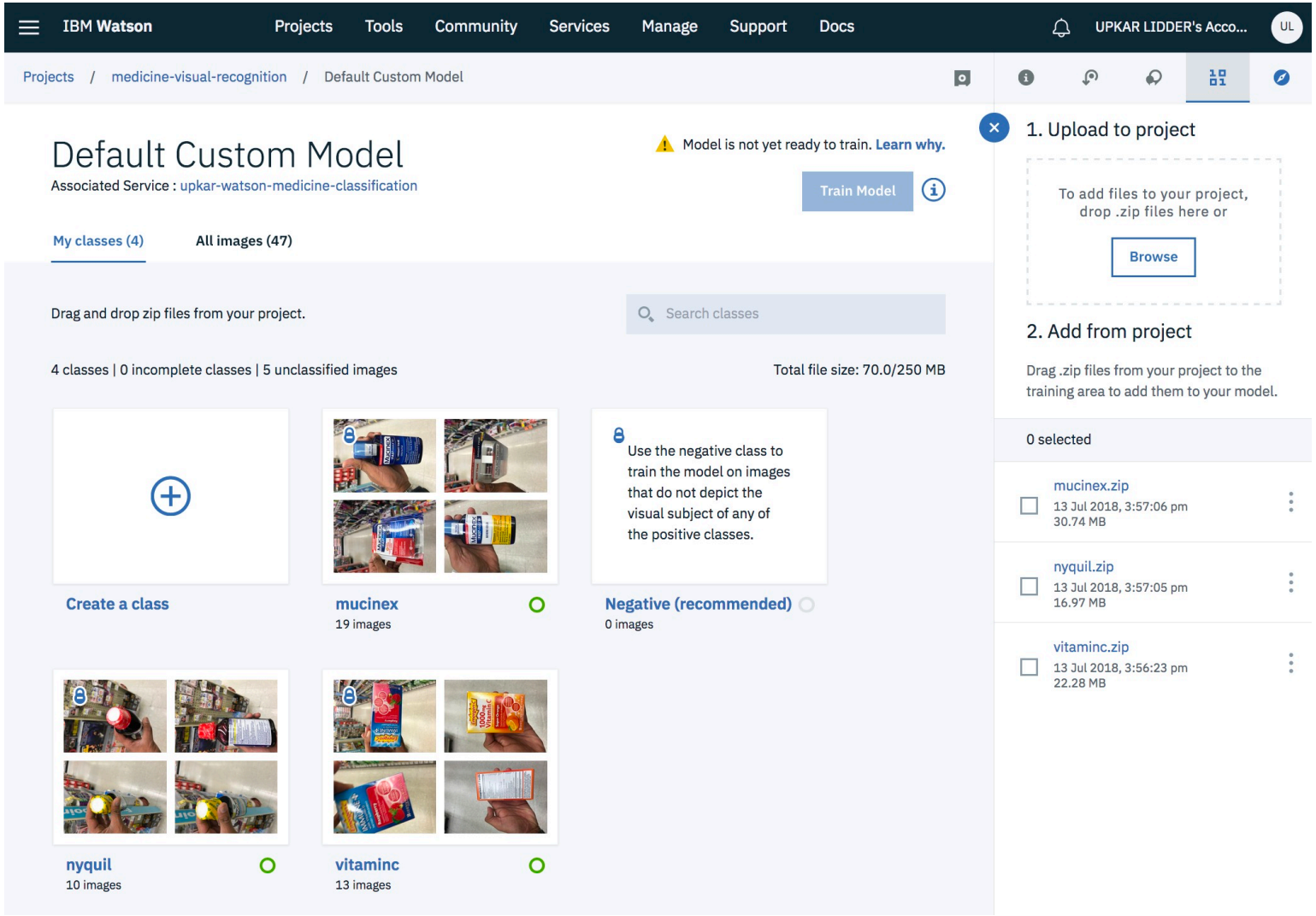
1. Import and tag images.
2. Train, test and deploy a Watson Visual Recognition model for Core ML.
3. Run the application using to classify image using the Core ML model on the device.
4. Get feedback from the user/device for iterative training in Watson.

IBM Cloud


All Categories
Search
Filter
Infrastructure
Compute
Storage
Network
Security
Containers
VMware
Platform
Boilerplates
APIs
Application Services
Blockchain
Cloud Foundry Apps
Data & Analytics
DevOps
Finance
Functions
Integrate
Internet of Things
Mobile
Security
Storage
Watson
Build cognitive apps that help enhance, scale, and accelerate human expertise.
Watson Assistant (formerly Conversation)
Add a natural language interface to your application to automate interactions with your end users. Common
Lite
IBM
Discovery
Add a cognitive search and content analytics engine to applications.
Lite
IBM
Knowledge Catalog
Discover, catalog, and securely share enterprise data.
Lite
IBM
Knowledge Studio
Build custom models to teach Watson the language of your domain.
Lite
IBM
Language Translator
Translate text from one language to another, adapt translation models to your custom domain.
Lite
IBM
Machine Learning
IBM Watson Machine Learning - make smarter decisions, solve tough problems, and improve user outcomes.
Lite
IBM
Natural Language Classifier
Natural Language Classifier performs natural language classification on question texts. A user would be able
IBM
Natural Language Understanding
Analyze text to extract meta-data from content such as concepts, entities, emotion, relations, sentiment and more.
Lite
IBM
Personality Insights
The Watson Personality Insights derives insights from transactional and social media data to identify psychol
Lite
IBM
Speech to Text
Low-latency, streaming transcription
Lite
IBM
Text to Speech
Synthesizes natural-sounding speech from text.
Lite
IBM
Tone Analyzer
Tone Analyzer uses linguistic analysis to detect three types of tones from communications: emotion, social, and
Lite
IBM
Visual Recognition
Find meaning in visual content! Analyze images for scenes, objects, faces, and other content. Choose a default mo
Lite
IBM
Watson Studio
Embed AI and machine learning into your business. Create custom models using your own data.
Lite
IBM
FEEDBACK

Watson Studio

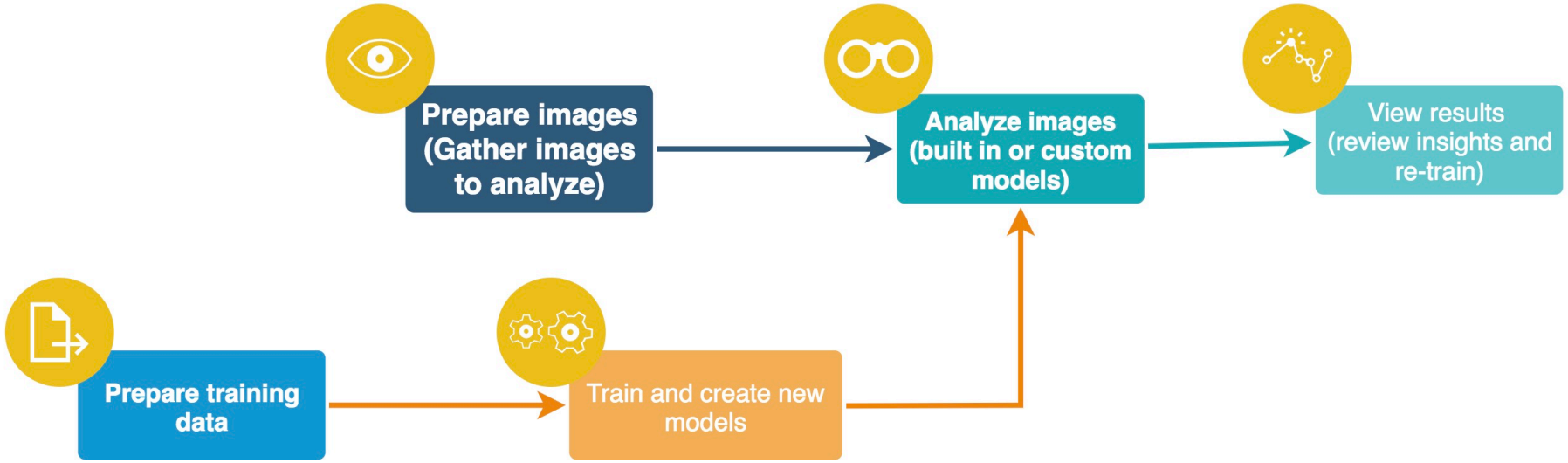




Built in Models

A set of built-in models provides highly accurate results without training:

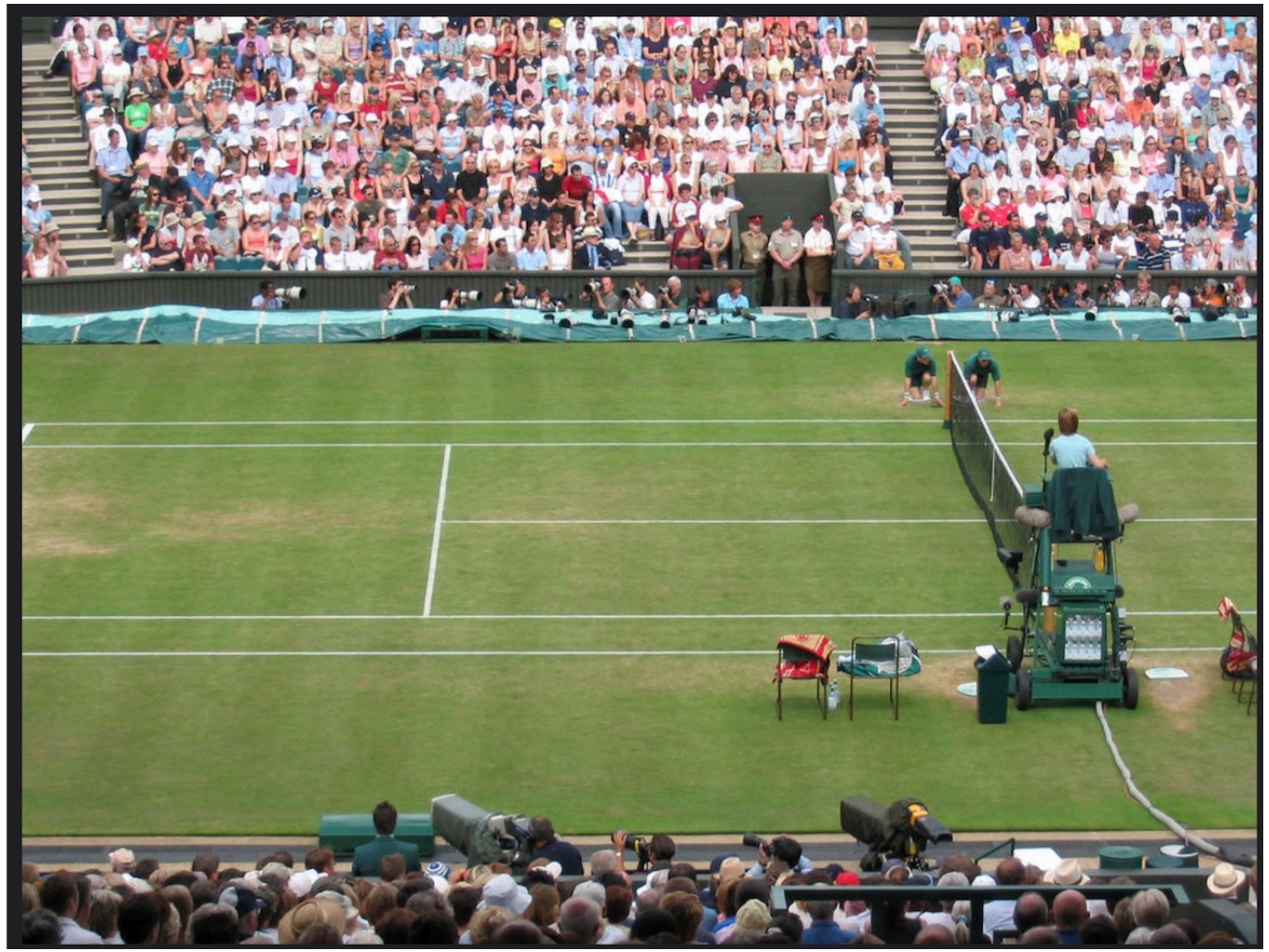
- General model: Default classification from thousands of classes.
- Face model: Facial analysis with age and gender.
- Explicit model (Beta): Whether an image is inappropriate for general use.
- Food model (Beta): Specifically for images of food items.
- Text model (Private beta): Text extraction from natural scene images.



General Model

- Animals (including birds, reptiles, amphibians, etc.)
- Person and people-oriented information and activities
- Food (including cooked food and beverages)
- Plants (including trees, shrubs, aquatic plants, vegetables)
- Sports
- Nature (including many types of natural formations, geological structures)
- Transportation (land, water, air)
- And many more, including furnishings, fruits, musical instruments, tools, colors, gadgets, devices, instruments, weapons, buildings, structures and man-made objects, clothing and garments, and flowers, among others.

General Model Example

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```

Face Detect

Photo by Tom Kelly / CC BY


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                        "top": 645
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    "images_processed": 1
}
```

Face Detect

Photo by Alan Kotok / CC BY

classify


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                    "classes": [
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                        },
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                        {
                            "class": "building",
                            "score": 0.678
                        },
                        {
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                            "score": 0.733
                        },
                        {
                            "class": "alizarine red color",
                            "score": 0.672
                        }
                    ]
                }
            ],
            "image": "cuba.jpg"
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    ],
    "images_processed": 1,
    "custom_classes": 0
}
```


detect_faces


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                        "top": 352
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                },
                {
                    "age": {
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                        "score": 0.96644753
                    }
                }
            ],
```

Food

Photo by Lola Williams / CC BY

classifier_ids=“”


```
{
    "images": [
        {
            "classifiers": [
                {
                    "classifier_id": "default",
                    "name": "default",
                    "classes": [
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                            "class": "plant",
                            "score": 0.631
                        },
                        {
                            "class": "berry",
                            "score": 0.6
                        },
                        {
                            "class": "dark red color",
                            "score": 0.911
                        }
                    ]
                }
            ],
            "image": "fruit2.jpg"
        }
    ],
    "images_processed": 1,
    "custom_classes": 0
}
```


classifier_ids=food


```
{
    "images": [
        {
            "classifiers": [
                {
                    "classifier_id": "food",
                    "name": "food",
                    "classes": [
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                        },
                        {
                            "class": "berry",
                            "score": 0.95
                        },
                        {
                            "class": "fruit",
                            "score": 0.95
                        }
                    ]
                }
            ],
            "image": "fruit2.jpg"
        }
    ],
    "images_processed": 1,
    "custom_classes": 0
}
```

Watson Visual Recognition API

Visual Recognition

The IBM Watson™ Visual Recognition service uses deep learning algorithms to identify scenes, objects, and faces in images you upload to the service. You can create and train a custom classifier to identify subjects that suit your needs.

For more information about this service, see the IBM® Cloud docs.

https://console.bluemix.net/docs/services/visual-recognition/getting-started.html

General

Show/Hide | List Operations | Expand Operations

GET	/v3/classify	Classify an image
POST	/v3/classify	Classify images

Face

Show/Hide | List Operations | Expand Operations

GET	/v3/detect_faces	Detect faces in an image
POST	/v3/detect_faces	Detect faces in images

Custom

Show/Hide | List Operations | Expand Operations

GET	/v3/classifiers	Retrieve a list of classifiers
POST	/v3/classifiers	Create a classifier
DELETE	/v3/classifiers/{classifier_id}	Delete a classifier
GET	/v3/classifiers/{classifier_id}	Retrieve classifier details
POST	/v3/classifiers/{classifier_id}	Update a classifier

Core ML

Show/Hide | List Operations | Expand Operations

GET	/v3/classifiers/{classifier_id}/core_ml_model	Retrieve a Core ML model of a classifier

User data

Show/Hide | List Operations | Expand Operations

DELETE	/v3/user_data	Delete labeled data

[BASE URL: /visual-recognition/api , API VERSION: 3.0]

VALID {...}

DEMO

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github.com/lidderupk

developer.ibm.com/code

https://ibm.biz/BdYcHK

Custom Models - Tips and Tricks

•Provide training examples that are similar to what you plan to analyze. Example: training with tiger in a zoo and then using the model to classify tiger in the wild. The background, surroundings matter, angle, lighting, distance, size of subject, etc matter.

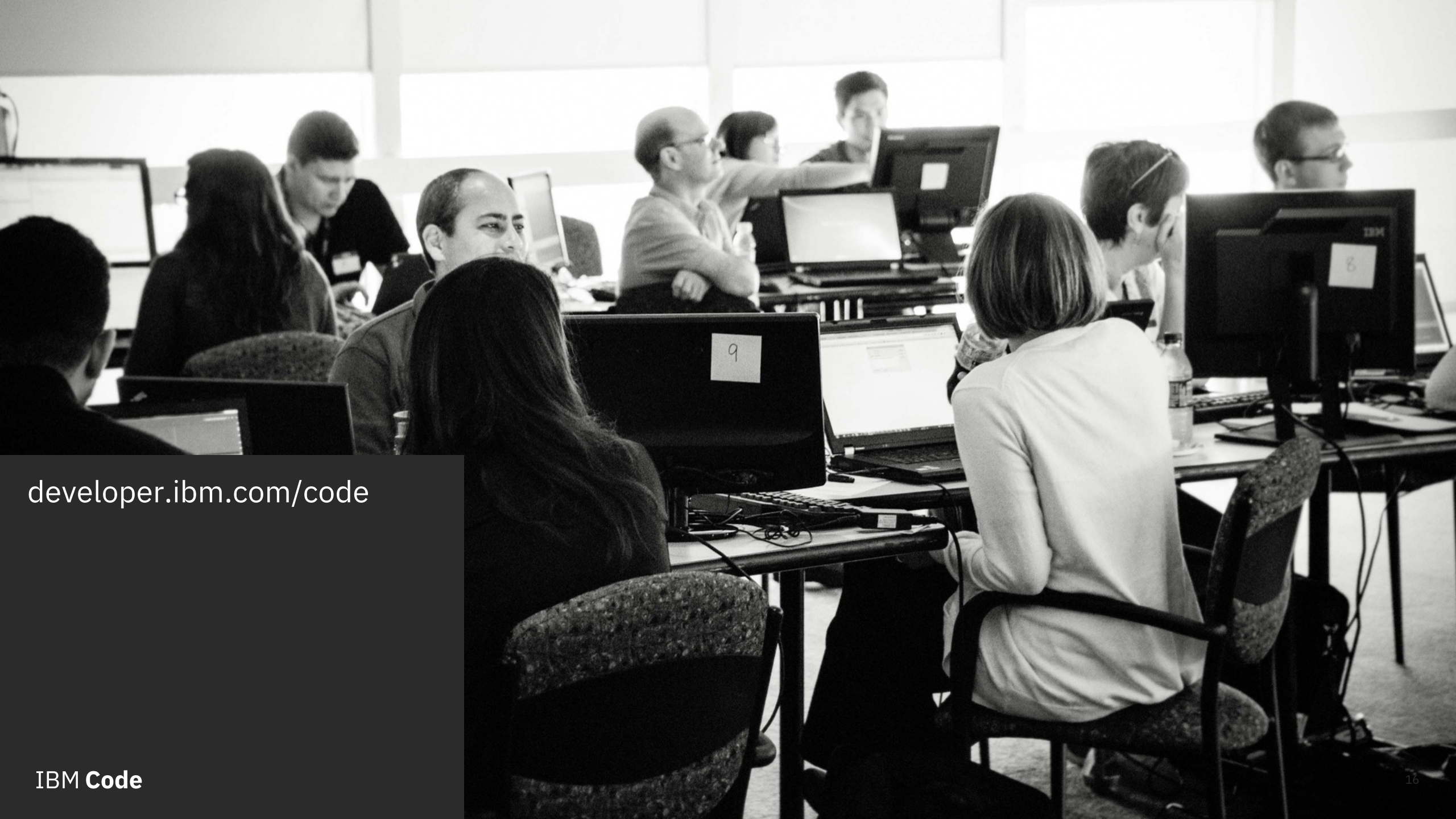
•If the quality and content of training data is the same, then classifiers/classes that are trained on more images will do better.

•Time vs accuracy - the benefits of more images plateaus around 5000 images.

•Parallelize by groups of images. You can train a class asynchronously.

•Recommend 150-200 images per .zip file with image size of 320 x 320. Do not need high resolution.

•Specify only classifiers you want the result for using the “classifier_id” parameter.



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Difficult Use Cases

While Watson Visual Recognition is highly flexible, there have been a number of recurring use case that we've seen the API either struggle on or require significant pre/post-work from the user.

•**Face Recognition:** Visual Recognition is capable of face detection (detecting the presence of faces) not face recognition (identifying individuals).

•**Detecting details:** Occasionally, users want to classify an image based on a small section of an image or details scattered within an image. Because Watson analyzes the entire image when training, it may struggle on classifications that depend on small details. Some users have adopted the strategy of breaking the image into pieces or zooming into relevant parts of an image.

•**Emotion:** Emotion classification (whether facial emotion or contextual emotion) is not a feature currently supported by Visual Recognition. Some users have attempted to do this through custom classifiers, but this is an edge case and we cannot estimate the accuracy of this type of training.

Size Limitations

There are size limitations for training calls and data:

•The service accepts a maximum of 10,000 images or 100 MB per .zip file

•The service requires a minimum of 10 images per .zip file.

•The service accepts a maximum of 256 MB per training call.

•Minimum recommended size of an image is 32X32 pixels.

There are also size limitations when classifying images or detecting faces:

•Limitations for the methods to classify images:
- Maximum image size is 10 MB.
- Maximum .zip file size is 100 MB with up to 20 images.

•Limitations for the methods to detect faces:
- Maximum image size is 10 MB.
- Maximum .zip file size is 100 MB with up to 15 images.