What is Visual Recognition?

Video and Image data is Growing exponentially

$105B

2019 cloud-based video market[1]

2.5 Quin-tillion

bytes (10^{18}) of data is created everyday.

1.3 Trillion

photos were taken in 2017.[5]

Video will represent

80% of global Internet Traffic by 2019[3]

Social & Video

150 million daily active users

301 million monthly active users

Video is increasingly a communal experience, with social media connecting audiences viewing live and on-demand content.[4]

$80B expected image recognition market size by 2025 [6]

MINUTE OF INTERNET

266K
Hours watched

4.3M
Videos viewed

2.4M
Snaps created

176K
Scrolling Instagram

MEDIA DATA

97%
growth in 2017

82%
unstructured

Media data comes from sources such as:

Video and Film | Images | Audio

Market Challenges

In 2017, more than 1.3 trillion photos were taken, with 4.7 trillion photos supposedly to be stored.

Analysis of visual data requires advanced machine learning and computer vision algorithms that require significant training.

Creating custom machine learning systems can require specialized and detailed knowledge and have a significant learning curve for new users.

Different Flavors of Computer Vision

Image recognition

- Image recognition finds images shared online/in a platform's archive containing certain things – usually brand logos.

Image analysis

- Image analysis identifies what's within an image you already have and subsequently tags what's in the image, sometimes even "captions" an image.

Different Flavors of Computer Vision

Image Tagging

OCR

Color Detection

Content Classification

Text from Images

Media Enrichment

Image Captioning

Similarity Search

Visual Learning

Face Detection

Facial Recognition

Facial Sentiment

People Counting

Geo fencing

Abandoned bag

License Plate recognition

Object Tracking

Group forming

Use Computer Vision to answer these questions

- What is this a picture/video/image of?
- Which ones and how many pictures/videos/images do I have which are similar to this one?
- What is the relevance to my bottom line of using one image vs. another image?
- What are the common themes in this batch of 1MM photos?
- Is this ship a known entity?
- What is my audience interested in?
- What user-generated content matches which products I sell?
- Which images will resonate best in a marketing campaign?
- Which image should I feature on my front page of my app?

Use Cases & Case Studies

Visual Recognition Use Cases

Visual Inspections

An **Insurance** company builds an image recognition solution to automate visual inspections for damage, defects, and quality assurance.

Social Media Listening

An **Advertising** agency analyzes visual content in social media posts to understand content, sentiment, and trends.

Demographics

A **Retailer** uses face detection capabilities to gather age and gender estimates of its shoppers.

Visual Assistance

A **Car Manufacturer** uses augmented reality and computer vision to educate new car owners on the devices and capabilities of their new car.

Resource Identification

A **Mining & Minerals** company uses image recognition to automatically identify assets and sites in satellite imagery.

Content Enrichment

A **Media** company uses image recognition to automatically append metadata to visual content, turning dark data into searchable content.

Calorie Counting

A **Health & Nutrition** company automatically identifies foods and meals in order to more quickly return nutrition facts.

Fraud Detection

An **Insurance** company authenticate claims using image forensic search.

Autonomous Vehicles

A **Car** equipped with computer vision to safely drive in our environment, capable of reading road signs, detecting pedestrians, other cars...

Assisted Maintenance

An **Energy Producer** uses mobile application to empower technicians on the field to rapidly identify, report and solve maintenance issues with rapid access to contextual documentation and maintenance guidance.

IBM Watson Advertising - Social Media Monitoring

Companies are looking to understand what is trending on social media and how they can use that for advertising their own products:

photos often have more information than the associated captions

Visual Recognition API:

Tagging
Custom Classifiers

Can use trend insights in advertising campaigns to better target certain customer segments:

this photo with over a million likes shows a celebrity wearing skinny jeans

monitor the top trends on social media

get to know your customers' interests

IBM Watson Natural Resources - Resource Monitoring

A mining or oil company has a number of facilities it sends people to inspect on a regular basis:

must perform regular inspections of oil wells for leaks/spills to comply with regulations

Visual Recognition API:

Custom Classifiers

Identify through satellite/security images when a leak has occurred at a facility:

instead of sending people out periodically, a resource manager can know in real time when a leak has occurred

quickly evaluate current state of facilities

improve margins by reducing resource waste

IBM Watson Natural Resources - Quality Control

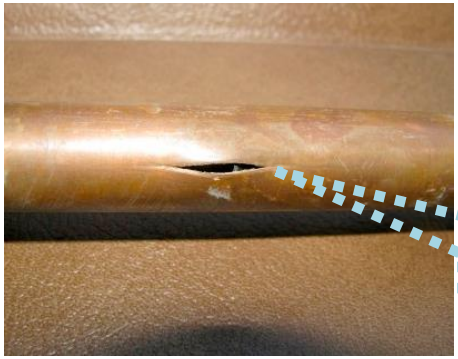
Equipment and infrastructure monitoring requires manual, time-intensive inspections:

lack of automation means monitoring takes time away from other tasks

Visual Recognition API:

Tagging
Custom Classifiers

Automatically inspect infrastructure and assets to identify areas that need maintenance:



this includes the ability to custom train on specific infrastructure

preventative measures help decision makers

address issues **before** they become problems

IBM Watson Insurance - Report Organization

A survey of 1,000 homes in the bay area has been ordered with ~20 images/property:

around 20,000 images not clearly labeled or organized

Visual Recognition API:

Custom Classifier

Instead of looking through 20,000 images manually, an underwriter can organize by specific attributes like “roof damage”:

House #145

House #267

House #325

etc...

list of houses with images that show roof damage

focus on the parts that matter

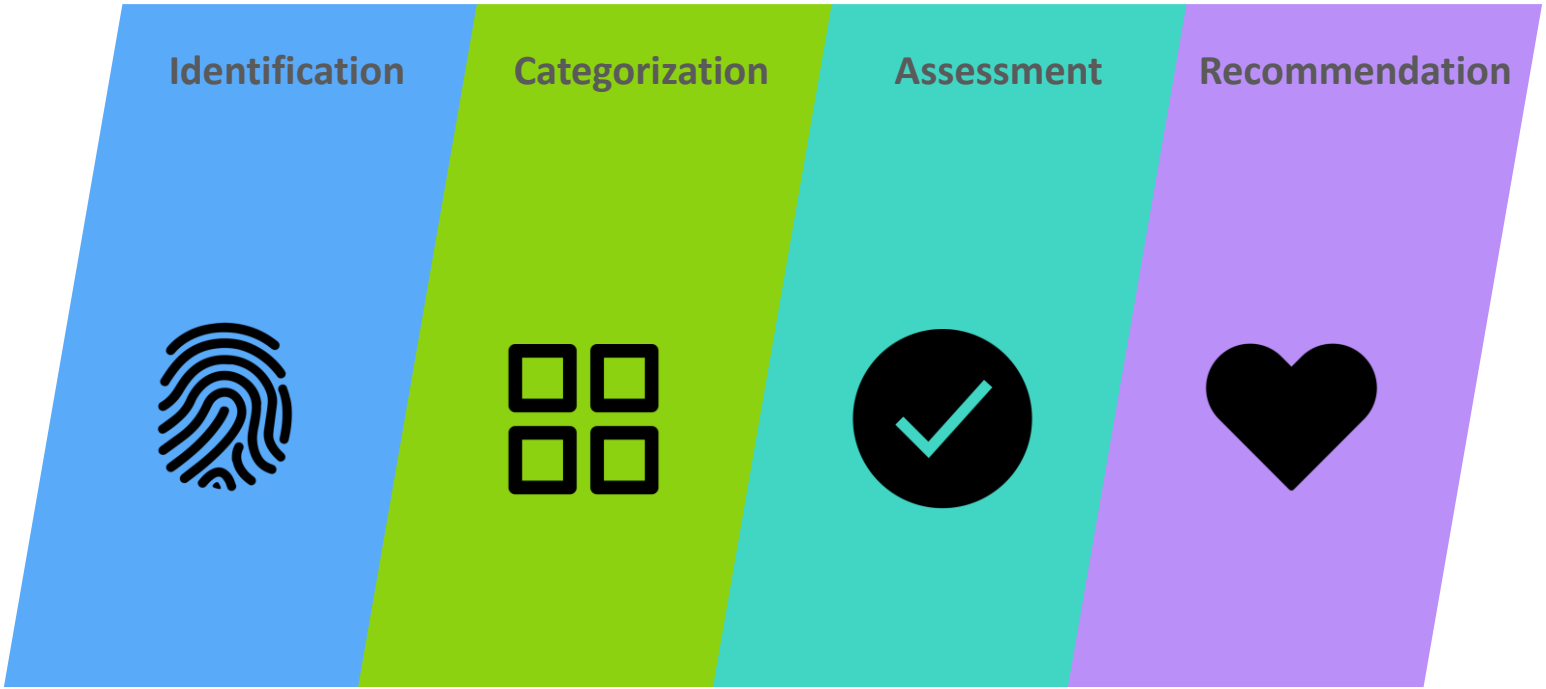
find what you need faster

Watson Visual Recognition

Watson Visual Recognition

An image recognition service that enables users to quickly and accurately tag, classify, and train visual content using machine learning.

Watson Visual Recognition focuses on…



Watson Visual Recognition **identifies** objects and people.

Watson Visual Recognition **categorizes** for easy organization.

Watson Visual Recognition assesses for better problem-solving.

Watson Visual Recognition **recommends** for faster decision-making.

Visual Recognition Features

General Model

Quickly understand the contents, scenes, and actions within an image.

English, Spanish, Arabic, Japanese, Korean, Italian, French, and German are supported today.

Custom Model

Train Watson to understand and classify your own custom content.

Color Model (beta)

Identify up to two most prominent colors that appear within an image.

Face Model

Locate faces within an image and receive age and gender estimates.

Food Model (beta)

Recognize foods and meals with enhanced accuracy.

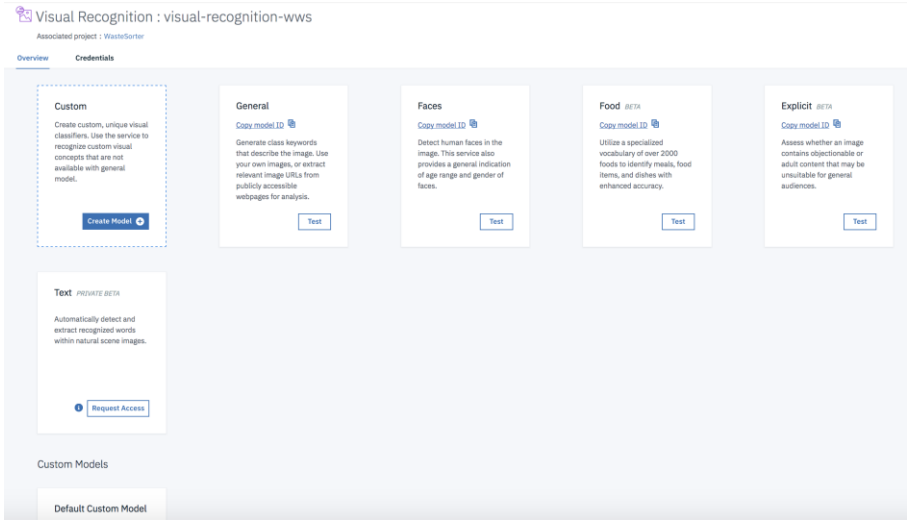
Explicit Model (beta)

Determine if an image contains inappropriate content.

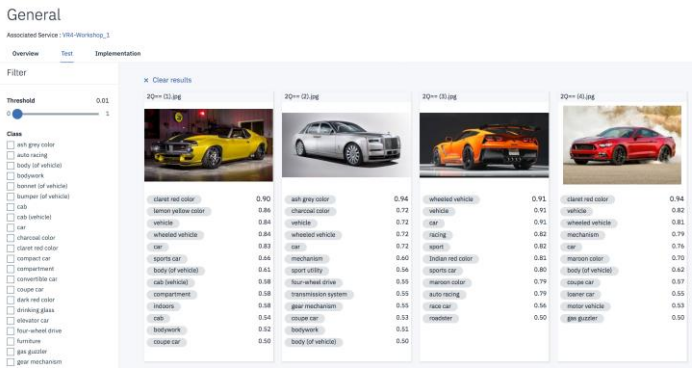
Text Model (private beta)

Locate and read natural scene text within images. **Apply for access.**

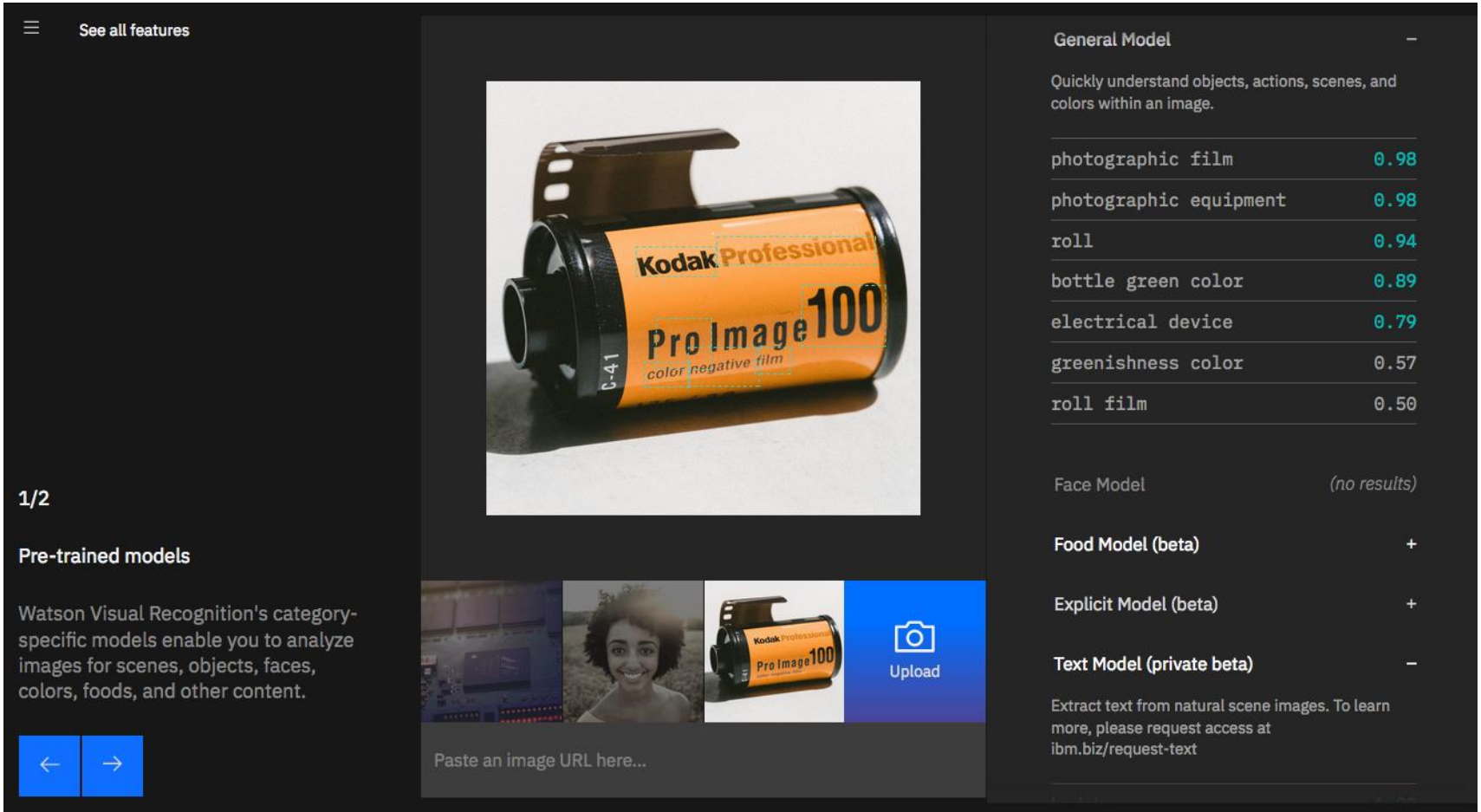
Watson Visual Recognition Service



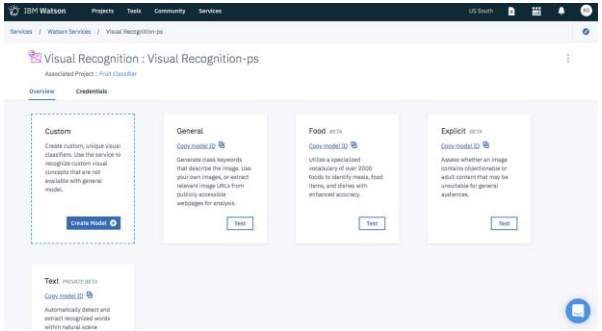
Out of the box tooling



Demo - https://www.ibm.com/watson/services/visual-recognition/demo/#demo



Visual Recognition Tools

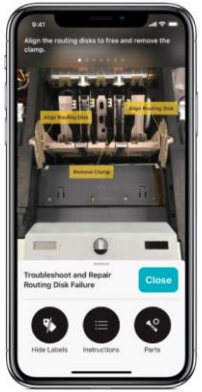


Watson Studio

Easily provision a Visual Recognition instance and interact with the service through your browser.

Classify images using IBM's pre-trained models or train and manage your own Custom Models.

Try it now



IBM Watson Services for Core ML

Build apps that leverage Watson models on iOS devices, even when offline.

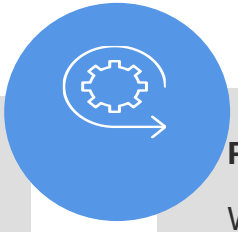
Export Custom Models for Core ML through Watson Studio. Core ML exports are free during our promotional period.

Get started

Key Capabilities of Watson Visual Recognition

Tooling

Not a developer? No problem! Our tooling allows anyone to get started immediately using your own API key.



Flexibility and Customizability

Whether you're looking to get started right away with IBM's models or custom train your own, we offer options for every user.

Privacy and Security

IBM ensures that images and data passed through our services remain secure. Your data is never used to train IBM models.

Simplified query language

Our API service and best practices guides. make it easy to get started with your preferred language.

Watson Recognition Pricing Model

	PLAN	FEATURES	PRICING
✓	**Lite**	**1,000 Events per month towards:** Pre-trained model classification (General, Face, Food, Explicit) (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	Free
		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. **Lite plan services are deleted after 30 days of inactivity.**	
	Standard	**Image Tagging Events Pay per Use** Face Detection Events Pay per Use Training Events Pay per Use Custom Tagging Events Pay per Use Food Tagging Events Pay per Use Explicit Tagging Events Pay per Use	€0.001504 EUR/GeneralTagging €0.003009 EUR/FaceRecognition €0.0752 EUR/Training €0.001504 EUR/CustomTagging €0.001504 EUR/FoodTagging €0.001504 EUR/ExplicitTagging

Premium

Watson Premium plans offer a higher level of security and isolation to help customers with sensitive data requirements.

Thank You