

# Visual Recognition Workshop

## Lab 2 : Creating custom classifier with UI

### Objectives : Teaching Watson New Tricks

The Visual Recognition service is trained by providing example images for each classification bucket -- the more examples you provide, the better the accuracy. After Watson has trained itself on your images, then it will classify a new image that it has never seen before and calculate how confident it is that it belongs to one of your classification types.

1. Once again click the **watson\_vision\_combined-dsx** service link to return to the main page of this service.
2. Click **Create Model** on the **Custom** tile.
- 3.

The screenshot shows the IBM Watson Visual Recognition interface. At the top is a dark navigation bar with the IBM Watson logo and links for Projects, Tools, Community, and Services. Below this is a breadcrumb trail: Services / Watson Services / watson-vision-combined-dsx. The main heading is 'Visual Recognition : watson-vision-combined-dsx' with a subtext 'Associated project : My Pizza Quality Check'. There are two tabs: 'Overview' (selected) and 'Credentials'. The 'Overview' tab displays three model types: 'Custom', 'General', and 'Fac'. The 'Custom' model type is highlighted with a dashed blue border and contains the text: 'Create custom, unique visual classifiers. Use the service to recognize custom visual concepts that are not available with general model.' Below this text is a blue button labeled 'Create Model' with a plus icon. A mouse cursor is pointing at this button. The 'General' model type contains the text: 'Generate class keywords that describe the image. Use your own images, or extract relevant image URLs from publicly accessible webpages for analysis.' and a 'Test' button. The 'Fac' model type is partially visible on the right.

4. Rename your model by clicking on the pen near **Default Custom Model**
- 5.

# PizzaConditionModel



Associated Service : watson-vision-combined-dsx

My Classes

All Images

Drag and drop zip files from your project.

1 class | 0 incomplete classes | 0 unclassified images



Create a class

Use the negative class to train the model on images that do not depict the visual subject of any of the positive classes.

Negative (recommended) ☐

0 images

6. Click the **Browse** link to upload a zip file containing at least 10 photos (.jpg or .png) for good pizzas, at least 10 photos for bad pizzas, and 10 photos for not-pizzas. You can also drag and drop **good\_pizza\_images.zip**, **bad\_pizza\_images.zip** and **not\_pizza\_images.zip** in the Lab 2 - Training Set folder.

IBM Watson Projects Tools Community Services Docs Support Manage

Projects / My Pizza Quality Check / PizzaConditionModel

### PizzaConditionModel

Associated Service : watson-vision-combined-dsx

My Classes All Images

Drag and drop zip files from your project.

1 class | 0 incomplete classes | 0 unclassified images

Total file size: 0.0/250 MB

Search classes

Create a class

Use the negative class to train the model on images that do not depict the visual subject of any of the positive classes.

Negative (recommended) 0 images

Model is not yet ready to train. Learn why.

Train Model

1. Upload to project  
To add files to your project, drop .zip files here or [Browse](#)
2. Add from project  
Drag .zip files from your project to the training area to add them to your model.

0 selected

<input type="checkbox"/>	good_pizza_images.zip	8 Jun 2018, 12:32:48 pm	12.34 MB
<input type="checkbox"/>	bad_pizza_images.zip	8 Jun 2018, 12:32:47 pm	5.66 MB
<input type="checkbox"/>	not_pizza_images.zip	8 Jun 2018, 12:32:44 pm	5.3 MB

7. Create 2 classes by clicking on the + sign : **GoodConditionPizza** and **BadConditionPizza**

Projects / My Pizza Quality Check / PizzaConditionModel

### PizzaConditionModel

Associated Service : watson-vision-combined-dsx

My Classes All Images

Drag and drop zip files from your project.

1 class | 0 incomplete classes | 0 unclassified images

Create a class

Use the negative class to train the model on images that do not depict the visual subject of any of the positive classes.

Negative (recommended) 0 images

#### Create a class

Cancel Create

# PizzaConditionModel

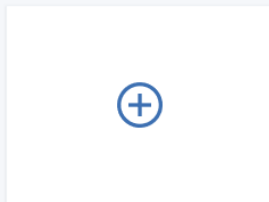
Associated Service : watson-vision-combined-dsx

My Classes

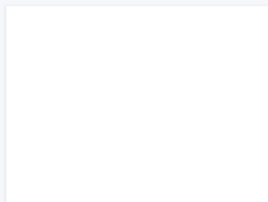
All Images

Drag and drop zip files from your project.

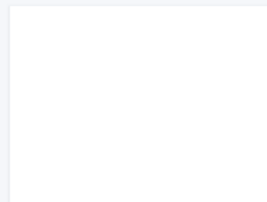
3 classes | 2 incomplete classes | 0 unclassified images



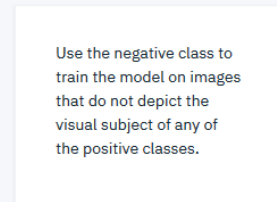
Create a class



BadConditionPizza  
0 images



GoodConditionPizza  
0 images



Negative (recommended)  
0 images

8. Then drag the "**good\_pizza\_images.zip**" data set from the right of the screen to the **GoodConditionPizza** class card

The screenshot shows the IBM Watson interface for the PizzaConditionModel project. The main area displays three class cards: 'Create a class', 'BadConditionPizza', and 'GoodConditionPizza'. A red dashed arrow points from the 'good\_pizza\_images.zip' file in the 'Add from project' sidebar to the 'GoodConditionPizza' class card. The sidebar also shows 'bad\_pizza\_images.zip' and 'not\_pizza\_images.zip' files. The 'Train Model' button is visible in the top right corner.

9. Then drag and drop the "**bad\_pizza\_images.zip**" data set to the **BadConditionPizza** class card

Projects / My Pizza Quality Check / PizzaConditionModel

**The images in file bad\_pizza\_images.zip have been added to class BadConditionPizza.**

## PizzaConditionModel

Associated Service : watson-vision-combined-dsx

**My Classes**    All Images

Drag and drop zip files from your project.

3 classes | 0 incomplete classes | 0 unclassified images

Create a class

**BadConditionPizza**  
6/13 images loaded

**GoodConditionPizza**  
13 images

Use the negative class to train the model on images that do not depict the visual subject of any of the positive classes.

**Negative (recommended)** 0 images

10. Drop the **"not\_pizza\_images.zip"** data set classifier to the **Negative (recommended)** card to specify images which are not from the defined classes.

IBM Watson    Projects    Tools    Community    Services

Projects / My Pizza Quality Check / PizzaConditionModel

## PizzaConditionModel

Associated Service : watson-vision-combined-dsx

**My Classes**    All Images

Drag and drop zip files from your project.

3 classes | 0 incomplete classes | 0 unclassified images

Search classes

Total file size: 21.3/250 MB

Create a class

**BadConditionPizza**  
13 images

**GoodConditionPizza**  
13 images

**Negative (recommended)**  
15 images

**Model is ready to train.**    **Train Model**

11. You can now have Watson train on your custom images by clicking the **Train Model** button. Watson will take a few minutes to train on your custom images. Even though it might seem like Watson is taking a long time, Watson set a world record for the fastest training of 7.5 million images in 7 hours versus the previous record taking 10 days (i.e. 34 times faster): <http://fortune.com/2017/08/08/ibm-deep-learning-breakthrough/>

This is really powerful! You can train Watson to see what you want it to see even if the most obvious object in a picture isn't what you want. Let's say you are in the tire business; most image recognition software (Watson included) will recognize an automobile image instead of the tires that you care about.

Here's another example of a customer using IBM Watson Visual Recognition to detect cell phone tower panels that are in need of repair: [https://www.youtube.com/watch?v=BWDfP\\_udMA0](https://www.youtube.com/watch?v=BWDfP_udMA0) Most image recognition services might tell you it is a cell tower, but they won't tell you which ones need repair -- this is the power of customized training just for your needs.

## Test the classifier

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Now that Watson has been trained on your specific images, let's test it out using the toolkit.

1. Click the **watson\_vision\_combined-dsx** link to return to the Visual Recognition service and scroll down until you see your new **PizzaConditionModel** tile.

The screenshot shows the IBM Watson Developer Cloud interface. At the top, there is a dark blue header with the IBM Watson logo, a hamburger menu icon, and navigation links for 'Projects' and 'Tools'. Below the header, a breadcrumb trail reads 'Services / Watson Services / watson-vision-combined-ds'. A dashed blue box highlights a 'Create Model +' button. Below this, a card for the 'Text' model is displayed, labeled 'PRIVATE BETA'. The card describes the model's function: 'Automatically detect and extract recognized words within natural scene images.' At the bottom of this card is an information icon and a 'Request Access' button. Further down, a section titled 'Custom Models' contains a card for a custom model named 'PizzaConditionModel'. This card shows the model ID, a 'Copy model ID' link with a clipboard icon, the status 'Ready', and the creation date '08/06/2018'. At the bottom of the custom model card are a trash icon and a 'Test' button, which is being clicked by a mouse cursor.

Services / Watson Services / watson-vision-combined-ds

Create Model +

**Text** *PRIVATE BETA*

Automatically detect and extract recognized words within natural scene images.

Request Access

Custom Models

**PizzaConditionModel**

[Copy model ID](#)

Status: Ready  
Date created: 08/06/2018

**Test**

2. Click the **Test** button, which will take you to your Overview tab showing you information about this model.

IBM Watson

ProjectsToolsCommunityServices

Projects / My Pizza Quality Check / PizzaConditionModel

# PizzaConditionModel


Associated Service : [watson-vision-combined-dsx](#)

Overview

Test

Implementation

Summary

Model ID	PizzaConditionModel_614667364 
Status	ready
Created by	team4.ibm@mail.com
Created on	Fri Jun 08 2018 12:46:39 GMT+0200
Number of classes	2
Number of images	41

Classes

CLASS	NUMBER OF IMAGES
GoodConditionPizza	13
BadConditionPizza	13

3. Click the **Test** tab and drop some pizza images onto the canvas to see how your custom model performs. **Tip:** you'll find a folder named `Lab 2 - Test images` in the Box folder that contains some test images you can use; or find some from your favorite search engine.



The screenshot shows the IBM Watson interface for the PizzaConditionModel. The top navigation bar includes 'Projects', 'Tools', 'Community', and 'Services'. The breadcrumb trail is 'Projects / My Pizza Quality Check / PizzaConditionModel'. The model name 'PizzaConditionModel' is displayed, along with the associated service 'watson-vision-combined-dsx'. The 'Test' tab is active, showing a filter panel on the left and a grid of test results on the right.

**Filter Panel:**

- Threshold: 0.0 (slider from 0 to 1)
- Class:
  - ☐ BadConditionPizza
  - ☐ GoodConditionPizza

**Test Results Grid:**

Image Name	GoodConditionPizza	BadConditionPizza
round-table-pizza.jpg	0.83	0.26
img-23441387c2a.jpg	0.91	0.00
VirtualPizza.jpg	0.69	0.47
5.jpg	0.91	0.00
3.jpg	0.91	0.00
7.JPG	0.90	0.06
14.JPG	0.91	0.01

There you have it! You have trained Watson to "see" pizzas that have been damaged and drive customer dissatisfaction. With this knowledge, you can now determine if there is a pattern to the damaged pizzas by which you can resolve and improve customer satisfaction.

## Improve the classifier

If needed you can improve the classifier by adding new classes or updating existing classes.

To retrain an existing model, you need to create a zip file containing new images to be added to existing classes, to a new class, or to the negative image.

For demonstration purpose, we will add more picture in the **GoodConditionPizza** class.

Click on the **Edit and Retrain** button.

This screenshot shows the same IBM Watson interface as the previous one, but with the 'Edit and Retrain' button highlighted in the top right corner. The button is blue with white text and an information icon. The 'Test' tab is still active, and the filter panel and test results grid are visible.

Click on Browser to load new\_good\_pizza\_images.zip or drag and drop the .zip file on the top right side of the screen

Model is ready to train.

1. Upload to project

2. Add from project

Drag .zip files from your project to the training area to add them to your model.

0 selected

new\_good\_pizza\_images...

good\_pizza\_images.zip

bad\_pizza\_images.zip

not\_pizza\_images.zip

Total file size: 21.3/250 MB

Drag and drop the **new\_good\_pizza\_images.zip** data set to the **GoodConditionPizza** class, and then click on the **Train Model** button.

Model is ready to train.

1. Upload to project

2. Add from project

Drag .zip files from your project to the training area to add them to your model.

0 selected

new\_good\_pizza\_images...

good\_pizza\_images.zip

bad\_pizza\_images.zip

not\_pizza\_images.zip

Total file size: 21.4/250 MB

## Conclusion

This lab demonstrated the power of cognitive computing using IBM's Visual Recognition Service. In just a few minutes, you were able to train Watson to detect pizzas that were damaged versus a good quality pizza. This quick tutorial demonstrated the power of custom image recognition that IBM Watson enables. Armed with this powerful technology, you can disrupt your industry in innovative ways that were previously too expensive and time consuming to endeavor.