

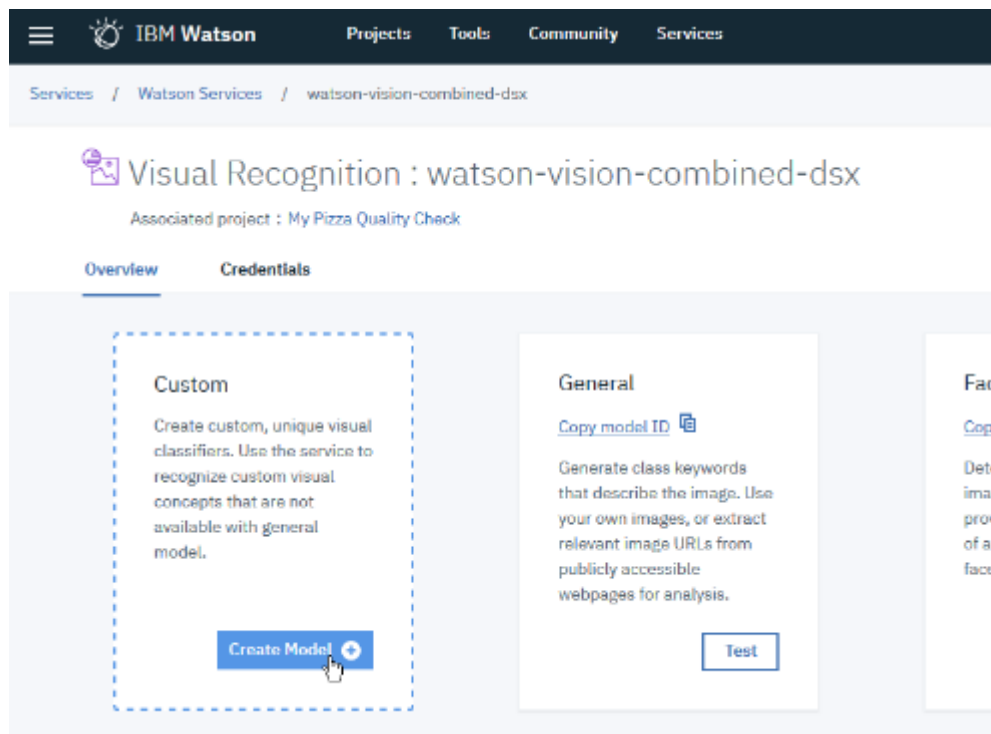
# Visual Recognition Workshop

## 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 on the **Launch Tool** button to open the Visual Recognition service and get an overview of the available pre-trained models.
3. Click **Create Model** on the **Custom** tile.



4. Rename your model by clicking on the pencil near **Default Custom Model**

# 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



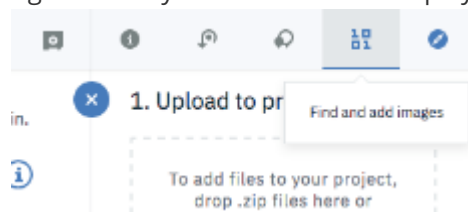
Create a class

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

5. You will now load images create your model classes. The pane to manage file upload is shown on the right side of your screen and is displayed clicking the **Find and add images** button on the toolbar.



Click the **Browse** button 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 from your file explorer **good\_pizza\_images.zip**, **bad\_pizza\_images.zip** and **not\_pizza\_images.zip** in the **Lab 2 - Training Set** folder.

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## 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

Model is not yet ready to train. [Learn why.](#)

Train Model

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

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 | 3.3 MB   |  |

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

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## 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

GoodConditionPizza

Cancel Create

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# 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

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

- Then drag the "**good\_pizza\_images.zip**" data set from the right of the screen to the **GoodConditionPizza** class card. Upon completion you will see image thumbnails for the class displayed in the tile.

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# 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

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

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

good\_pizza\_images.zip

8 Jun 2018, 12:32:48 pm

12.34 MB

bad\_pizza\_images.zip

8 Jun 2018, 12:32:47 pm

5.66 MB

not\_pizza\_images.zip

8 Jun 2018, 12:32:44 pm

3.3 MB

Search classes

Total file size: 0.0/250 MB

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

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**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

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

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## 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

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

Search classes

Total file size: 21.3/250 MB

Create a class

**BadConditionPizza**  
13 images

**GoodConditionPizza**  
13 images

**Negative (recommended)**  
15 images

10. 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 so it recognizes what you want, 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. Building your custom model will allow you to create a domain specific image recognition service.

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


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 newly trained **PizzaConditionModel** model.

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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.

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# 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.



**PizzaConditionModel**  
Associated Service : watson-vision-combined-dsx

Overview **Test** Implementation

Filter

Threshold: 0.0 (slider from 0 to 1)

Class:  
☐ BadConditionPizza  
☐ GoodConditionPizza

Clear results

| Image                 | 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 "recognize" 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 and thus take decisions to resolve the issue and improve customer satisfaction.

## Improve the classifier

If needed you can improve the model 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 images.

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

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

**PizzaConditionModel**  
Associated Service : watson-vision-combined-dsx

Overview **Test** Implementation

Filter

Threshold: 0.0 (slider from 0 to 1)

Class:  
☐ BadConditionPizza  
☐ GoodConditionPizza

Clear results

| Image                 | 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              |

**Edit and Retrain**

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

PizzaConditionModel

Associated Service : watson-vision-combined-dsx

My Classes

Drag and drop zip files here

3 classes | 0 incomplete classes | 11 unclassified images

Create a class

BadConditionPizza 13 images

GoodConditionPizza 13 images

Negative (recommended) 15 images

Train Model

Model is ready to train.

1. Upload to project

Drop .zip files here

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.zip 8 Jun 2018, 1:19:21 pm 144.98 KB

good\_pizza\_images.zip 8 Jun 2018, 12:32:48 pm 12.34 MB

bad\_pizza\_images.zip 8 Jun 2018, 12:32:47 pm 5.66 MB

not\_pizza\_images.zip 8 Jun 2018, 12:32:44 pm 3.3 MB

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

PizzaConditionModel

Associated Service : watson-vision-combined-dsx

My Classes

All Images

Drag and drop zip files from your project.

3 classes | 0 incomplete classes | 11 unclassified images

Create a class

BadConditionPizza 13 images

GoodConditionPizza 24 images

Negative (recommended) 15 images

Train Model

Model is ready to train.

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.

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not\_pizza\_images.zip 8 Jun 2018, 12:32:44 pm 3.3 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.