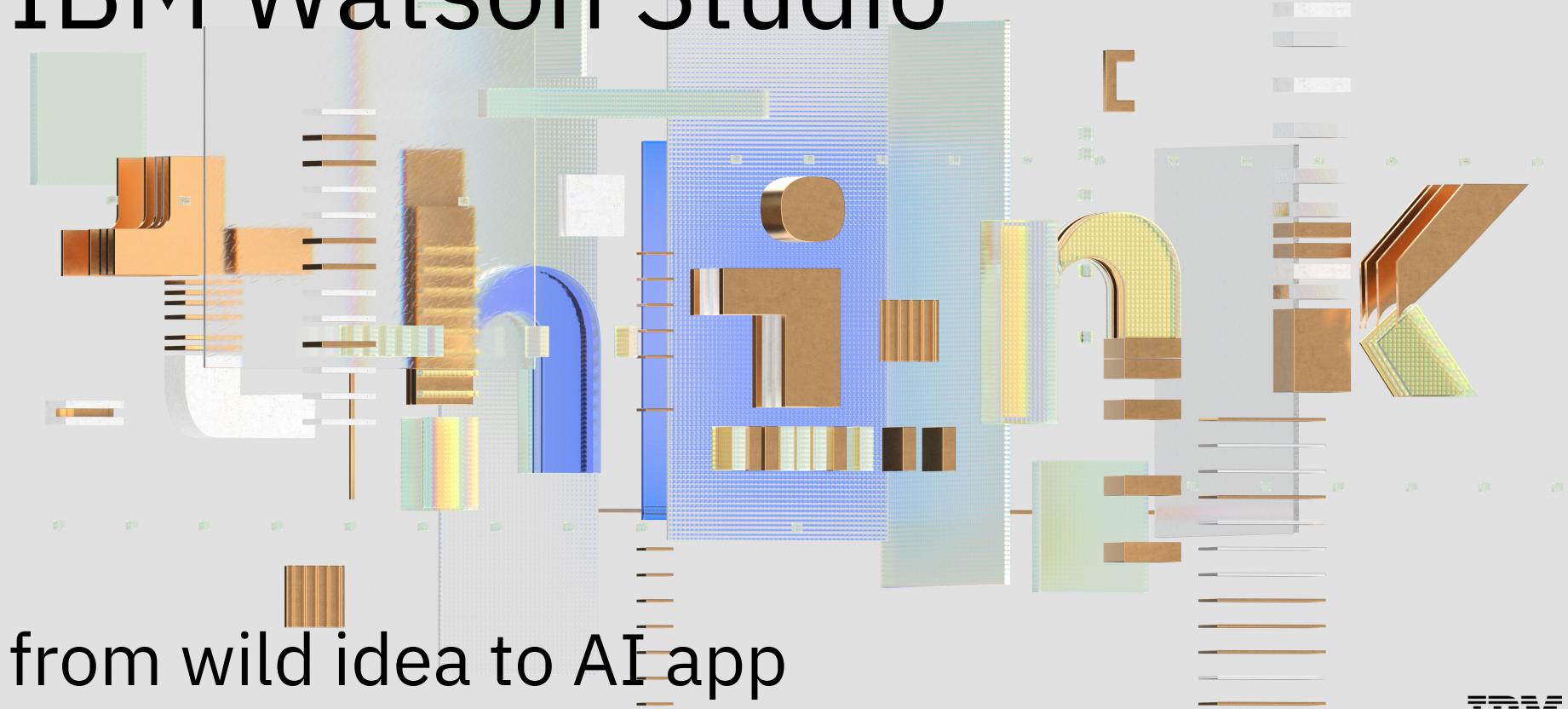


IBM Watson Studio



from wild idea to AI app

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IBM Watson Studio Content Design

Recording

User Experience Feedback Session

Not just a presentation. A conversation.

Scenario

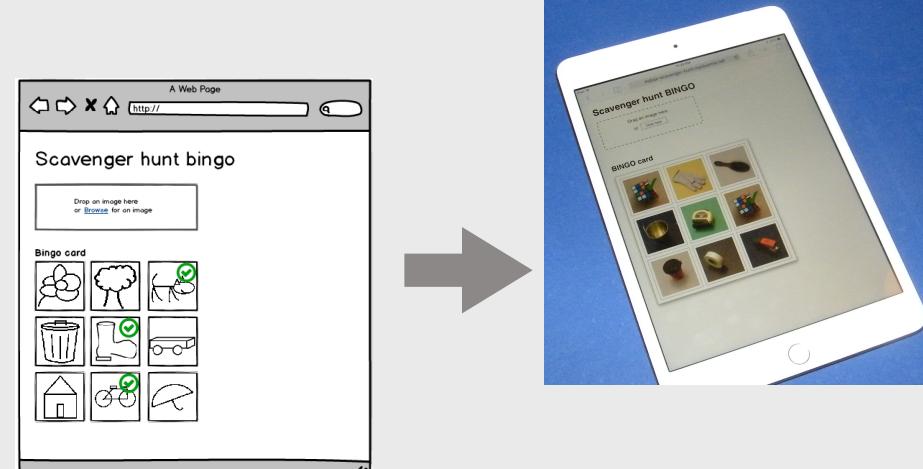
You have a wild idea for an AI solution that you want to demo or test

Phases

1. Collect training data
2. Build a model
3. Test your idea in an app

Example

Scavenger hunt BINGO



Before we begin...

Our goal: Learn from you

- What are your favorite tools/features, and why do you like them?
- What do you want to see in Watson Studio?
- What do you like/dislike in Watson Studio?

Your goals

- Why did you decide to attend this session?
- What do you hope to get out of this session?

Phase 1: I have a wild idea, but no data to train a model!

We wanted to create a scavenger hunt application for tourist spots in San Francisco...



But we live in Canada!



Data sets

Community in Watson Studio

<p>DATA SET UCI: SMS Spam Collection - NeuNetS...</p> <p>AUTHOR IBM</p> <p>DATE Dec 14, 2018</p> <p>TOPIC Society</p> <p> 5 </p>	<p>DATA SET CIFAR-10 - NeuNetS compatible format</p> <p>AUTHOR IBM</p> <p>DATE Dec 14, 2018</p> <p>TOPIC Science & Technology</p> <p> 2 </p>	<p>DATA SET Customer messages</p> <p>AUTHOR IBM</p> <p>DATE Oct 31, 2018</p> <p>TOPIC Communications</p> <p> 17 </p>	<p>DATA SET MNIST handwritten digits - PKL format</p> <p>AUTHOR IBM</p> <p>DATE Sep 07, 2018</p> <p>TOPIC Science & Technology</p> <p> 10 </p>
<p>DATA SET GoSales</p> <p>AUTHOR IBM</p> <p>DATE Jun 27, 2018</p> <p>TOPIC Leisure</p> <p> 25 </p>	<p>DATA SET UCI: KDD Cup 1999 Data</p> <p>AUTHOR IBM</p> <p>DATE Jun 22, 2018</p> <p>TOPIC Science & Technology</p> <p> 0 </p>	<p>DATA SET CIFAR-10 - PKL format</p> <p>AUTHOR IBM</p> <p>DATE Jun 20, 2018</p> <p>TOPIC Science & Technology</p> <p> 3 </p>	<p>DATA SET MNIST handwritten digits</p> <p>AUTHOR IBM</p> <p>DATE May 28, 2018</p> <p>TOPIC Science & Technology</p> <p> 6 </p>
<p>DATA SET Fashion-MNIST</p>	<p>DATA SET CIFAR-100 - python version</p>	<p>DATA SET CIFAR-10 - python version</p>	<p>DATA SET Calls by customers of a Telco company</p>

When have you needed training data?

Where did you look?

How did you search?

What format did you need?

What worked well?

- Sites with great resources
- Searches that worked well

What problems have you had
with using open data?

Noise

No good labeling

Terms of use
unclear

We used freely available photos of tourist spots in San Francisco...



Phase 2:

Now I want to train and test a model

DEMO

Visual Recognition model builder in Watson Studio

The screenshot shows the IBM Watson Studio interface for building a visual recognition model. The project is titled "indoor-scavenger-hunt" and is associated with the "visual-recognition" service. There are 7 classes defined, and 300 images available for training, resulting in a new training data size of 5.0/250 MB.

The interface includes a sidebar with the following sections:

- 1. Upload to project:** A dashed box for dragging files, with a "Browse" button below it.
- 2. Add from project:** A list of files being uploaded:
 - puzzle.zip: Sending file to Object Storage... [Cancel]
 - _negative.zip: Uploading file... 34 % [Cancel]
 - bowl.zip: Uploading file... 63 % [Cancel]
 - pig.zip: Uploading file... 33 % [Cancel]
 - hankieface_7in

Below the sidebar, there are three main sections showing image examples:

- Create a class:** A placeholder box with a plus sign (+).
- brush.zip (50):** A grid of five images showing various brushes.
- bucket.zip (50):** A grid of five images showing various buckets.
- Negative class:** A grid of five images showing objects that are not part of the positive classes, such as cups and gloves.

A callout box provides instructions for using the negative class to train the model on images that do not depict the visual subject of any of the positive classes.

Building a model

What tools do you use?

What do you like about those tools?

What would you like to see in Watson Studio?

What kind of models do you want to rapidly prototype?

Phase 3:

Now I want to prototype / demo my idea

We wanted to create a scavenger hung BINGO game...



DEMO

Notebook in Watson Studio → Web app in IBM Cloud

IBM Watson Studio

My Projects / THINK-2019-proj / scavenger-hunt-notebook

File Edit View Insert Cell Kernel Help

Run Format Markdown

2.2 Resize the image

Apps often have to preprocess data "from the wild" before sending the data to a model for analysis.

In the case of our app, because the image from a typical phone camera is quite large, we can make the image smaller to make it faster to send to the model.

```
In [14]: import re
def resizeImage( org_filename ):
    img = Image.open( org_filename )
    img.thumbnail( ( 224, 224 ), Image.ANTIALIAS )
    file_base_name = re.sub( "\..*$", "", org_filename )
    file_extension = re.sub( "\..*", "", org_filename )
    sm_filename = file_base_name + "_sm." + file_extension
    img.save( sm_filename )
    return sm_filename

In [15]: sm_img_filename = resizeImage( filename )
print( sm_img_filename )
Image.open( sm_img_filename )

Out[15]: DSCF3923_sm.jpg
```



33
34
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42
43
44
45

```
def resizeImage( org_filename ):
    img = Image.open( org_filename )
    img.thumbnail( ( 224, 224 ), Image.ANTIALIAS )
    file_base_name = re.sub( "\..*$", "", org_filename )
    file_extension = re.sub( "\..*", "", org_filename )
    sm_filename = file_base_name + "_sm." + file_extension
    img.save( sm_filename )
    return sm_filename

# <end> Pieces from notebook prototyping..
#
```

IBM Cloud

Resource list /

.py indoor-scavenger-hunt This app is awake. Visit App URL

Getting started Overview Runtime Connections Logs Monitoring API Management

Runtime

BUILDPACK	INSTANCES	MB MEMORY PER INSTANCE	TOTAL MB ALLOCATION
Python	1	128	128

BUILDPACK Python INSTANCES All instances are running Health is UP TOSS MB MEMORY PER INSTANCE TOTAL MB ALLOCATION 0 MB still available

Building an app

What tools do you use prototype or build apps?

What do you like about those tools?

What would you like to see in Watson Studio?

Where do you host your apps? How do you get them there?

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Thank you

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