IBM Watson Cognitive Services

Cool apps at hackathons

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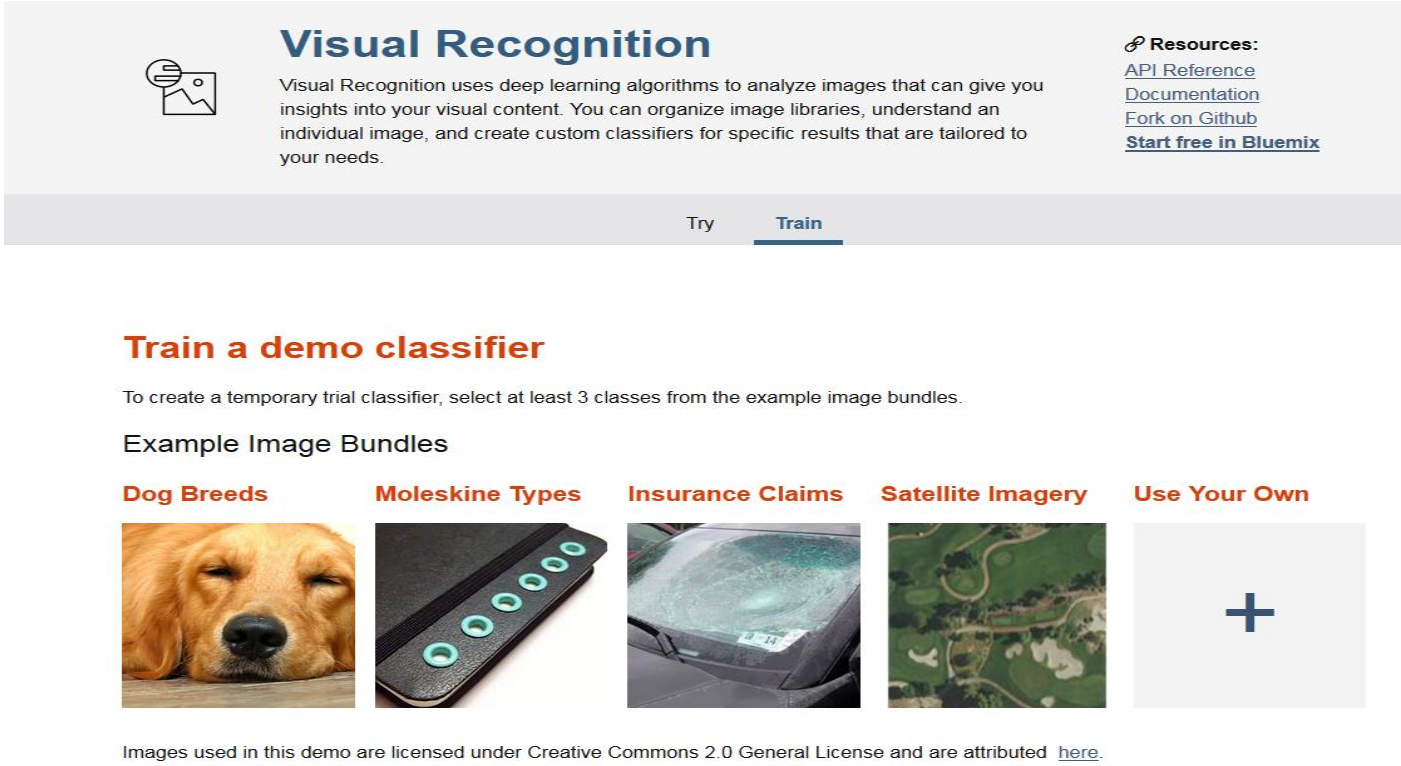
IBM

So what is Watson?

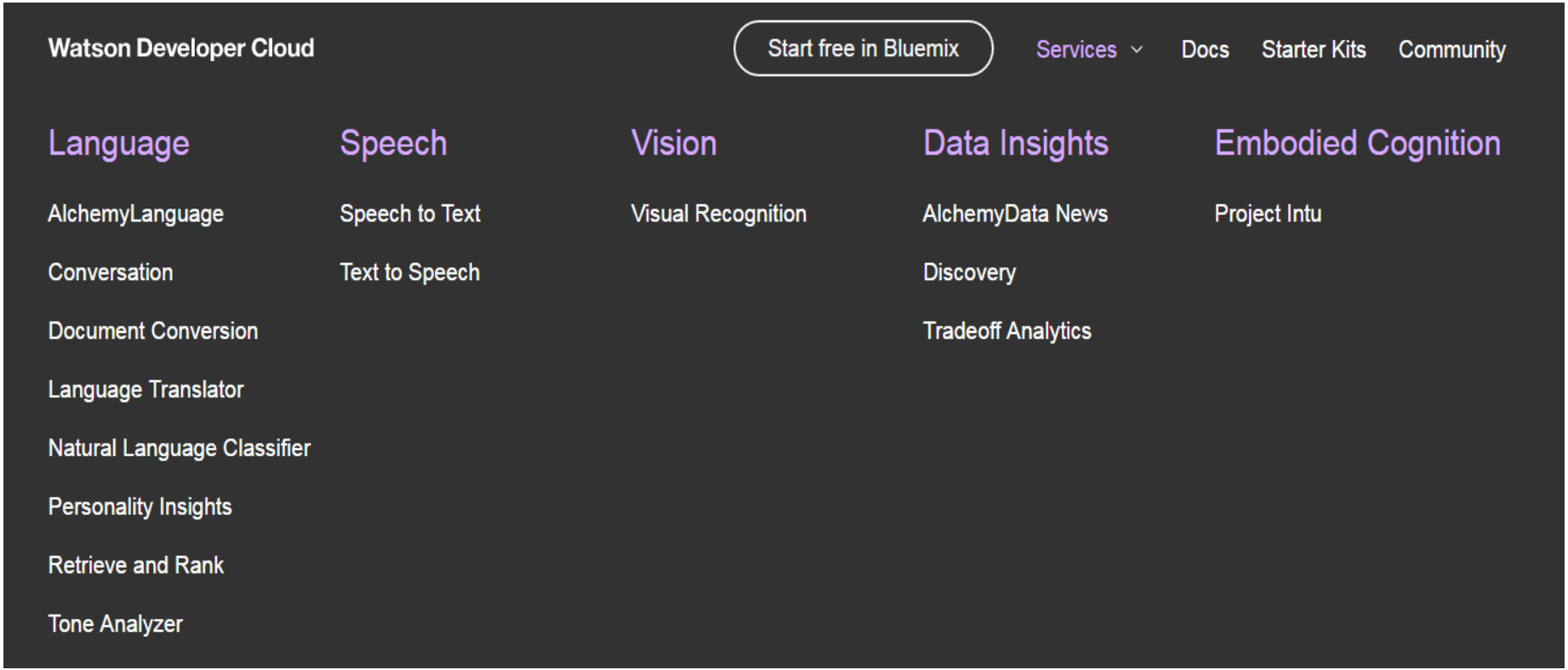
- **Traditional programmable systems** are fed data and their results are based on processing that is preprogrammed by humans.
- **Cognitive computing** involves self-learning systems that can be trained and that use data mining, pattern recognition and natural language processing to mimic the way the works.
- **Deep Learning and Understandability** versus Software Engineering and Verification
- **From SQL to unstructured data**

A practical example: classifiers, training and visual recognition



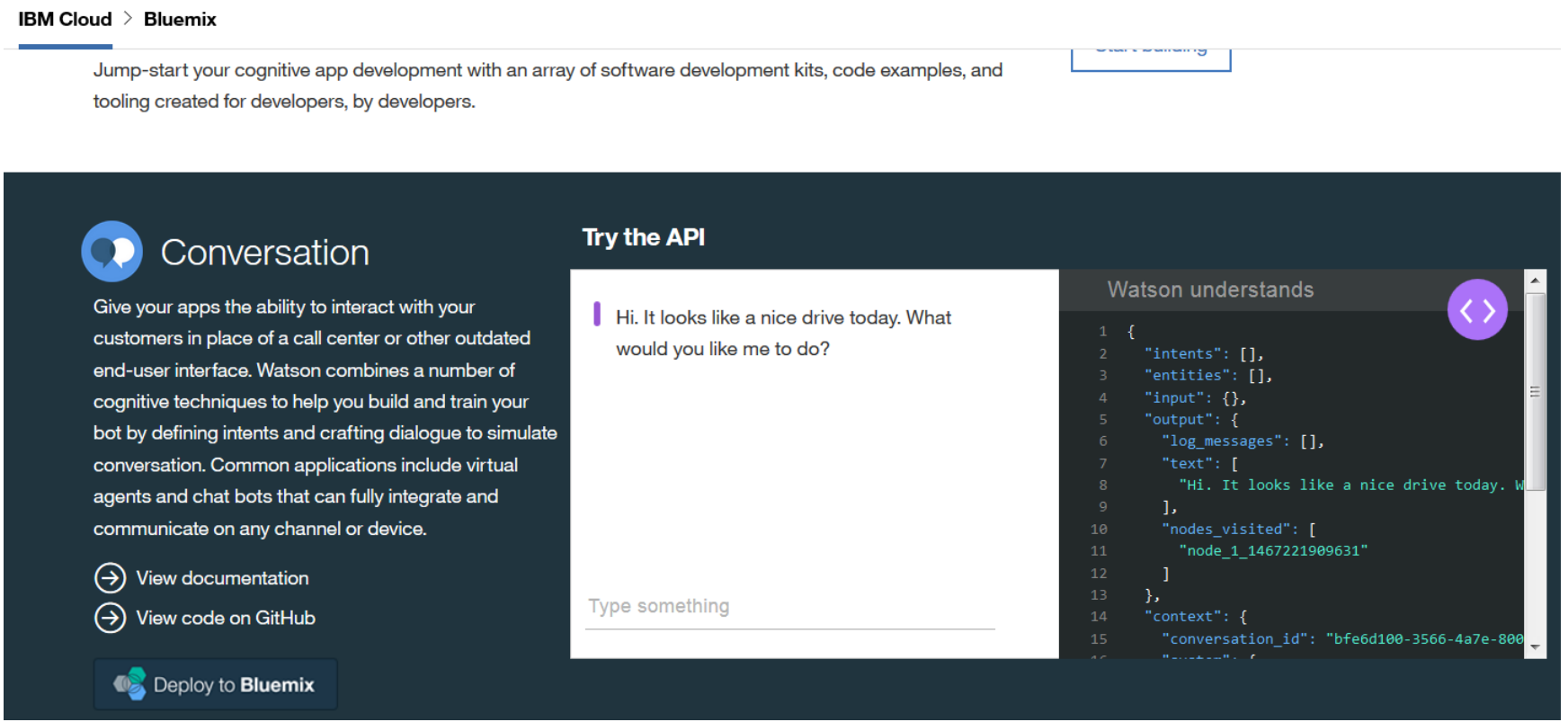
http://visual-recognition-demo.mybluemix.net/train

Watson Developer Cloud on IBM Bluemix



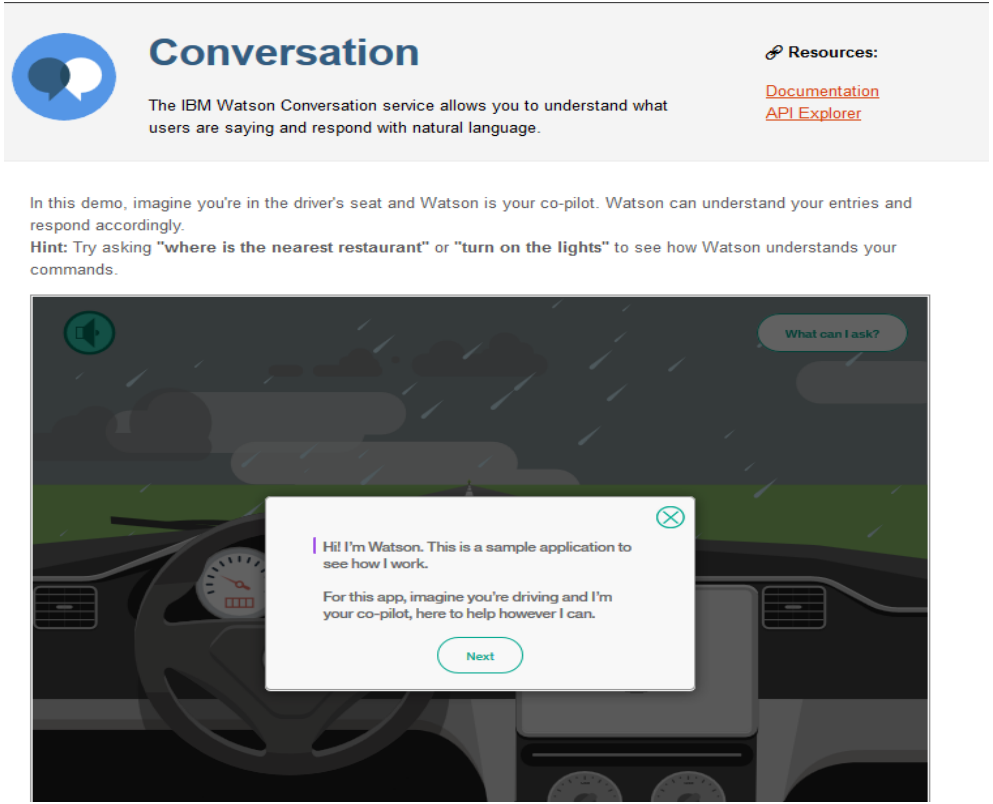
http://www.ibm.com/watson/developercloud/services-catalog.html

Where do I find the Watson services? https://bluemix.net/



https://www.ibm.com/cloud-computing/bluemix/watson

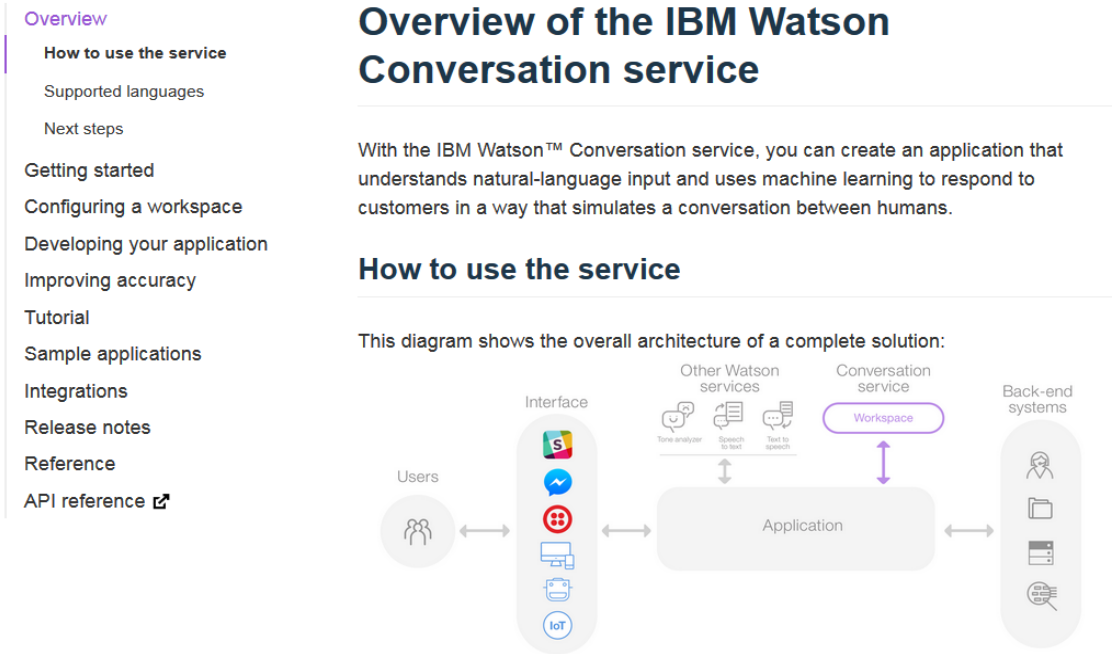
They all come with demos



https://conversation-demo.mybluemix.net/

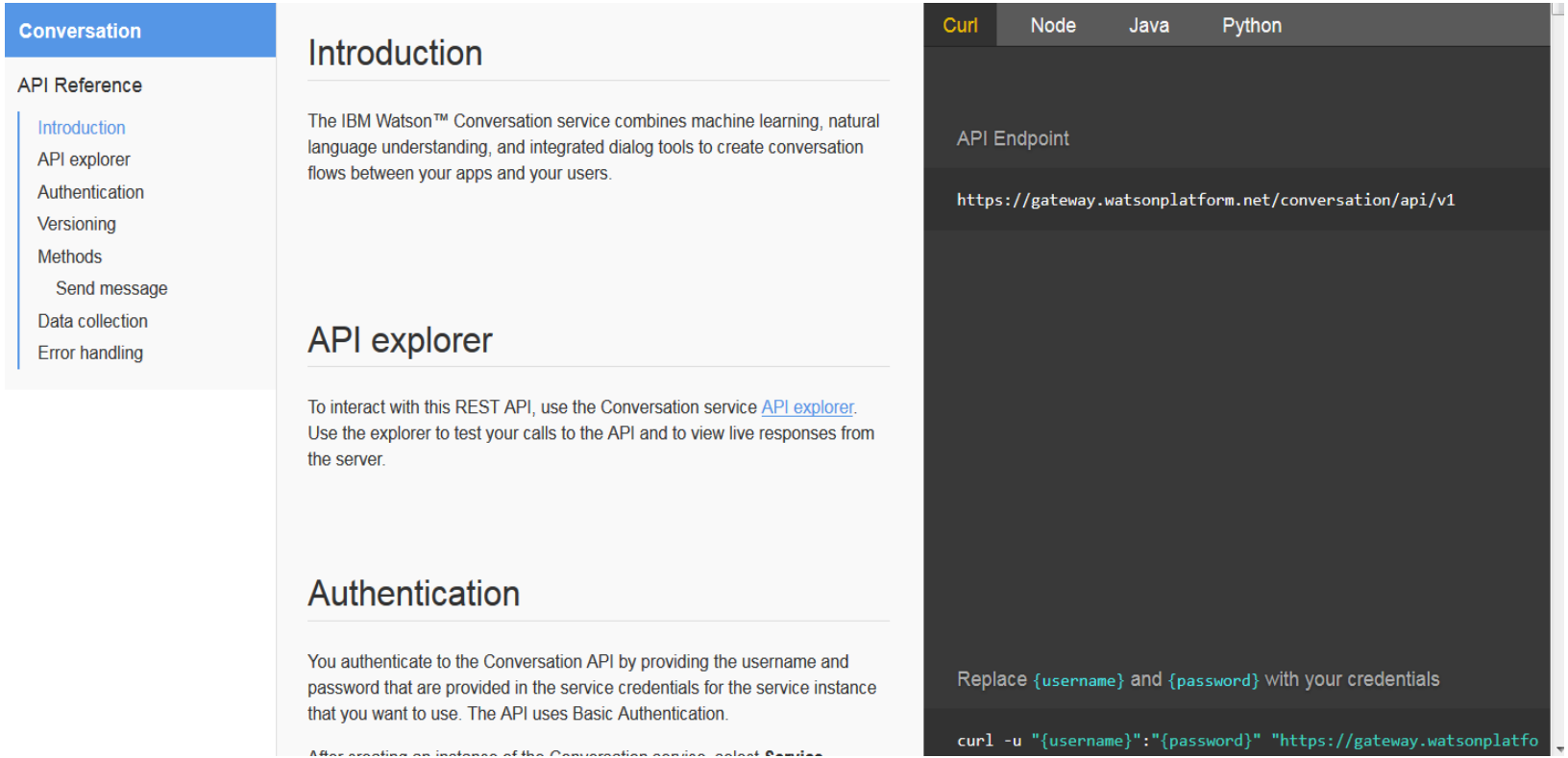
And with documentation and tutorials

https://www.ibm.com/watson/developercloud/conversation.html



http://www.ibm.com/watson/developercloud/services-catalog.html

And an API reference



https://www.ibm.com/watson/developercloud/conversation/api/v1/?curl#

Let’s look at a Watson cognitive service

https://www.ibm.com/watson/developercloud/conversation.html

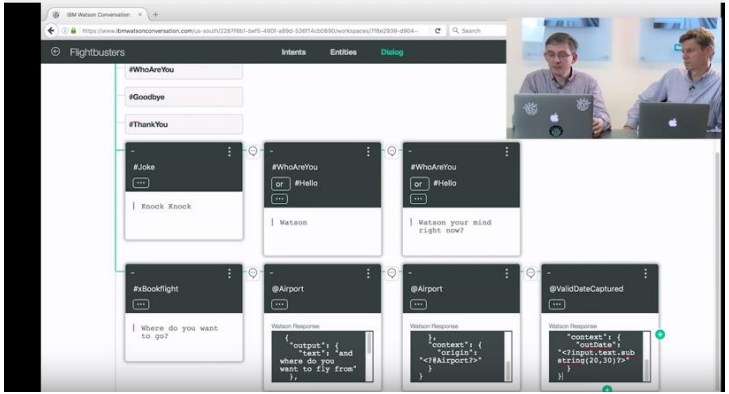
Conversation

Build chatbots that understand natural language and deploy them on messaging platforms and websites, on any device

GENERAL AVAILABILITY

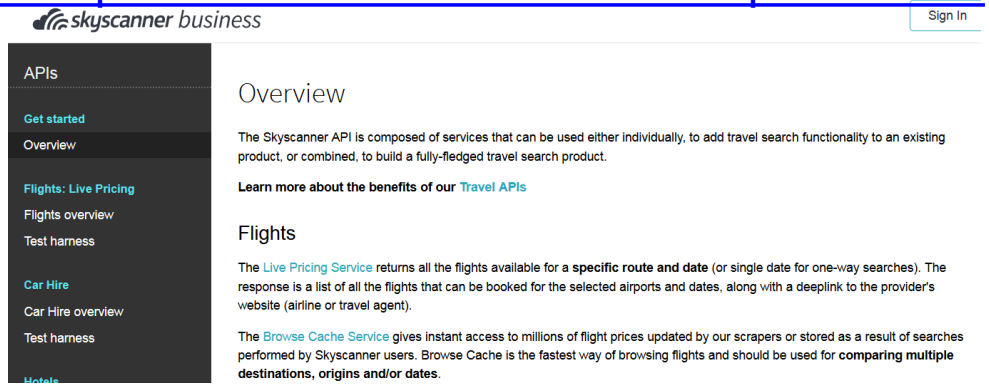
http://www.ibm.com/watson/developercloud/services-catalog.html

It’s all about APIs: book flights with a Chatbot and API



https://www.youtube.com/watch?v=MTCc4d-RXP0

http://business.skyscanner.net/portal/en-GB/Documentation/ApiOverview



https://conversation-demo.mybluemix.net/

So what Watson services are there?

- **AlchemyLanguage**
  Natural language processing for advanced text analysis
  http://www.ibm.com/watson/developercloud/alchemy-language.html

- **Conversation**
  Build chatbots that understand natural language and deploy them on messaging platforms and websites, on any device
  https://www.ibm.com/watson/developercloud/conversation.html

- **Document Conversion**
  Converts various types of documents into formats that can be understood by Watson services, such as the Retrieve and Rank service.
  http://www.ibm.com/watson/developercloud/document-conversion.html

So what Watson services are there?

- **Language Translator**
  Translate content into multiple languages
  https://www.ibm.com/watson/developercloud/language-translator.html

- **Natural Language Classifier**
  Understands the intent behind text and returns a corresponding classification, complete with a confidence score
  "What is the weather like today? or "Is it hot out?" or "Is it going to be nice today?" are all ways of asking about "temperature".
  https://www.ibm.com/watson/developercloud/nl-classifier.html

- ***Personality Insights***
  Understand personality characteristics, needs, and values in written text
  Characteristics include the Big 5 Personality Traits, Values, and Needs. At least 1200 words of input text are recommended when using this service.
  https://www.ibm.com/watson/developercloud/personality-insights.html

So what Watson services are there?

- **Retrieve and Rank**
- For example, using R&R, an experienced technician can quickly find solutions from dense product manuals. A contact center agent can also quickly find answers to improve average call handle times. The Retrieve and Rank service works "out of the box," but can also be customized to improve the results.
- **https://www.ibm.com/watson/developercloud/retrieve-rank.html**

- **Tone Analyzer**
- Uses linguistic analysis to detect three types of tones in written text: emotions, social tendencies, and writing style.
  Use the Tone Analyzer service to understand emotional context of conversations and communications.
  Use this insight to respond in an appropriate manner.
  https://www.ibm.com/watson/developercloud/tone-analyzer.html

So what Watson services are there?

- **Speech to Text**
  Convert human voice into written word
- **https://www.ibm.com/watson/developercloud/speech-to-text.html**

- **Text to Speech**
  Enable computers to speak like humans
  https://www.ibm.com/watson/developercloud/text-to-speech.html

- **Visual Recognition**

  Visual Recognition understands the contents of images - visual concepts tag the image, find human faces, approximate age and gender, and find similar images in a collection. You can also train the service by creating your own custom concepts.
  https://www.ibm.com/watson/developercloud/visual-recognition.html

So what Watson services are there?

- **Alchemy Data News**
  AlchemyData provides news and blog content enriched with natural language processing
  to allow for highly targeted search and trend analysis. Now you can query the world's news sources
  and blogs like a database.
  https://www.ibm.com/watson/developercloud/speech-to-text.html

- **Discovery**
  Rapidly build a cognitive search and content analytics engine
  and add it to existing applications with minimal effort.
  https://www.ibm.com/watson/developercloud/discovery.html

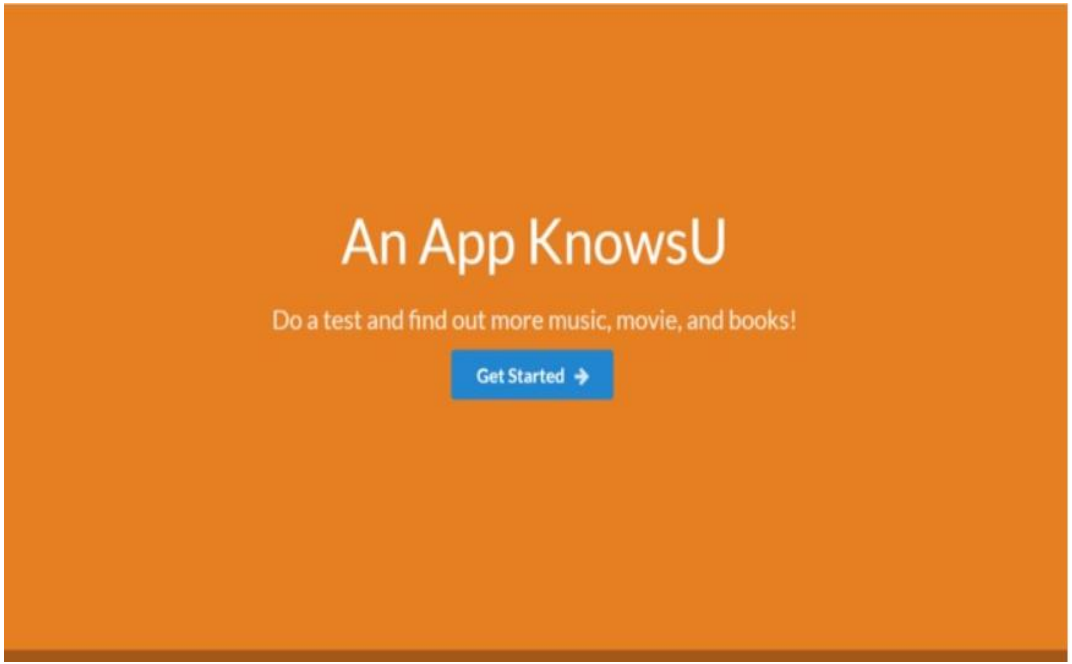
- **Tradeoff Analytics**
  Tradeoff Analytics helps people make decisions when balancing multiple objectives.
  When you make decisions, how many factors are considered?
  How do you know when you've identified the best option?
  With Tradeoff Analytics, you can avoid lists of endless options and determine the right option
  by considering multiple objectives.
  https://www.ibm.com/watson/developercloud/tradeoff-analytics.html

So what Watson services are there?

Project Intu

Embed cognitive functions in various form factors such as spaces, avatars or other IoT devices**.**
https://www.ibm.com/watson/developercloud/project-intu.html

So what can I do with Watson Services ?



I worked on the back-end with different APIs, front-end animations, and tried to get a variety of response from the APIs to make the user experience more enjoyable. We want to use Watson to understand the user's tone and emotion and give them interesting and fun suggestions of musics, movies, and books.

Kangbo Lu +

A young computer science student, who love

https://devpost.com/software/knowsu

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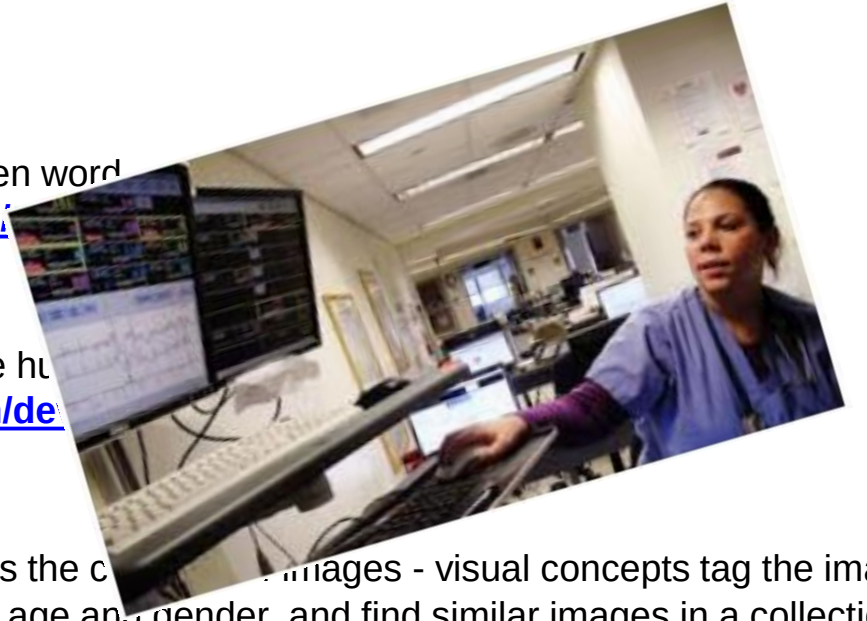

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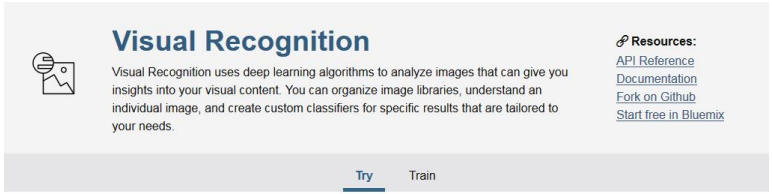
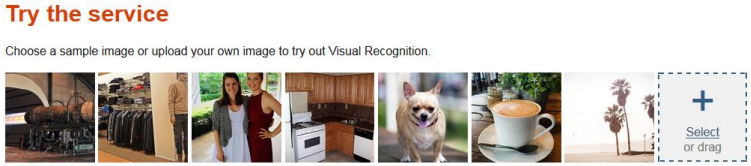
Watson Visual Recognition

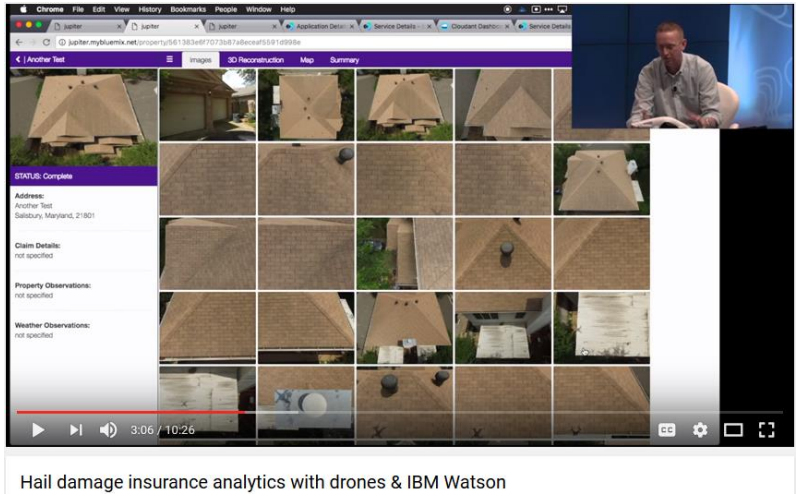




https://visual-recognition-demo.mybluemix.net/

http://www.dji.com/phantom

Andy Trice, drones and hail damage to shingled roofs

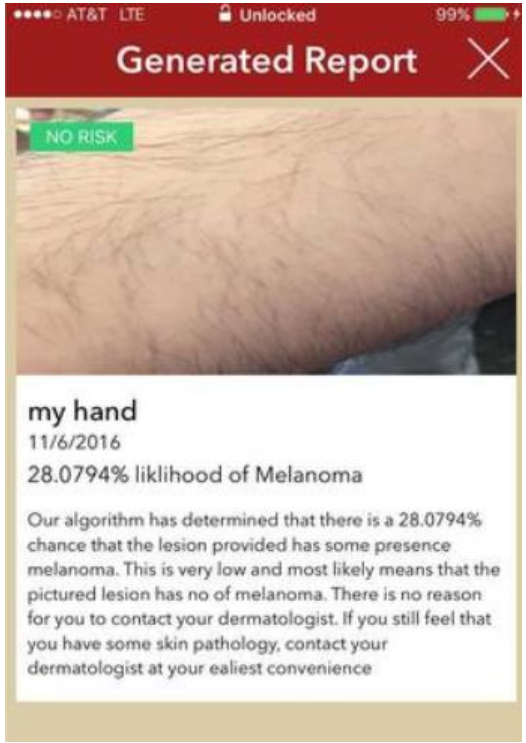


https://www.youtube.com/watch?v=ITE-TCtDlBM

Watson Visual Recognition

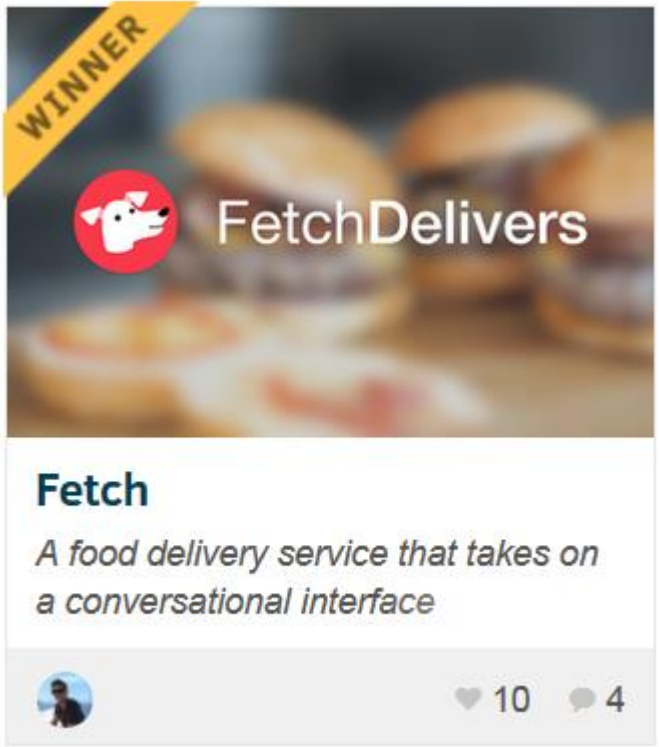
- I wrote the backend and set up the IBM-Watson visual recognition platform.
- I compiled all the training data and used the watson api to make a custom classifier.
- I also wrote the entire restful api using Flask and Python which allowed for curl requests to the server for the same prediction which was used by the Electron app.

health++
Stanford's Inaugural Health Hackathon
Nov 5 + 6, 2016



https://devpost.com/software/dermyx

Fetch



What it does

Fetch scours the internet and sifts through local restaurant data looking for food vendors nearby. Once it finds the perfect fit for your needs, it can have almost anything delivered right to your door!

How I built it

The app takes advantage of Watson's Dialog and Classifier service, and I wrote my own python script in order to determine what food or restaurant the user was looking for using a complex mix of statistics. Once Fetch knows what you are looking for it uses the Yelp API to get a list of restaurants in the area. It then finds a corresponding menu using Foursquare and Locu, and after checkout the order goes to Postmates to have it delivered to your door.

https://devpost.com/software/fetch-bdf9tl

Creating cool apps with the Watson Services

GitHub

Deploy to Bluemix

DevOps Services

Bluemix

Code updates
From laptop to
Github

Starter Kit

Cf push

IBM **Bluemix**

THANK YOU

QUESTIONS?