

Hackathon @ First Data

Rojan Jose
Developer Advocate
rojan@us.ibm.com

IBM Developer

IBM Cloud Offerings

Artificial Intelligence



Blockchain



IoT



Analytics



Runtimes

.java
liberty .js .net .swift .xsp

.go .php .py .rb tomcat

Integration



Dev Tools



Web Mobile



Deploy



Databases



NoSQL



SQL

<http://ibm.biz/fd-hack>

First Data hackathon instructions for IBM Cloud

- Create your IBM Cloud ID.
- Upgrade Lite to trial account.
- Provision services.

AI Services & Tools

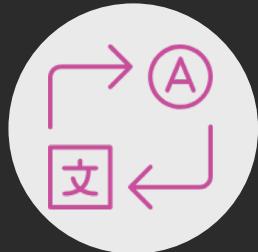
Language



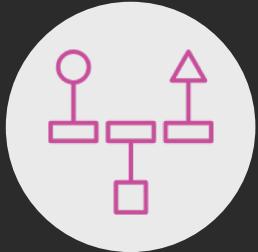
Assistant



Natural Language
Understanding



Language Translator



Natural Language
Classifier

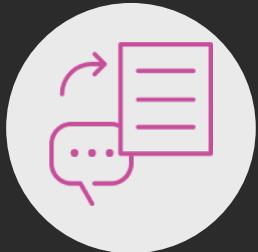


Personality Insights



Tone Analyzer

Speech

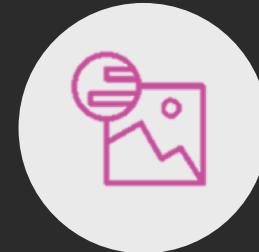


Speech to Text



Text to Speech

Vision



Visual Recognition

Data Insights



Discovery

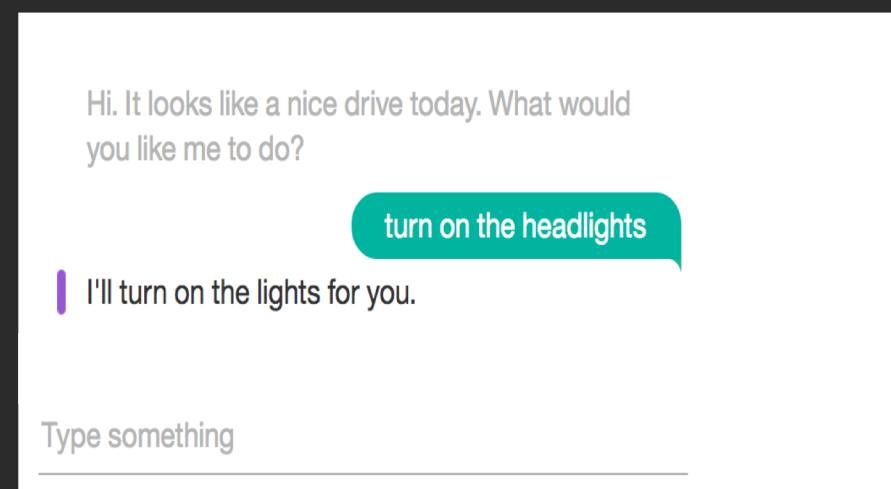
Watson Developer SDKs: <https://github.com/watson-developer-cloud>

Watson Assistant

Quickly build and deploy chatbots and virtual agents across a variety of channels, including mobile devices, messaging platforms, and even robots.

Sample Use Cases

- FAQ Chatbot
- Customer call center
- Conversational commerce



```
1  {
2    "intents": [
3      {
4        "intent": "turn_on",
5        "confidence": 0.9951137542724611
6      }
7    ],
8    "entities": [
9      {
10        "entity": "appliance",
11        "location": [
12          12,
13          22
14        ],
15        "value": "lights",
16        "confidence": 1
17      }
18    ],
19    "input": {
20      "text": "turn on the headlights"
21    },
22    "output": {
23      "text": [
24        "I'll turn on the lights for you."
25      ],
26      "nodes_visited": [
27        "Entry Point For On Off Commands",
28        "node_2_1467232480480",
29        "Appliance On Off Check"
30      ],
31      "action": {
32        "lights_on": ""
33      },
34      "log_messages": []
35    },
36    "context": {
37      "conversation_id": "bd7963ba-b395-4f1e-b37f-31af3dbe42ce",
38      "system": {
39        "version": "1.0"
40      }
41    }
42  }
```

Speech to Text

Use speech recognition capabilities to convert Arabic, English, Spanish, French, Brazilian Portuguese, Japanese, and Mandarin speech into text.

- Supports custom language and audio models for domain adaptation.

Sample Use Cases

- Call Center Analytics
- Speech enabled chat-bots
- Voice controlled applications/devices

Transcribe Audio

- Use your microphone to record audio.
- Upload pre-recorded audio (.mp3, .mpeg, .wav, .flac, or .opus only).
- Play one of the sample audio files.*

*Both US English broadband sample audio files are covered under the Creative Commons license.

The returned result includes the recognized text, word alternatives, and spotted keywords. Some models can detect multiple speakers; this may slow down performance.

Voice Model:

US English broadband model (16KHz)

Keywords to spot:

IBM, admired, AI, transformations, cognitive, Artificial Intelligence, c

Detect multiple speakers

Record Audio

Upload Audio File

Play Sample 1

Play Sample 2

Text

Word Timings and Alternatives

Keywords (0/9)

JSON

Hello I am Watson and I can understand natural language and provide insight into what the content represents.

Text

Word Timings and Alternatives

Keywords (0/9)

JSON

hello I am Watson and² I can understand natural language and provide insight² into what the² content² represents

Text to Speech

Understand text and natural language to generate synthesized audio output complete with appropriate cadence and intonation. It is available in 13 voices across 7 languages.

American English (en-US): Allison (female, expressive, transformable) ▾

Text	Expressive SSML	Voice Transformation SSML
		Hello! I'm Allison, but you can change my voice however you wish. <voice-transformation type="Custom" glottal_tension="-80%"> For example, you can make my voice a bit softer, </voice-transformation> <voice-transformation type="Custom" glottal_tension="40%" breathiness="40%"> or a bit strained. </voice-transformation><voice-transformation type="Custom" timbre="Breeze" timbre_extent="60%"> You can alter my voice timbre making me sound like this person, </voice-transformation> <voice-transformation type="Custom" timbre="Sunrise"> or like another person in your different applications. </voice-transformation> <voice-transformation type="Custom" breathiness="90%"> You can make my voice more breathy than it is normally. </voice-transformation><voice-transformation type="Young" strength="80%"> I can speak like a young girl. </voice-transformation><voice-transformation type="Custom" pitch="-30%" pitch_range="80%" rate="60%" glottal_tension="-80%" timbre="Sunrise"> And you can combine all this with modifications of my speech rate and my tone. </voice-transformation>

ibm.biz/demo-text-to-speech

Natural Language Understanding

Text analysis through natural language processing. Analyze text to identify concepts, entities, keywords, sentiment, and more.

- Supports domain-specific models trained with Watson Knowledge Studio for entity and relationship extraction.

Sample Use Cases

- Content Recommendation
- Advertising Selection
- Data Mining

The screenshot shows a web-based NLU demo interface. At the top, there's a purple 'Analyze' button. Below it is a row of buttons for different analysis types: Sentiment, Emotion, Keywords, Entities (which is highlighted in purple), Categories, Concept, and Semantic Roles. A descriptive text below the buttons says, "Extract people, companies, organizations, cities, geographic features, and other information from the content." To the right of this text is a "JSON" link with a dropdown arrow. The main area displays a table of extracted entities. The columns are 'Name', 'Type', and 'Score'. The data rows are:

Name	Type	Score
Anza-Borrego Desert	GeographicFeature	0.84
Myrtle Botts	Person	0.83
Colorado Desert	GeographicFeature	0.58
Albert S. Evans	Person	0.51
Canebrake Canyon	GeographicFeature	0.46
Desert Dunes	GeographicFeature	0.44
Southern California	Location	0.41

<https://natural-language-understanding-demo.ng.bluemix.net/>

Tone Analyzer

Use linguistic analysis to detect joy, fear, sadness, anger, analytical, confident and tentative tones found in text.

Sample Use Cases

- Monitor Call Center Engagement
- Social Listening
- Conversation escalation

The screenshot displays the IBM Tone Analyzer interface. At the top, under 'Document-level', several tones are listed with checkboxes: Anger (checked), Fear (checked), Joy (unchecked), Sadness (unchecked), Analytical (unchecked), Confident (checked), and Tentative (unchecked). Below this is a horizontal line, followed by the 'Sentence-level' section. A descriptive text explains how to identify stronger tones in context or sorted by score, noting that highlighted sentences indicate likelihood. It also mentions that if more than one tone is present, the stronger one is shown. Clicking on a sentence provides a breakdown of all tones. On the left, a 'Tones' sidebar lists Analytical, Anger (selected and highlighted in dark blue), Confident, Fear, and Tentative. To the right, the 'In context' section shows five sentences from a user about a phone, each highlighted with a red background. Above the sentences is a color scale from light red to dark red with labels <.5, .5 - .75, and >.75, corresponding to 'None', 'Strong', and 'Strong' respectively. The sentences are:
I hate these new features On #ThisPhone after the update.
I hate #ThisPhoneCompany products, you'd have to torture me to get me to use #ThisPhone.
The emojis in #ThisPhone are stupid.
#ThisPhone is a useless, stupid waste of money.
#ThisPhone is the worst phone I've ever had - ever 😞.
#ThisPhone another ripoff, lost all respect SHAME.

ibm.biz/demo-tone-analyzer

AI Services & Tools

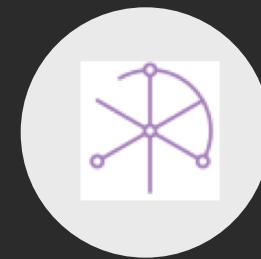
Data Science & Analytics



Machine Learning



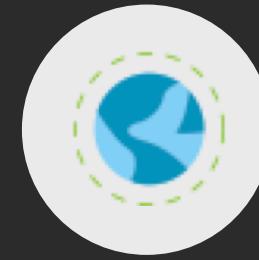
Watson Studio



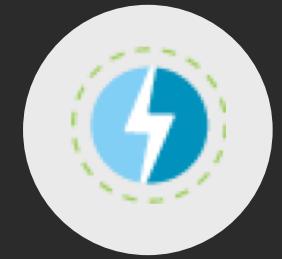
Watson OpenScale



Analytics Engine



Geospatial



Streaming Analytics

Data science exercises:

Machine Learning: <https://github.com/ibm-ai-education/continuous-learning-with-watson-ml>

Deep Learning : <https://github.com/ibm-ai-education/timeseries-rnn-lab-part1>

Bias Detection : <https://cloud.ibm.com/docs/services/ai-openscale?topic=ai-openscale-gettingstarted#gs-setup>

ibm.biz/model-exchange

Model Asset Exchange

The Model Asset Exchange (MAX) is a one stop shop for developers/data scientists to find and use **free** and **open source** deep learning models

Rapid Development and Deploy

**Node-Red
Cloud Foundry
Cloud Functions**

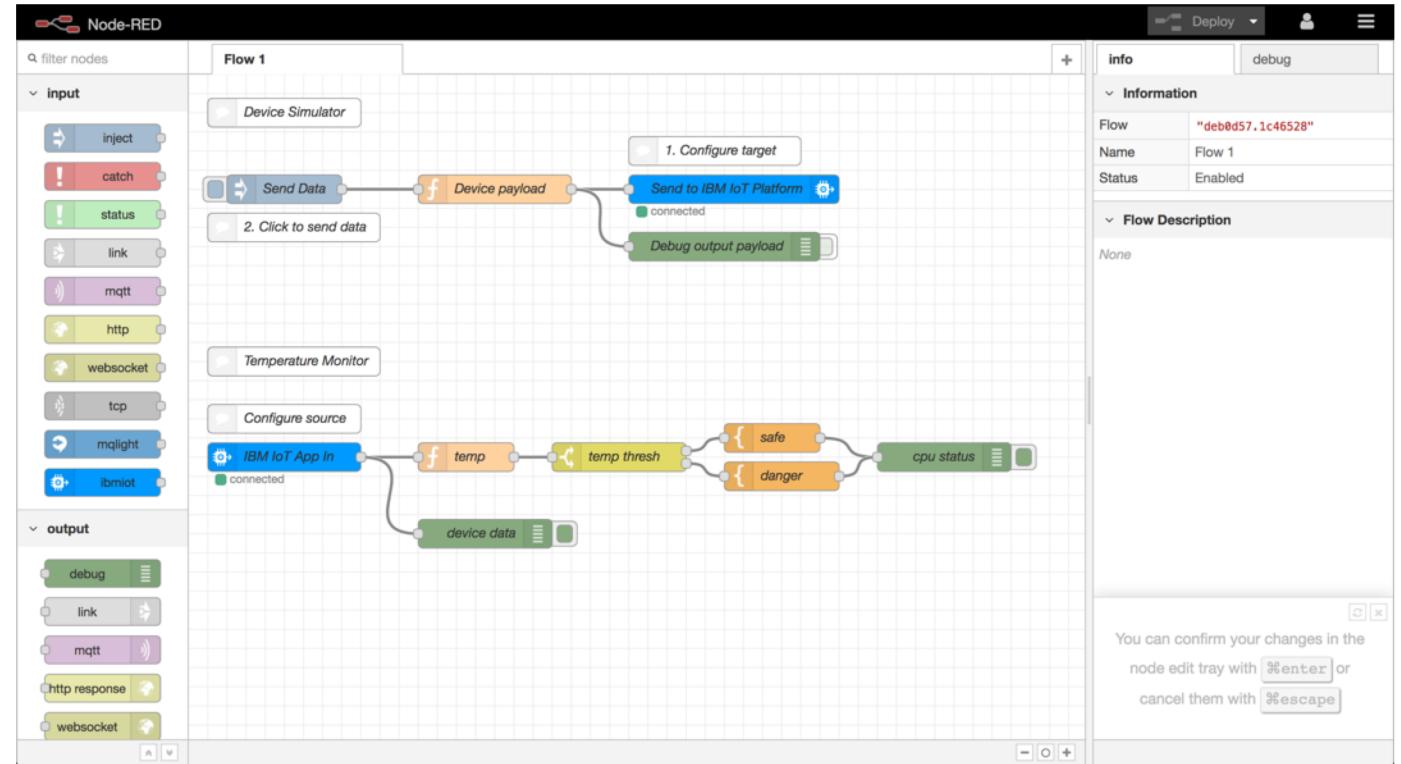
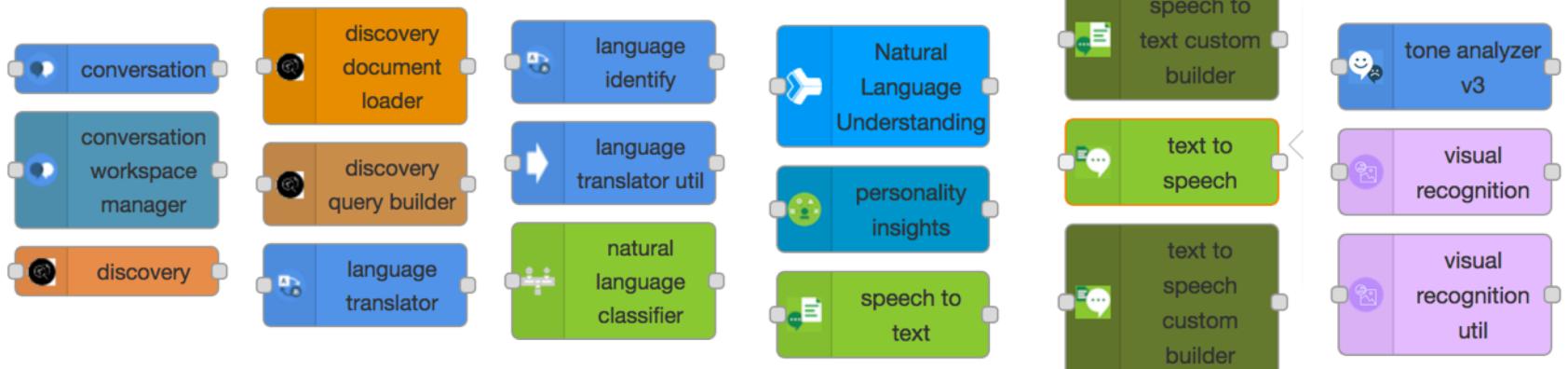
Watson IoT and Node-RED

Quickly build flow-based applications handling sensor events

IoT device input / output nodes



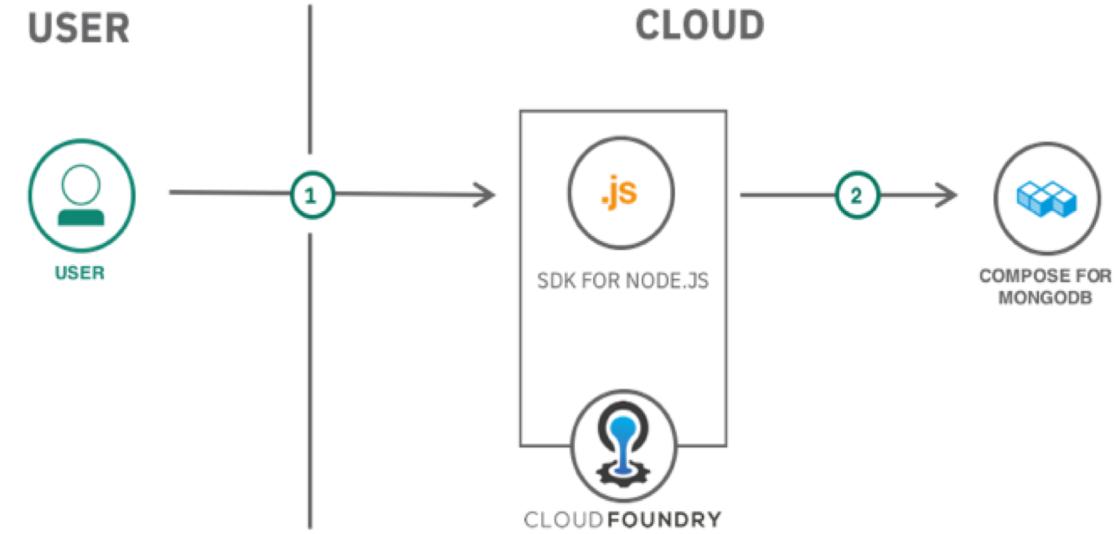
And Watson nodes



Rapid Deploy

Cloud Foundry runtimes
deploy app **without managing**
infrastructure.
Java, Node.js, Swift, ASP.NET
Core, Python, PHP, Ruby, Go...

Cloud Functions "serverless"
trigger **actions** from **events**
or REST API calls



Get Started with IBM Cloud

Starter kits, tutorials, blogs, articles, webinars and videos

<https://www.ibm.com/cloud/get-started>

<https://cloud.ibm.com/catalog?category=starterkits>

↓ Develop and deploy

↓ Cognitive with Watson

↓ IoT platform

↓ Data science and data management

Develop and deploy

Build your apps, deploy, and scale them with IBM Cloud.



Launch web apps in your chosen runtime

→ Tutorial



Get started with IBM Cloud Container service

→ Tutorial



Build a React web app that runs on Kubernetes

→ Starter kit

→ Explore more resources

Cognitive with Watson

Build cloud-based exploration applications powered by Watson.



Getting Started with Watson and IBM Cloud

→ Tutorial



Build your first cognitive app using Personality Insights

→ Tutorial



Getting Started with Visual Recognition Service

→ Tutorial

→ Explore more resources

IoT platform

Manage your devices, visualize data and perform analytics on real-time data.



Play with Watson IoT platform

→ Tutorial



Getting Started with Watson IoT Platform and IBM Cloud

→ Tutorial



Build a cognitive IoT app in just 7 steps

→ Tutorial

→ Explore more resources

Data science and data management

Uncover insights hidden in the data and influence your business.



Get Started with IBM Cloudant on IBM Cloud

→ Tutorial



Get started with IBM Watson Studio

→ Tutorial



Analyze traffic data from the city of San Francisco

→ Tutorial

→ Explore more resources

Learning Resources

IBM Developer

Code patterns

<https://developer.ibm.com/patterns/>

Cognitive Class

Courses & Learning paths

<https://cognitiveclass.ai/courses/>

IBM Developer

Topics ▾

Community ▾

More open source at IBM ▾

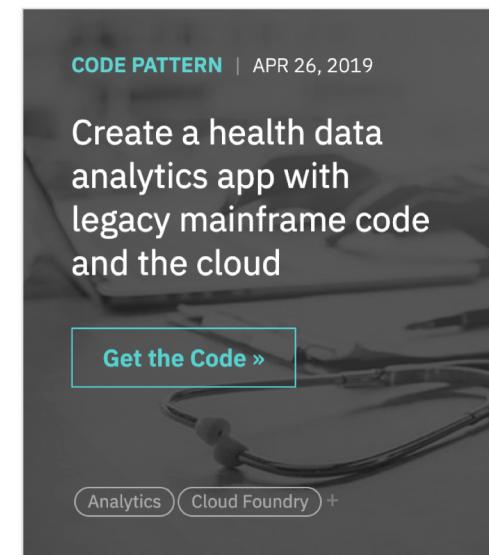
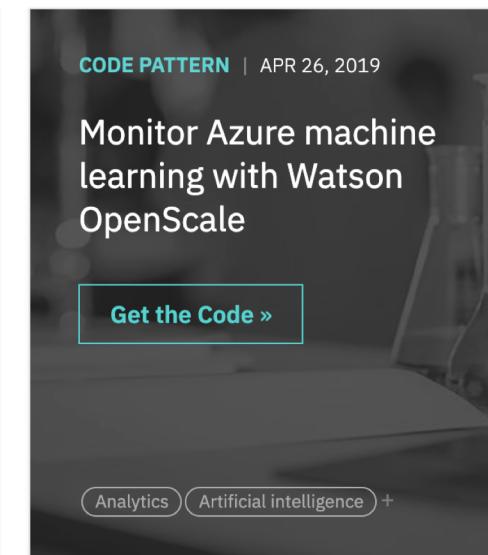
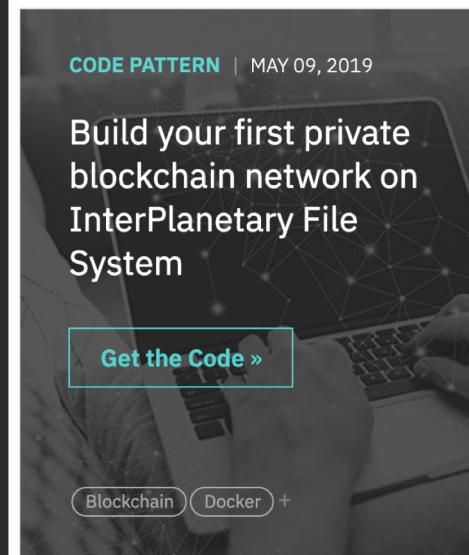
Code Patterns

Technologies ▾

Industries ▾

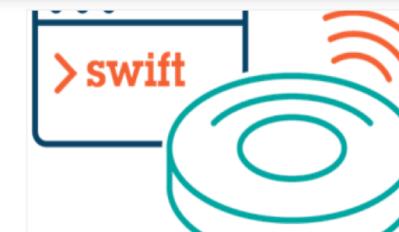
Deployment Models ▾

Sort by Newest First ▾



 COGNITIVE
CLASS.ai

Learning Paths Courses Mobile Apps Badges ▾ Business Competitions



Robots are coming! Build IoT apps with Watson AI, Swift, and Node-RED

IBM Developer Skills Network
ML0201EN

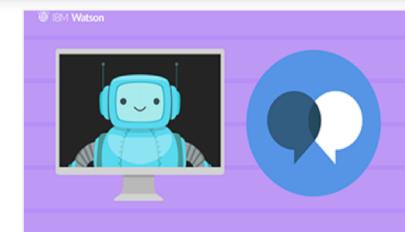
Intermediate



Machine Learning with Python

Cognitive Class ML0101ENv3

Intermediate



Build Your Own Chatbot

Cognitive Class CB0103EN

Intermediate

IBM Developer

IBM Contacts

Jason Demby
Global Cloud CTO, First Data
jason.demby@ibm.com
917 273 2762

Dale Smith
Cloud & Emerging Technologies CTO
dgsmith@us.ibm.com
402 681 7995

Rajan Jose
Developer Advocate
rojan@us.ibm.com
919 609 0428

