Artificial intelligence for humans…

Chris Heilmann (@codepo8) April 2018

All resources:
aka.ms/human-ai

Let's talk about "Artificial Intelligence"

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- Is quite the **hype** and very often **misattributed**
- Is an **umbrella term** for a lot of math and science around repetition, pattern recognition and machine learning
- Got a **huge boost** because of availability of **hardware**

The machines are watching…

Florian Ziegler flickr.com/photos/damndirty/41263240134

Big brother is redundant…

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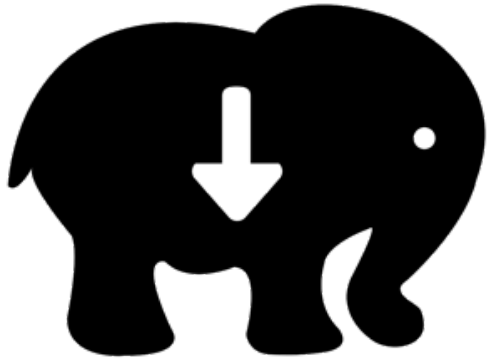
- Everything we do online is **monitored** and **recorded**
- We often don't realise that our **data is how we pay** for "free" services
- We're happy to use systems that **record** all the time **in exchange for convenience**
- Often people don't realise just how **dangerous** this can be in the **wrong hands**.



Everything counts in large amounts

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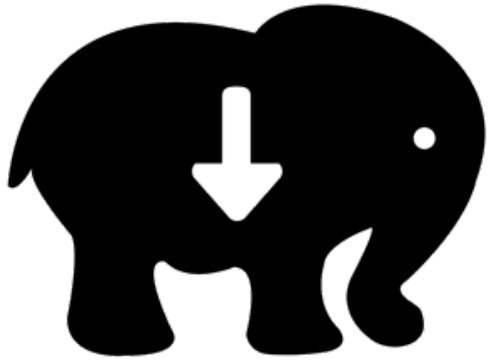

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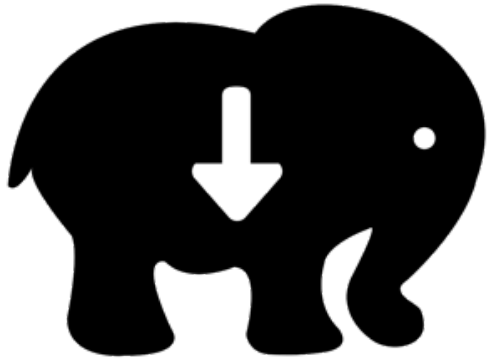

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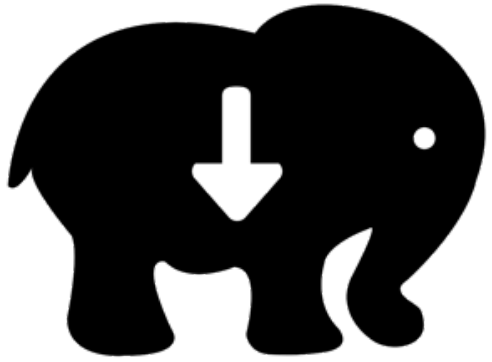

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- With cloud computing, on demand processing and advances in hardware **we're faster than ever**.

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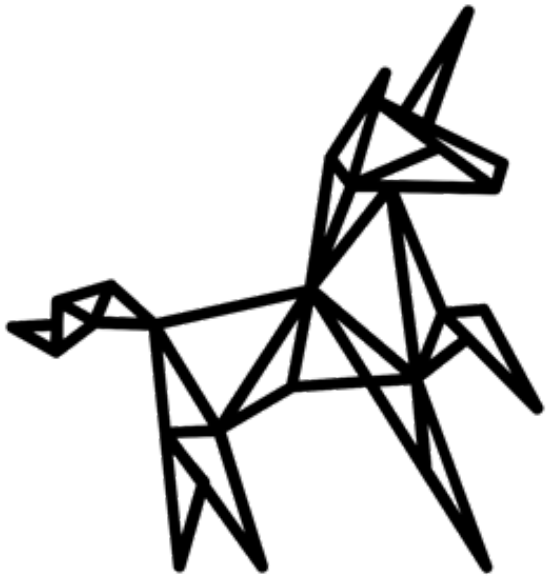
- This leads to **better results**, but can leaks data
- We should have more **transparency** about what digital legacy we left behind.

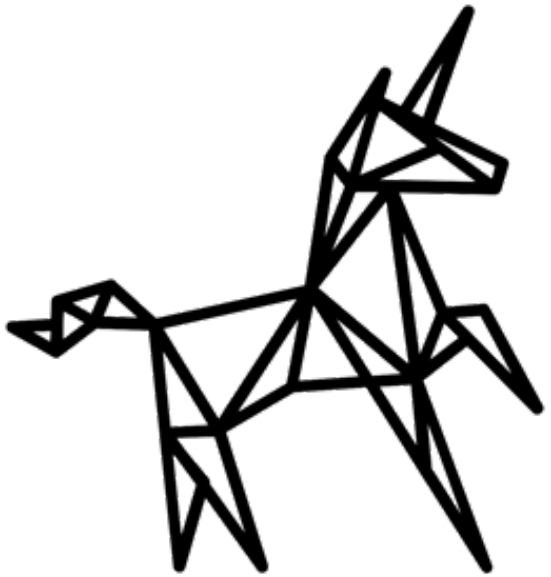
Are machines friend or foe?

Florian Ziegler flickr.com/photos/damndirty/40153024740/



Artificial Intelligence Myths

- AI can’t replace a thinking, creative human



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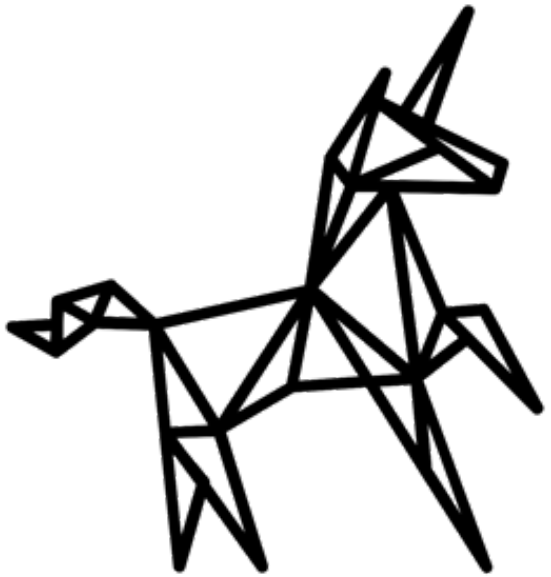

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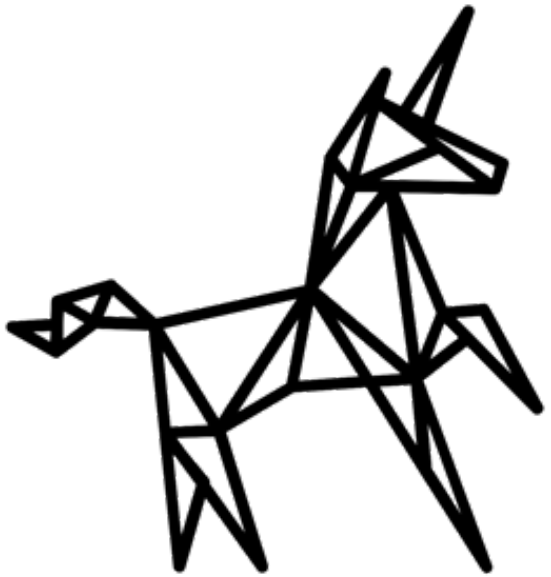

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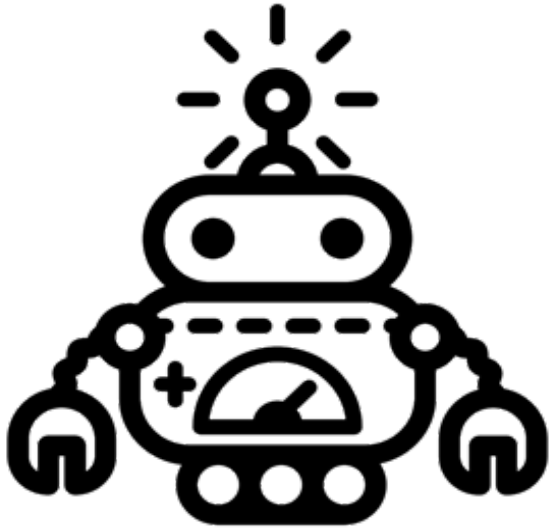
- AI has **no morals and ethics**, but – used wrongly – it can **amplify our biases**



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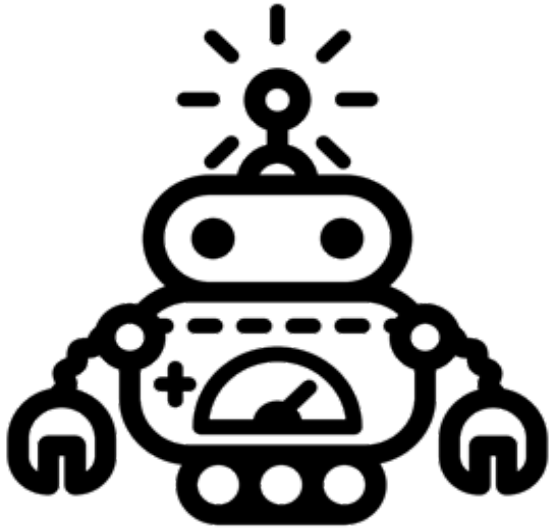

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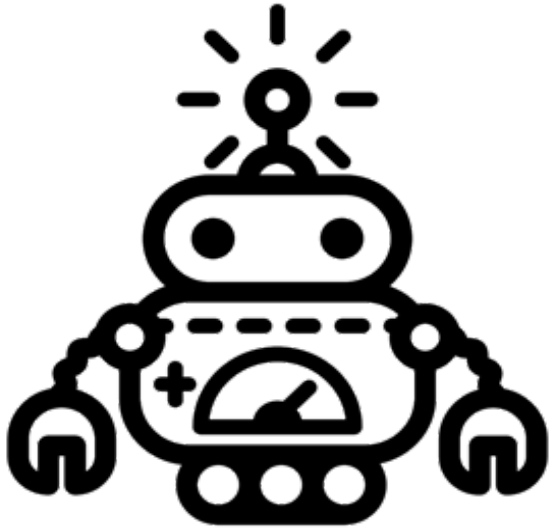

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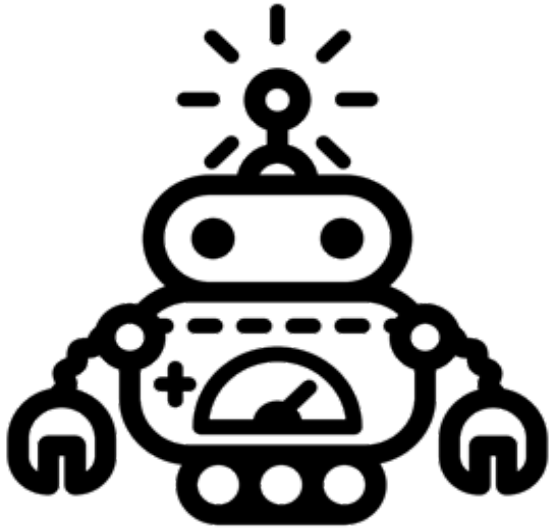
- AI can answer questions, but it is up to you to **ask good questions** – generic questions yield assumed results.



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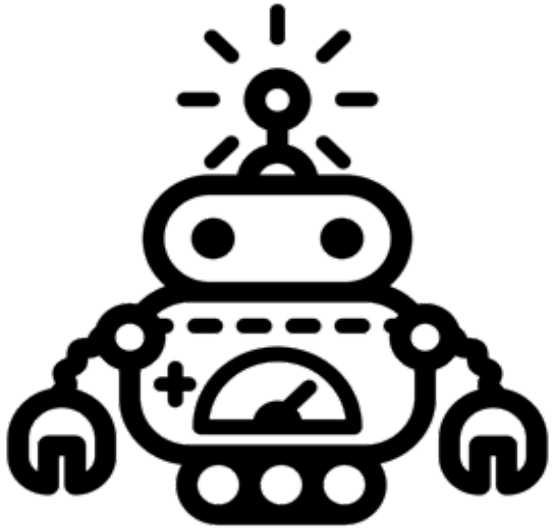

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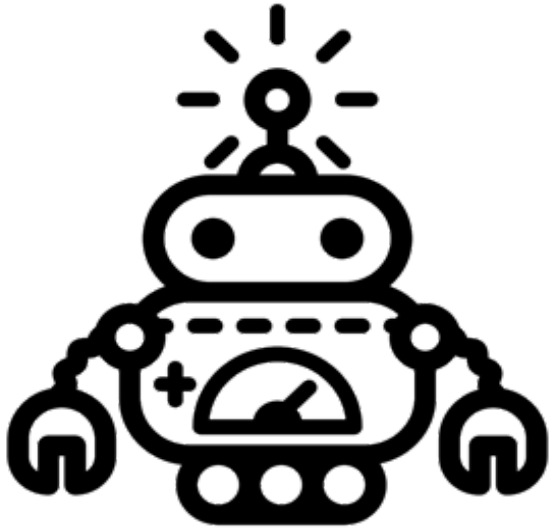

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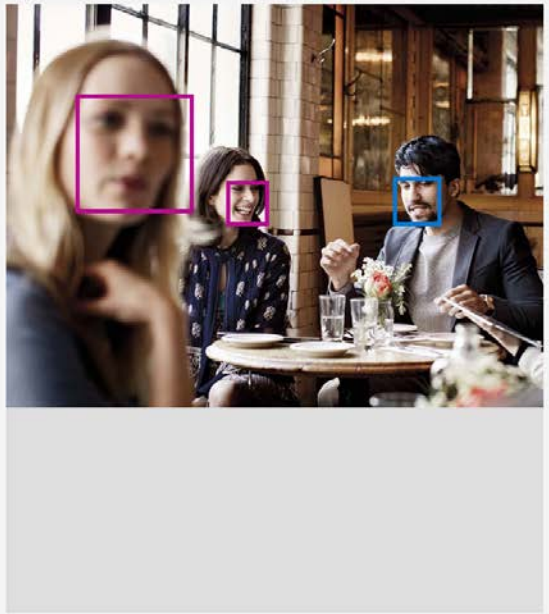
- AI is as **intelligent** and **good** as the **people** who **apply** it

About face...

Face detection

Detect one or more human faces in an image and get back face rectangles for where in the image the faces are, along with face attributes which contain machine learning-based predictions of facial features. The face attribute features available are: Age, Emotion, Gender, Pose, Smile, and Facial Hair along with 27 landmarks for each face in the image.




```
Detection result:
JSON:
 [
  {
    "faceId": "0e96b668-a0d0-46ec-a5c9-
ad26b16a1ca9",
    "faceRectangle": {
      "top": 166,
      "left": 128,
      "width": 218,
      "height": 218
    },
    "faceAttributes": {
      "hair": {
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        "invisible": false,
        "hairColor": [
          {
            "color": "blond",
            "confidence": 1.0
          },
          {
            "color": "other",
```
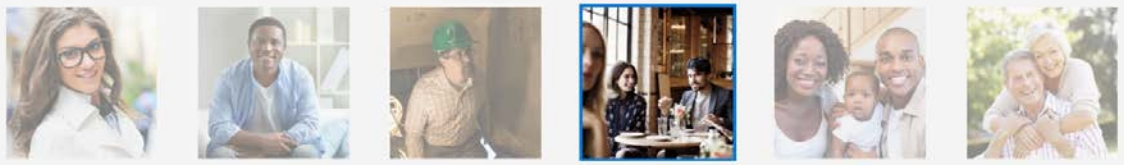


Image URL | Submit | Browse



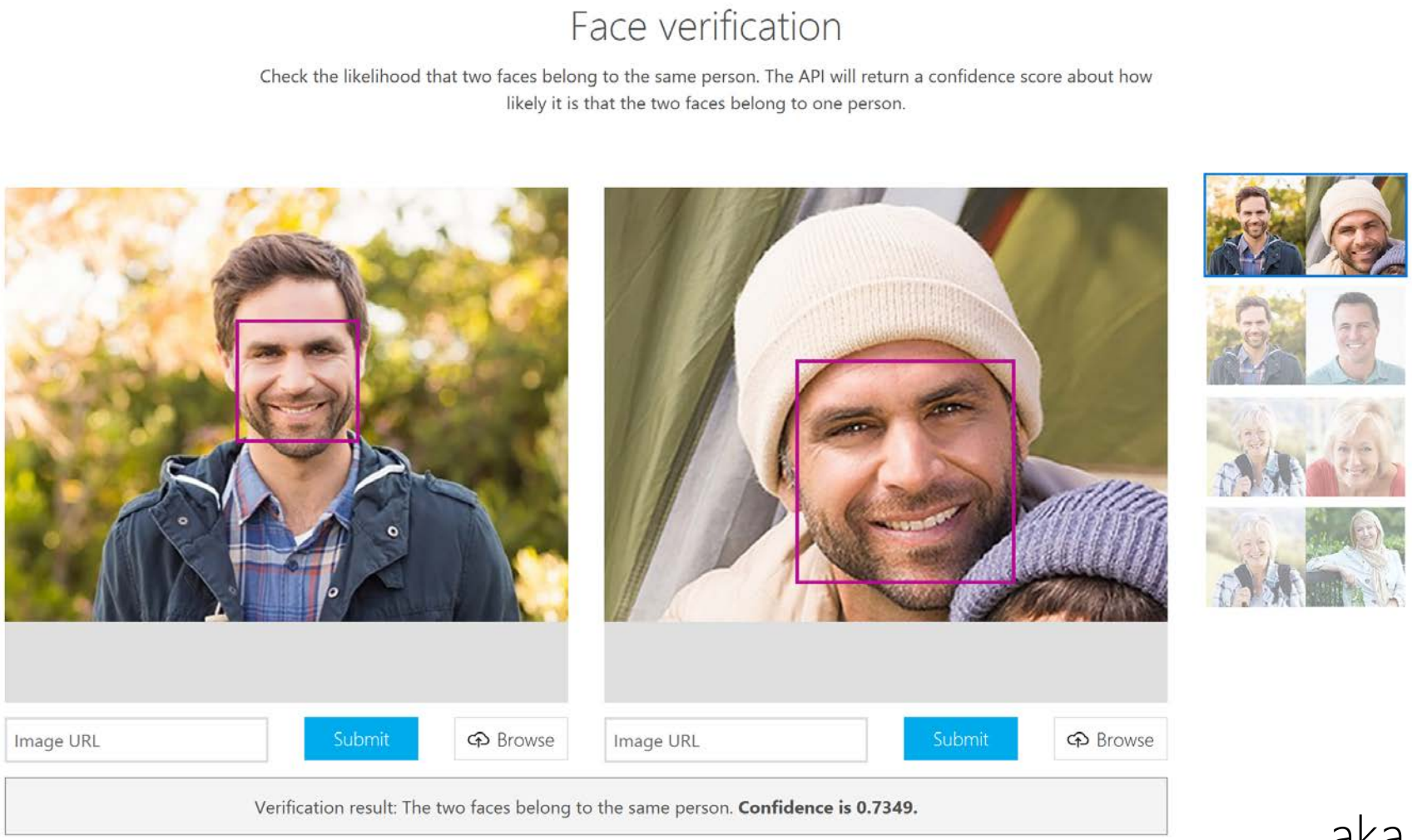
aka.ms/face-api

About face…

- Face rectangle / Landmarks
- Pose (pitch/roll/yaw)
- Smile
- Gender/Age
- Type of glasses
- Makeup (lips/eye)
- Emotion (anger, contempt, disgust, fear, happiness, neutral, sadness, surprise)
- Occlusion (forehead/eye/mouth)
- Facial hair (moustache/beard/sideburns)
- Attributes: Hair (invisible, bald, colour)

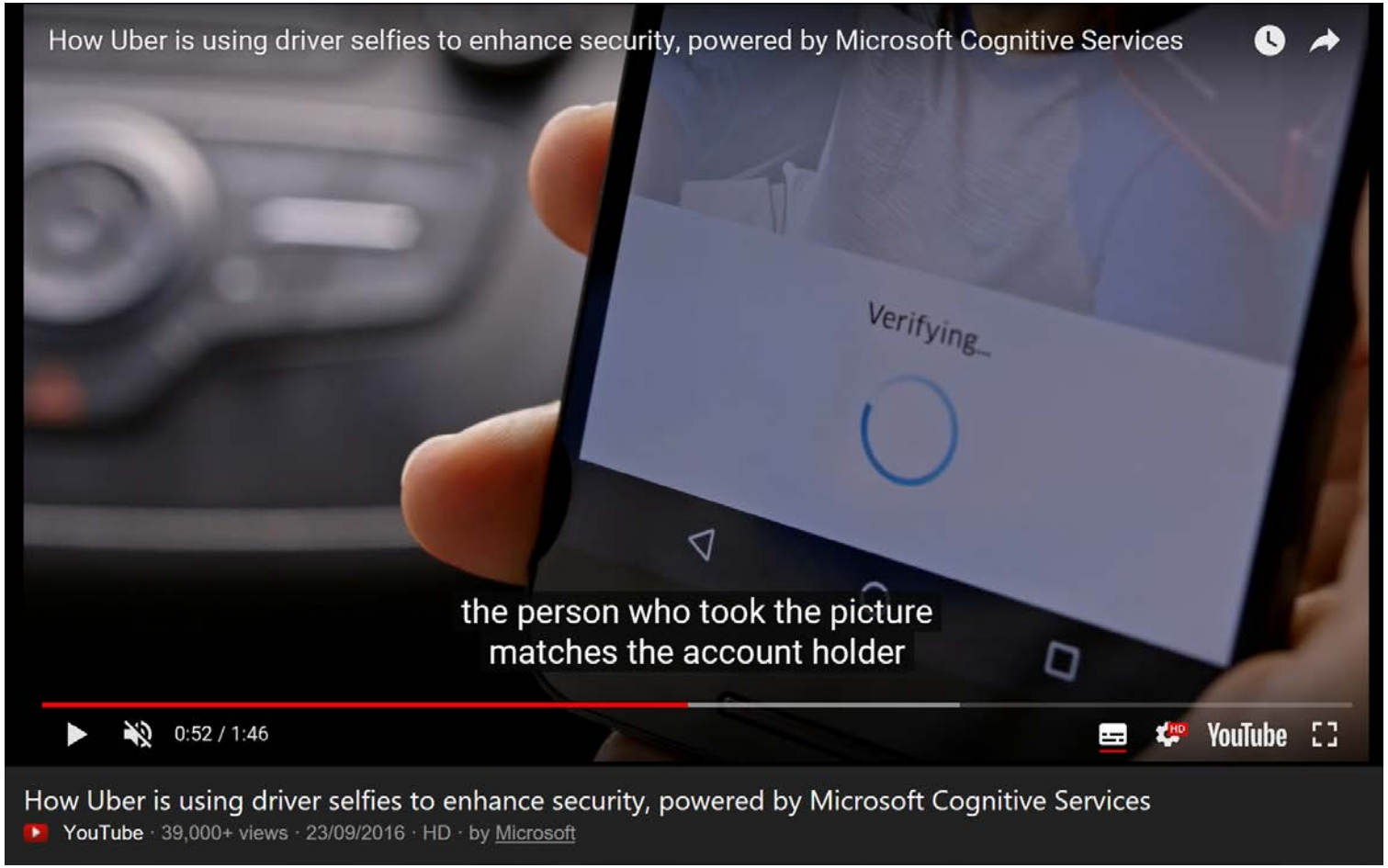
aka.ms/face-api

Is this you? Are those also you?



aka.ms/face-api

Is this your driver?



youtube.com/watch?v=aEBi4OpXU4Q

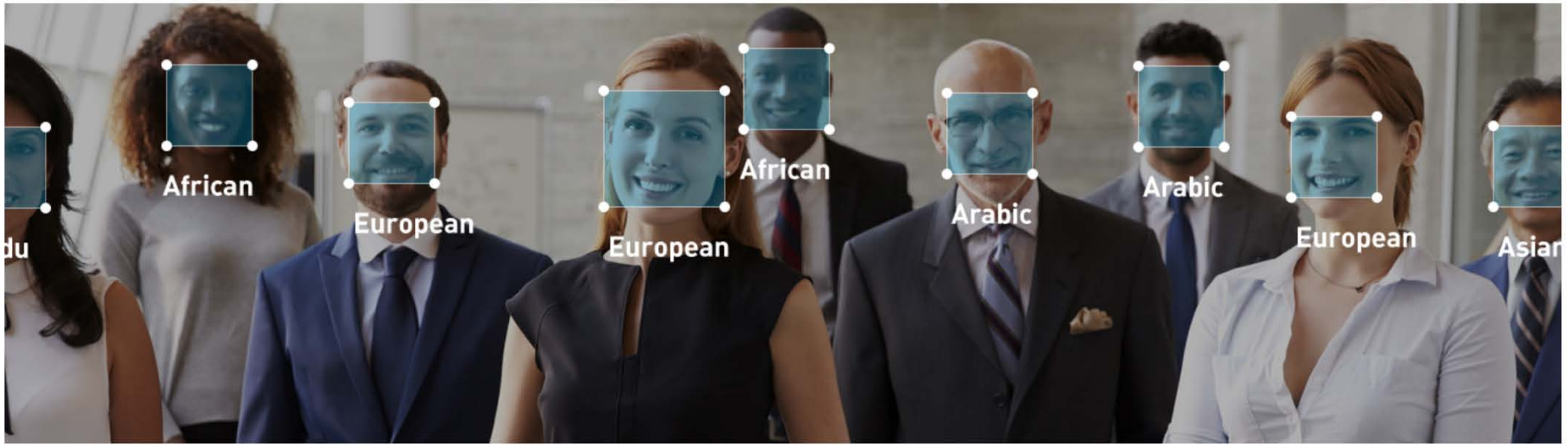
Taking it too far?

https://ntechlab.com/

Coming soon

PATH TRACKING | ETHNICITY RECOGNITION

Recognizes a person's ethnicity



ntechlab.com

AI for humans

Andreas Dantz flickr.com/photos/szene/40193567250

How AI can help humans...

- Automation
- Error prevention
- Data reduction / Muffling the noise
- Prediction based on historical data
- Ploughing through massive amounts of data
- Creating more human interfaces

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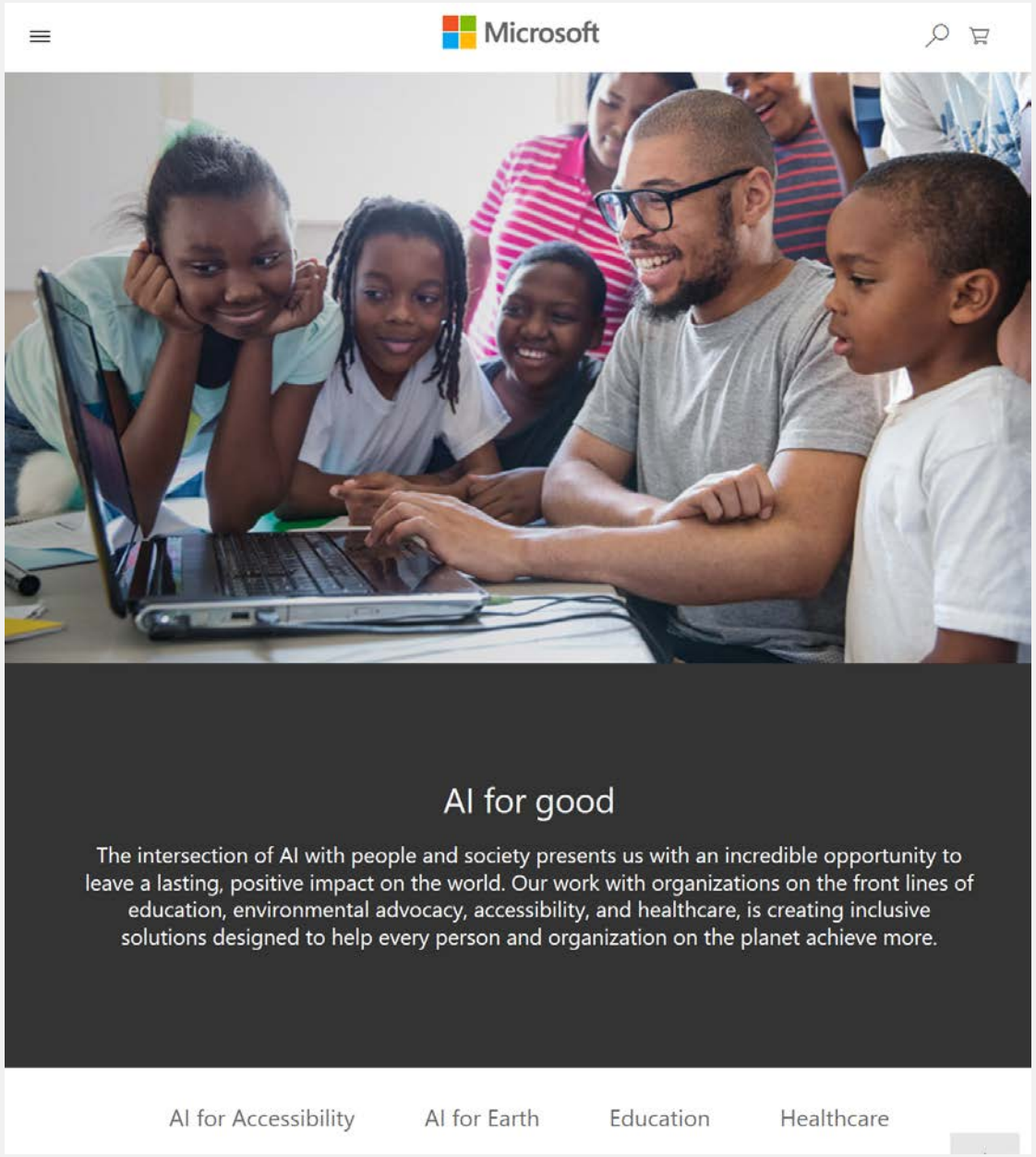

aka.ms/ai-for-good

How AI can help humans…

twitter.com/jennifermarsman/status/997655817967976448

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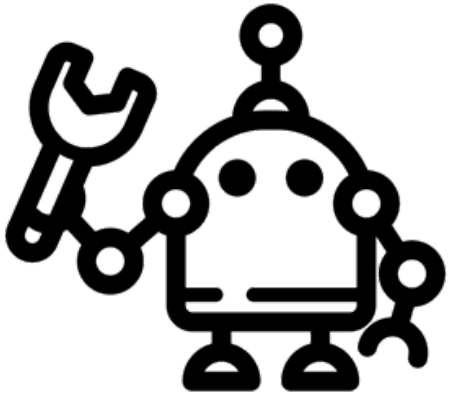

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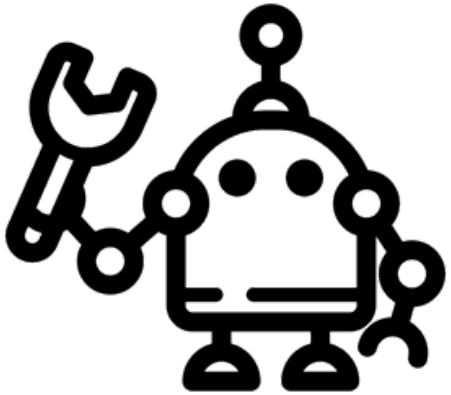

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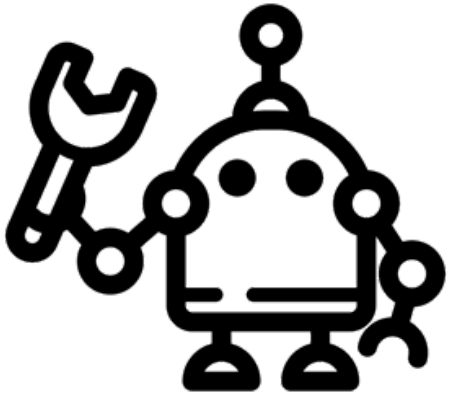

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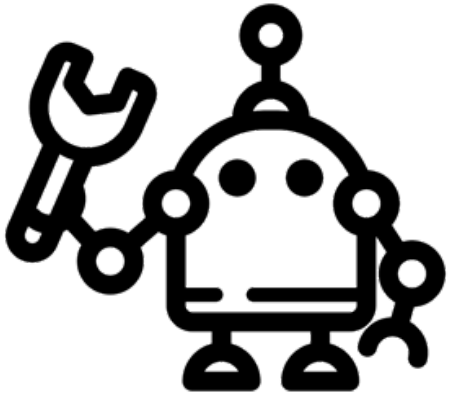

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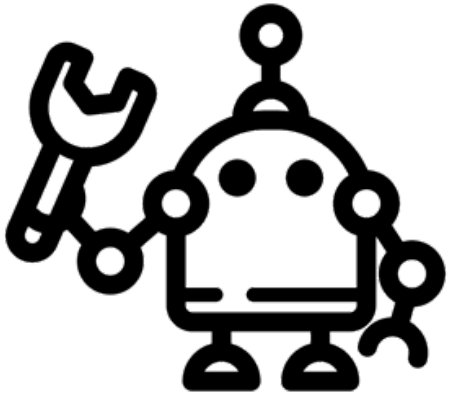

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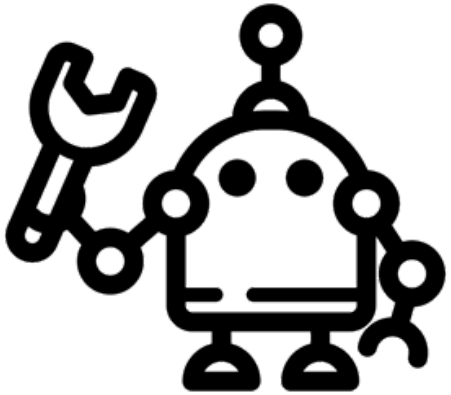

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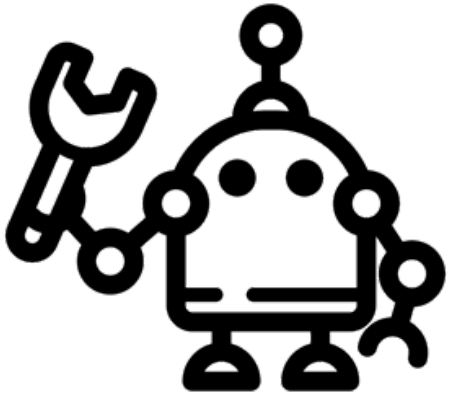

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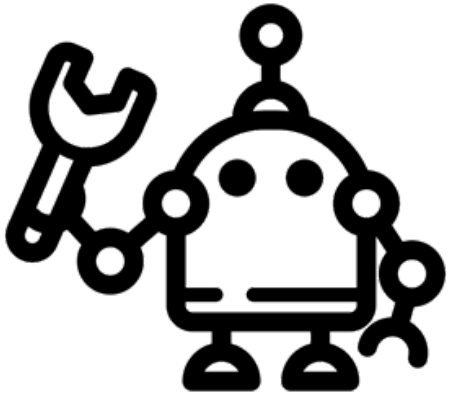

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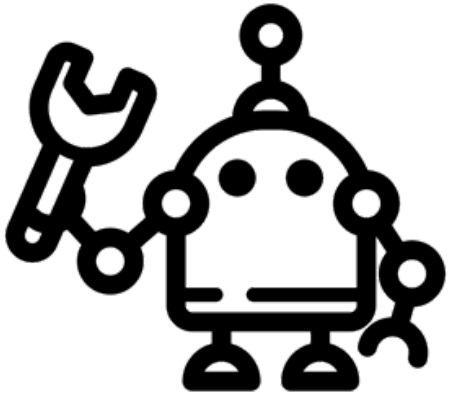

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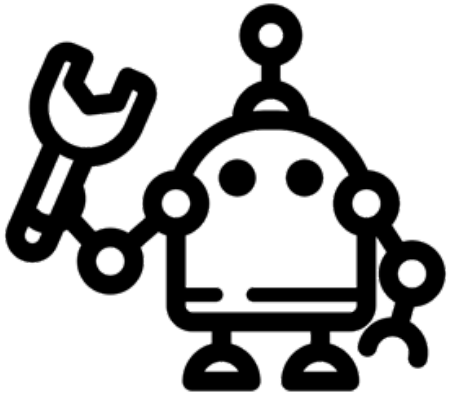

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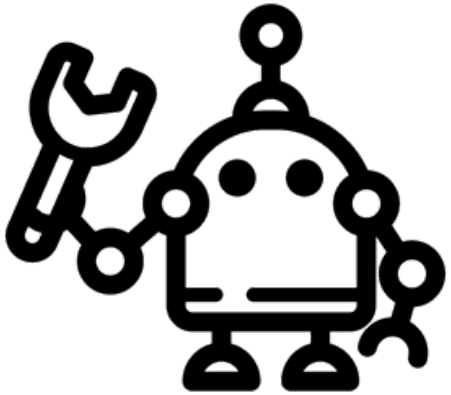

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Data

Insights

Patterns

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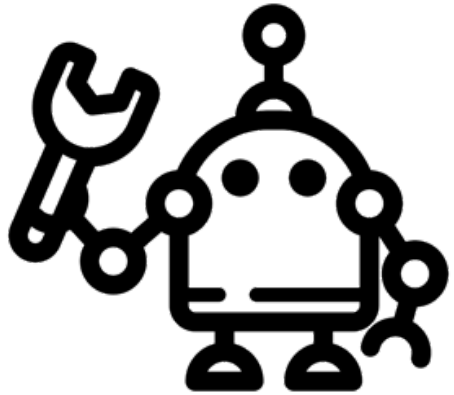

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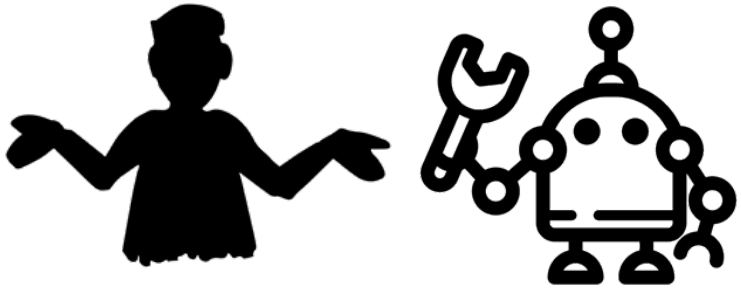

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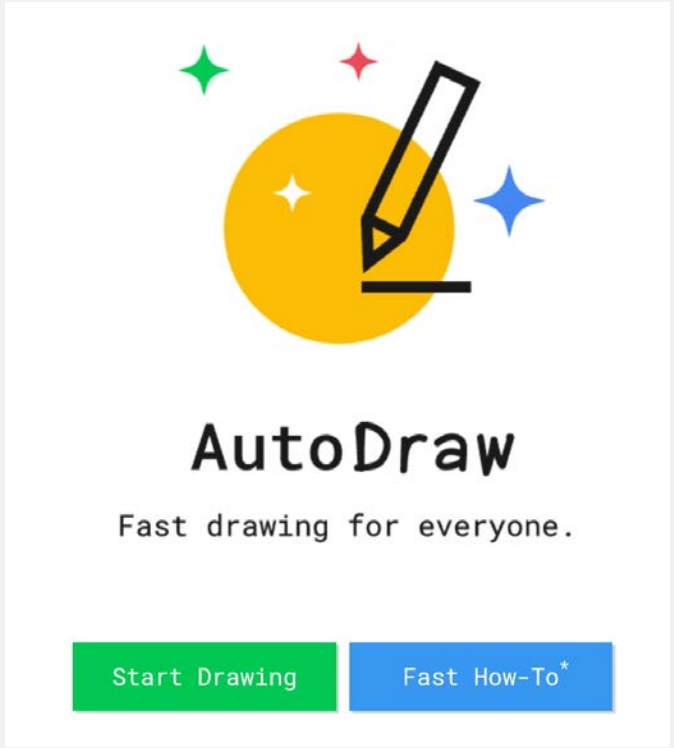

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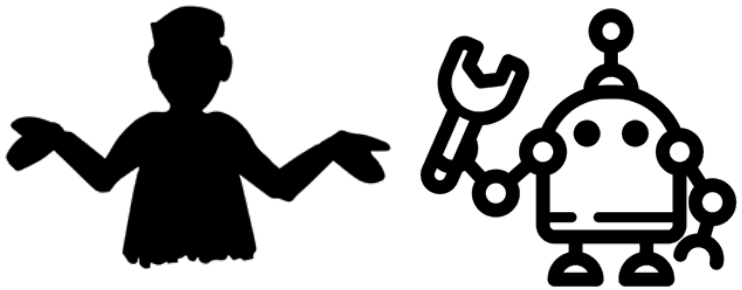
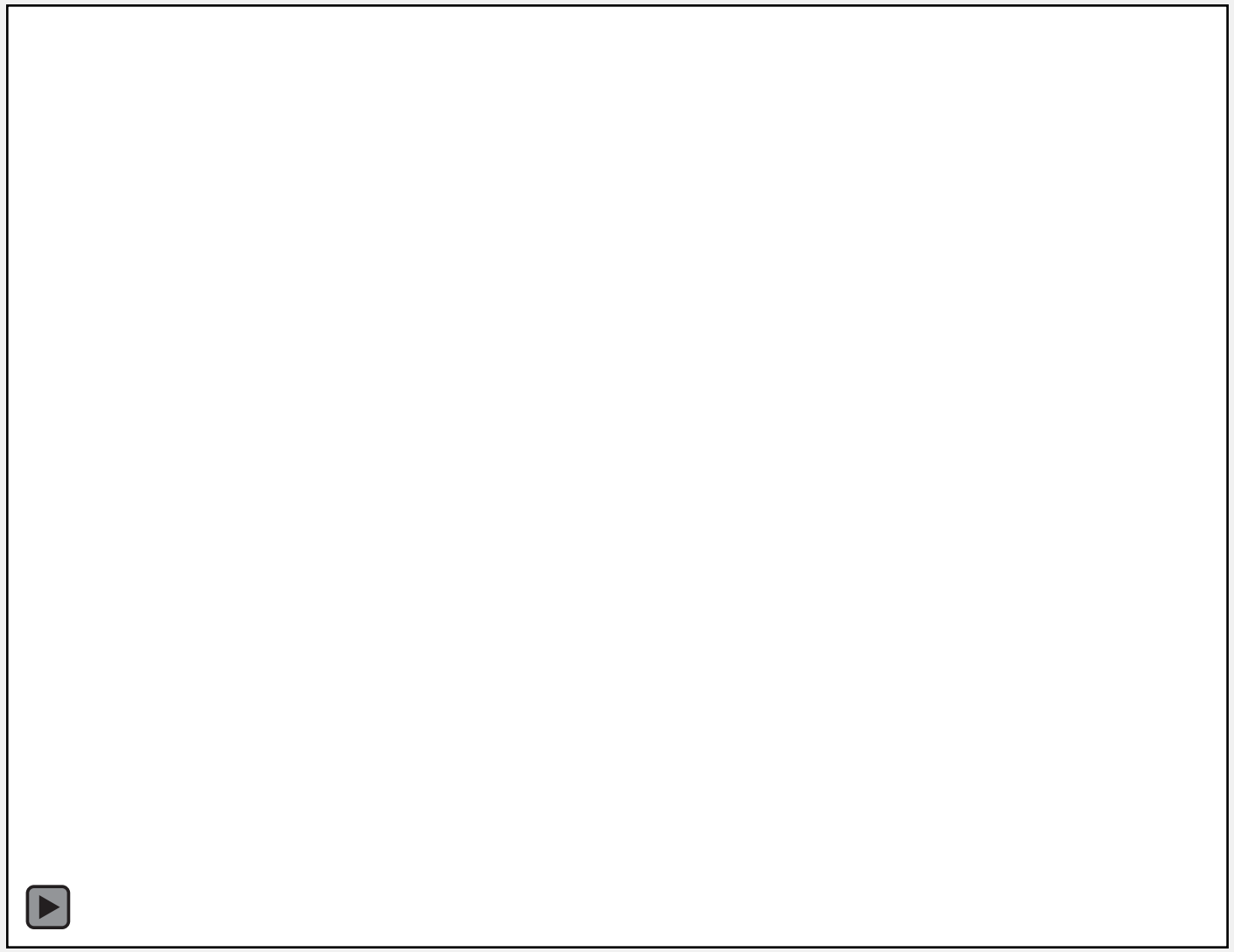
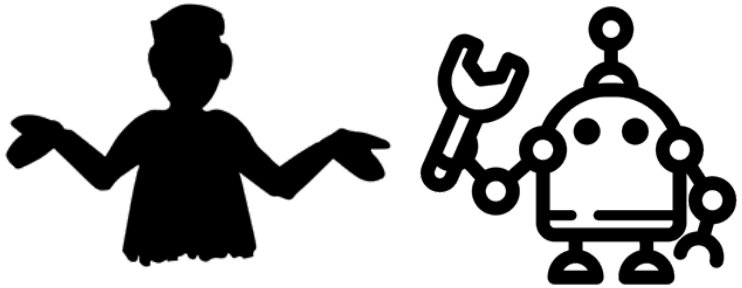


Humans and Bots/Computers



autodraw.com



Humans and Bots/Computers

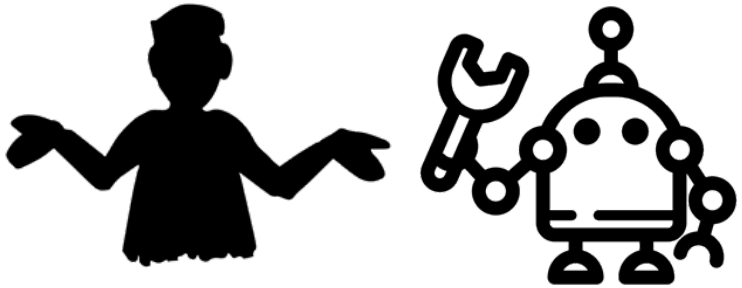
Can a neural network learn to recognize doodling?

Help teach it by adding your drawings to the world's largest doodling data set, shared publicly to help with machine learning research.

Let's Draw!

@codepo8

quickdraw.withgoogle.com



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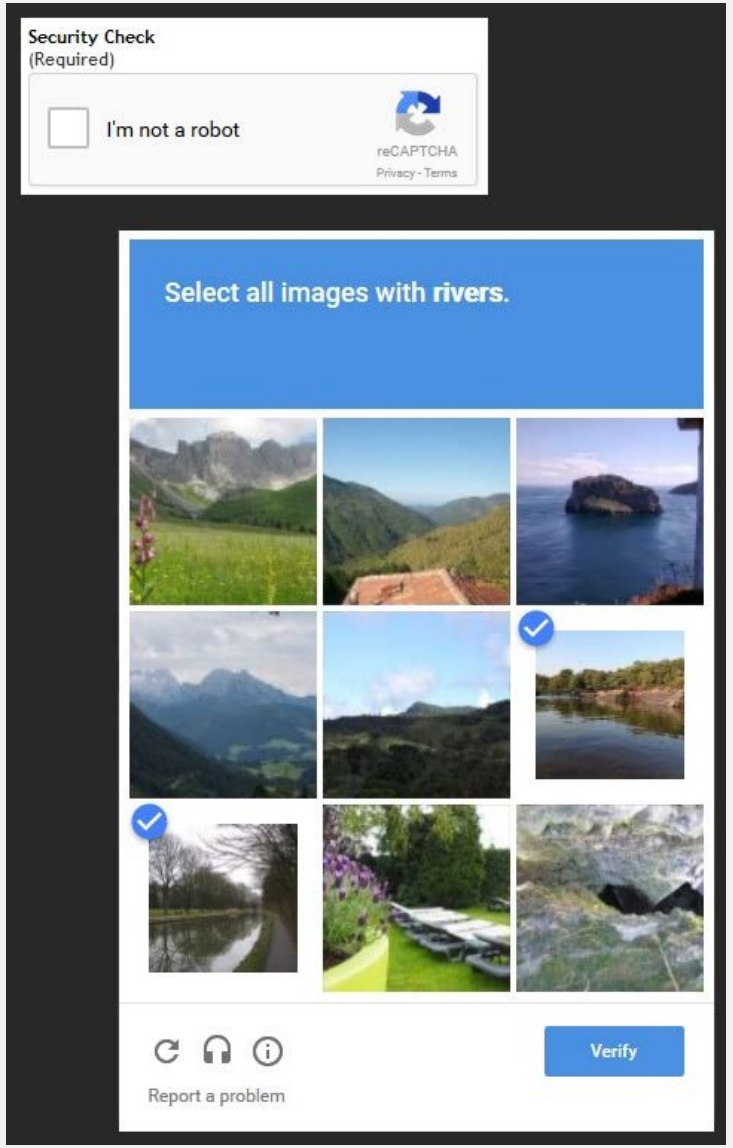
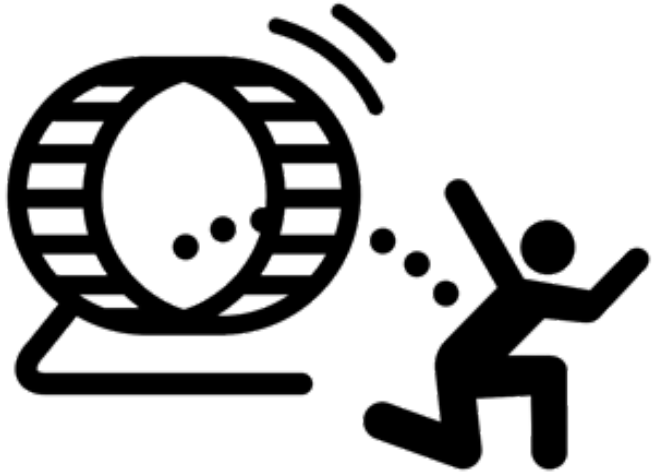


google.com/recaptcha/intro



Intelligent, responsive systems

- AI services offer us lots of data to compare our users' input with

Google: cloud.google.com/products/machine-learning

Amazon: aws.amazon.com/machine-learning

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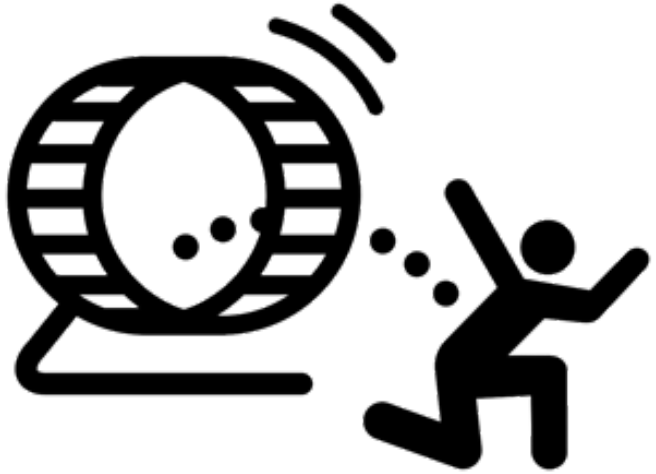

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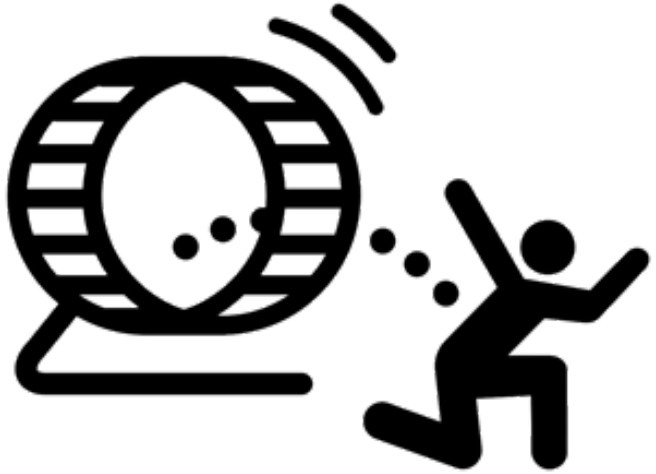

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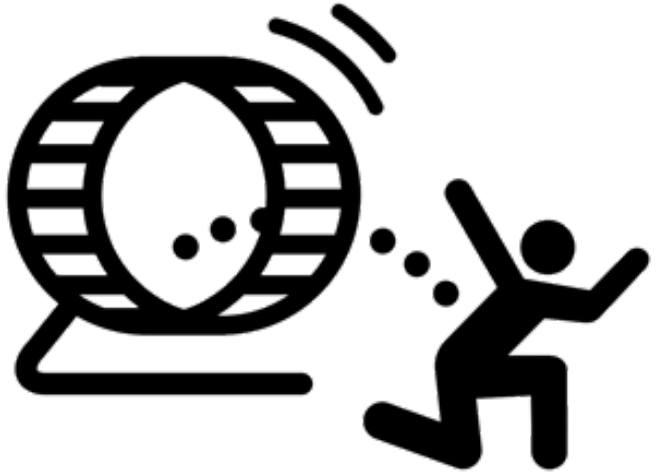

Intelligent, responsive systems

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- We can prevent them from making mistakes
- **We can help getting around physical barriers**

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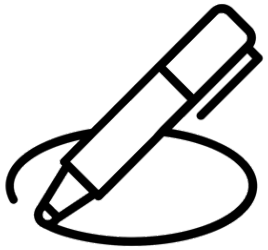
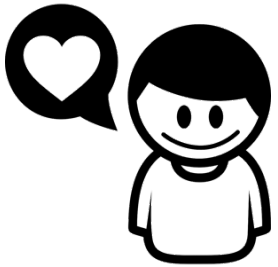
Our toolkit for more human interfaces



Natural language processing

Computer Vision



Sentiment analysis

Speech conversion and analysis

Moderation

Language and Writing

Language and Writing

- Probably the oldest task on the web was **translation**

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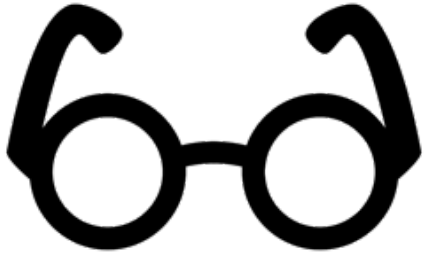
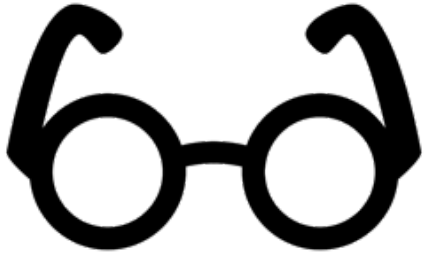
"How far am I from the capital of Denmark?"

"Where do I find a good restaurant around here?"

"Show me documents I wrote five days ago with more than 600 words"

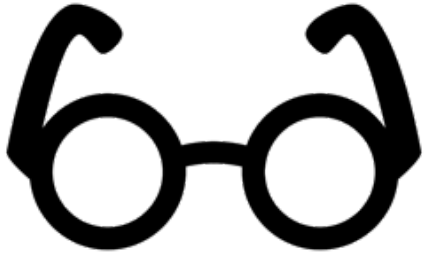


Computer Vision



Computer Vision

- When text wasn't cool enough, we added **images** to our web media



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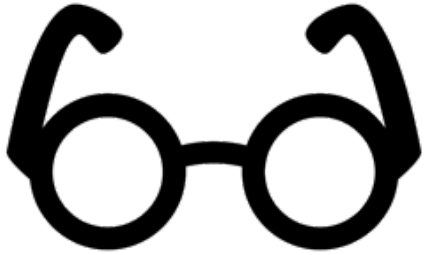

Computer Vision

- When text wasn't cool enough, we added **images** to our web media
- Often we forget that **not everyone can see them**, and we leave them without alternative text
- This is where machine learning steps in to help **turning an image into a dataset** we can work with.

Vision and image analysis…

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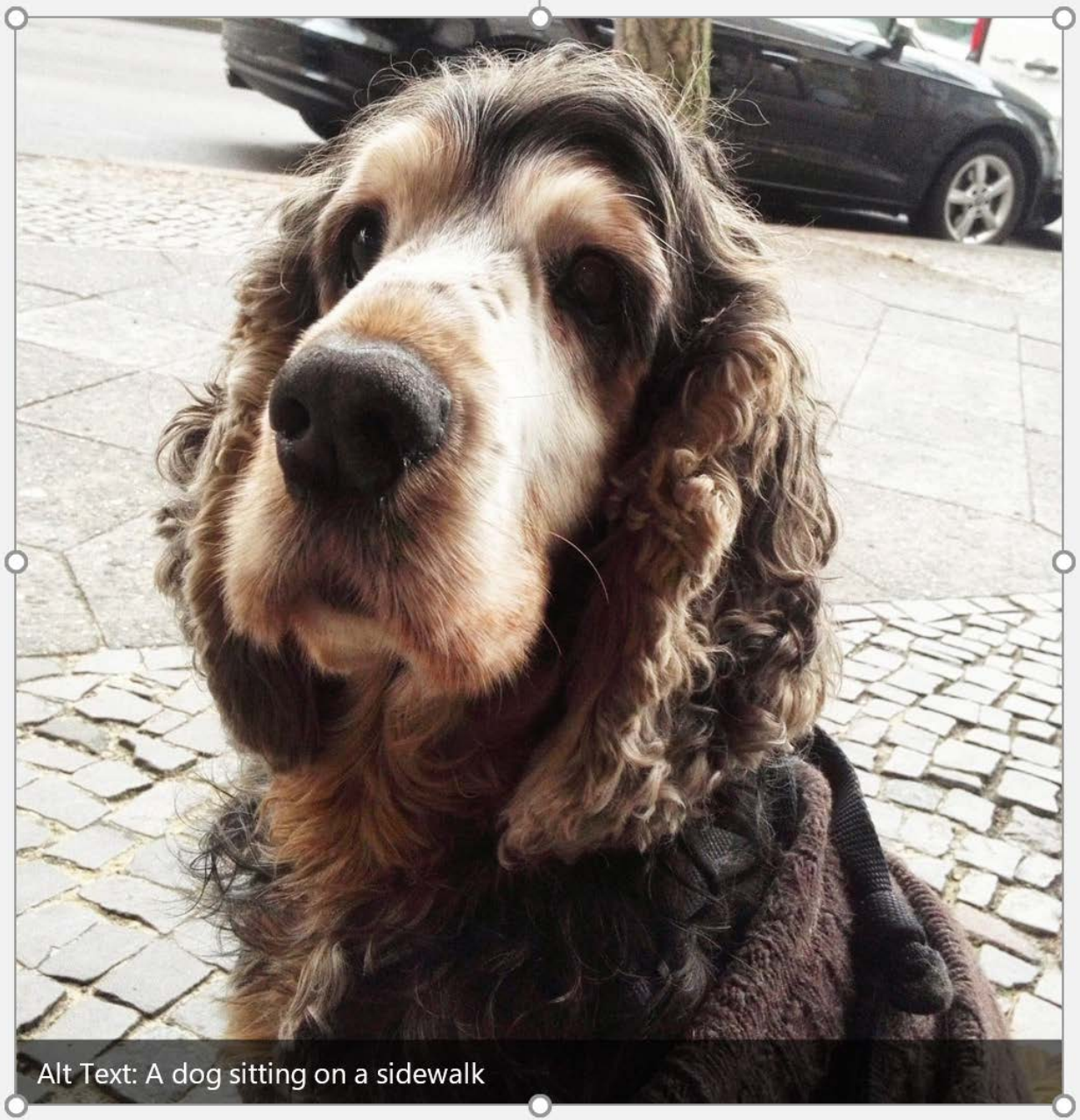

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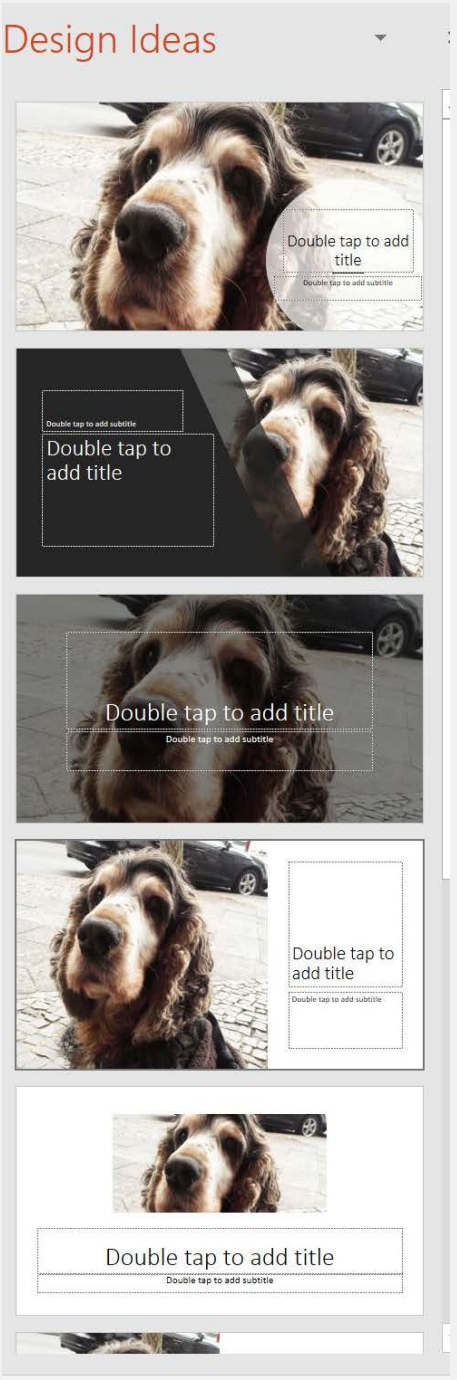

@codepo8

Vision and image analysis…

twitter.com/mixedhunty/status/980551155297157126

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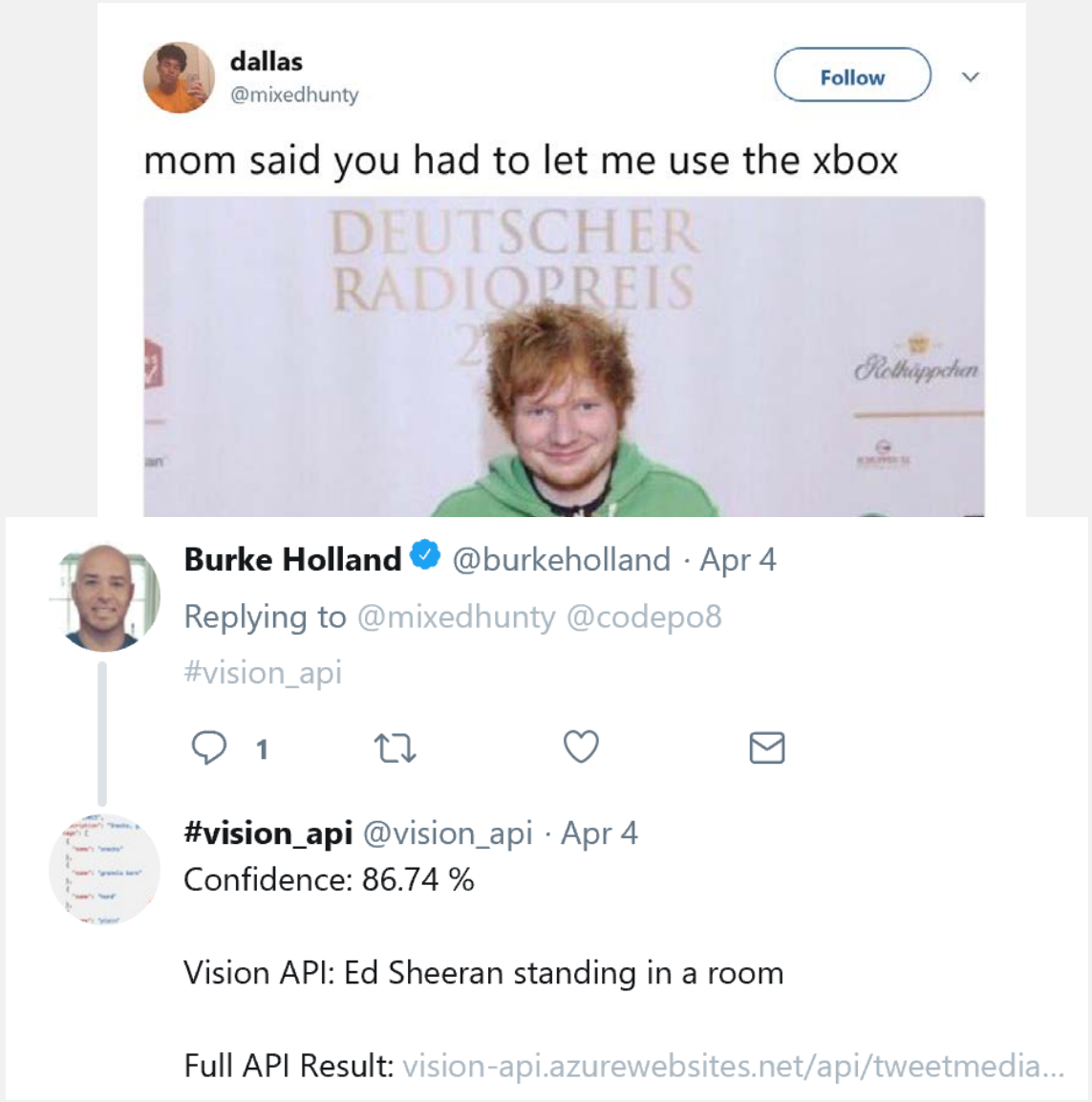

#vision_api

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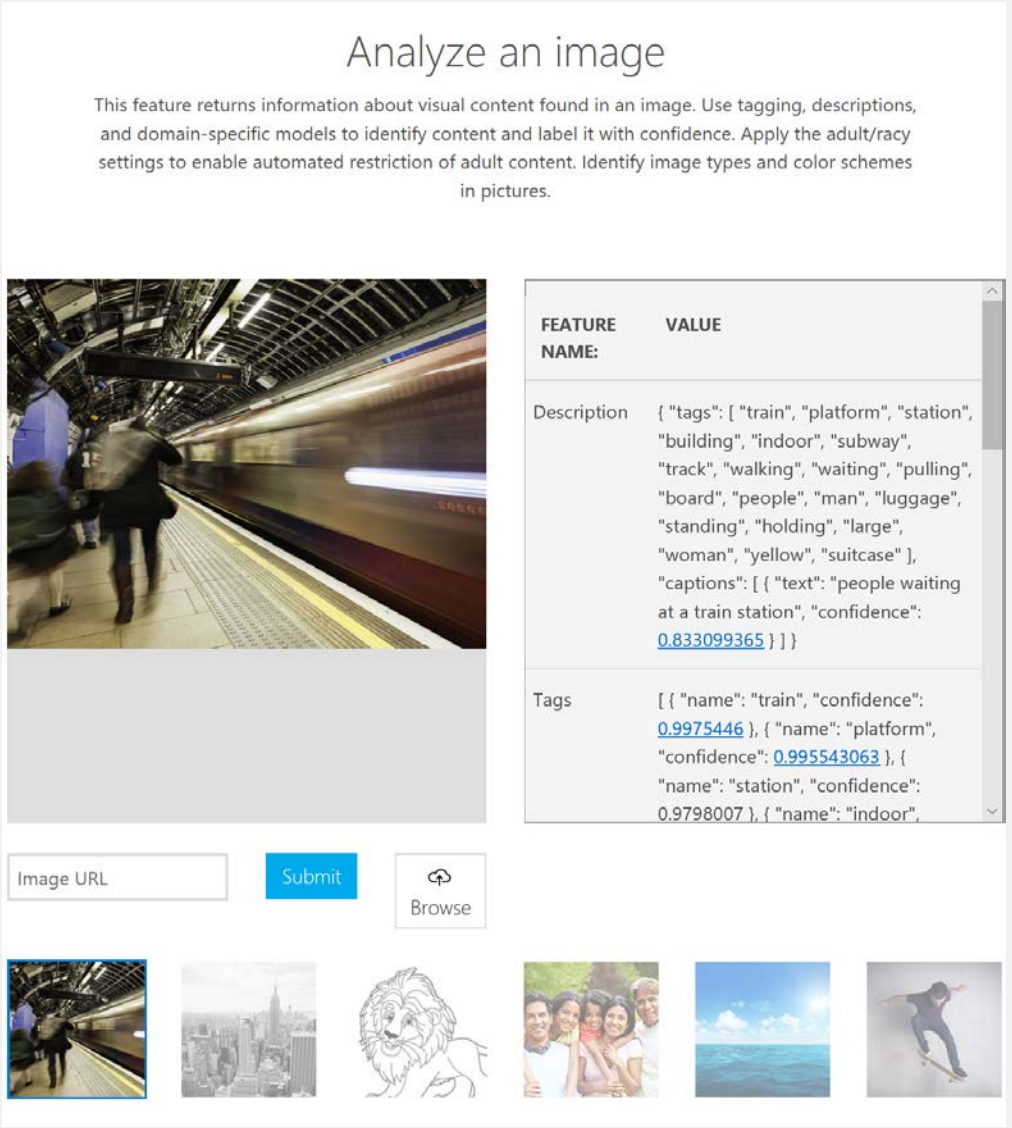

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aka.ms/vision-api

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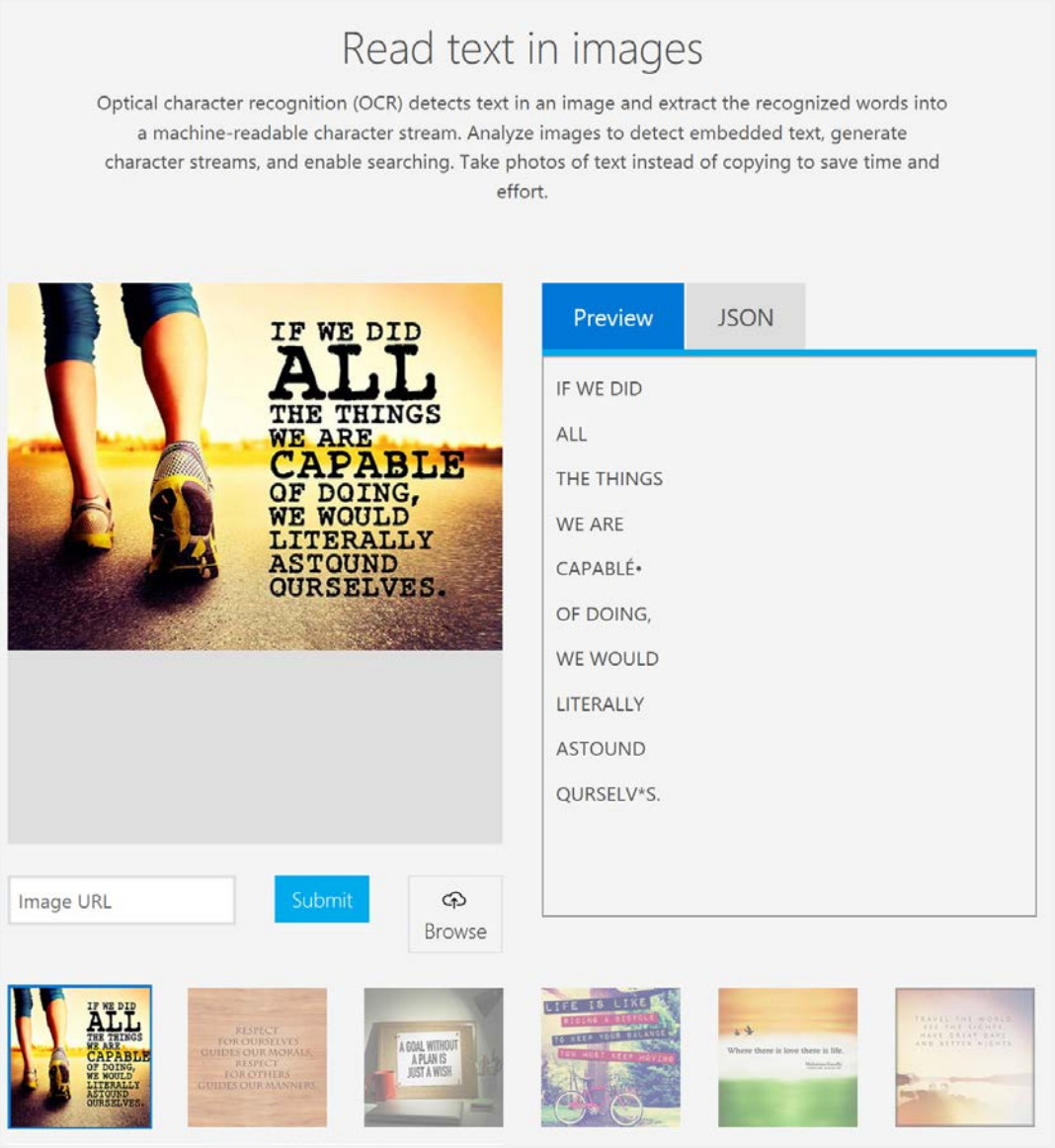

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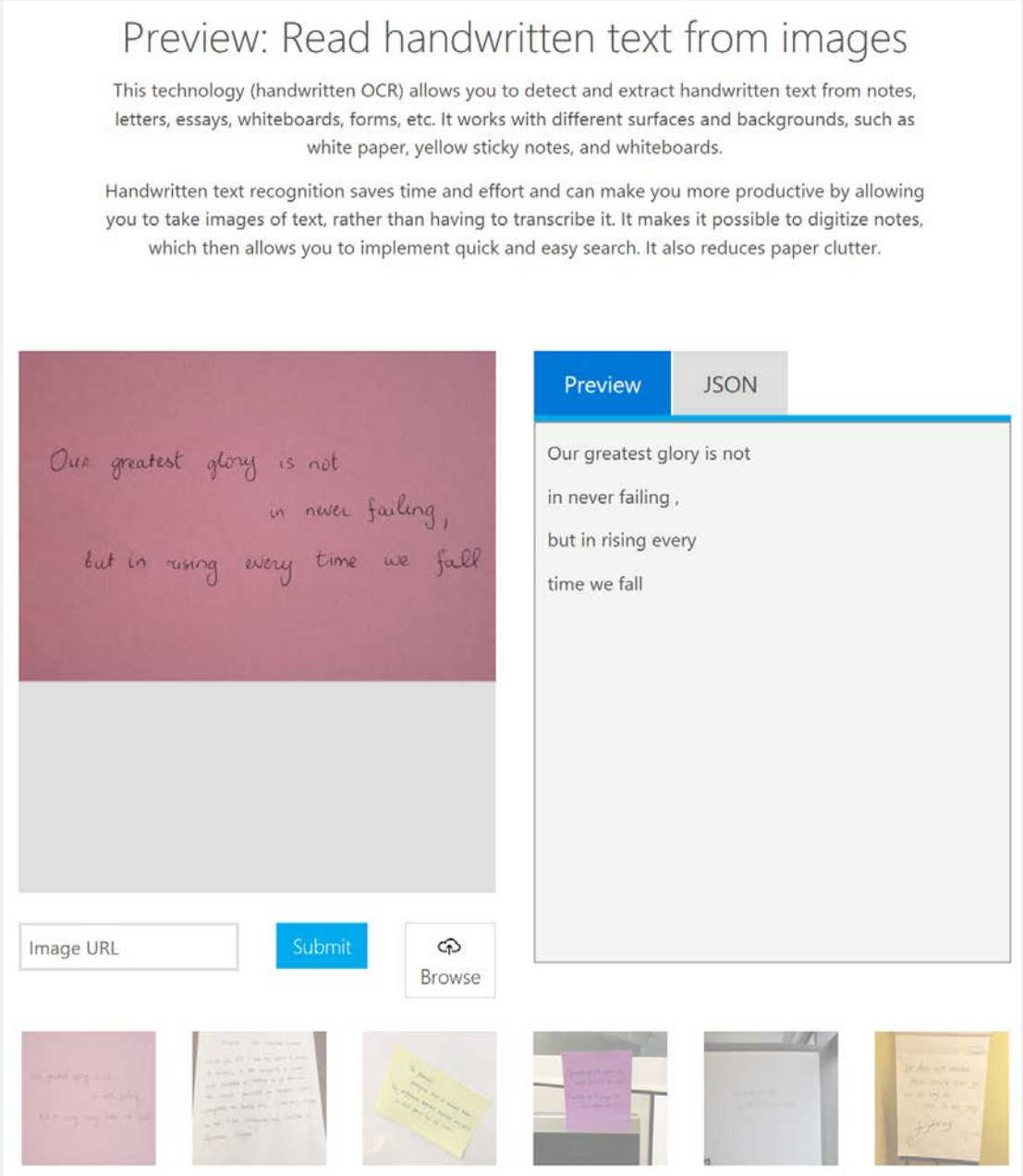

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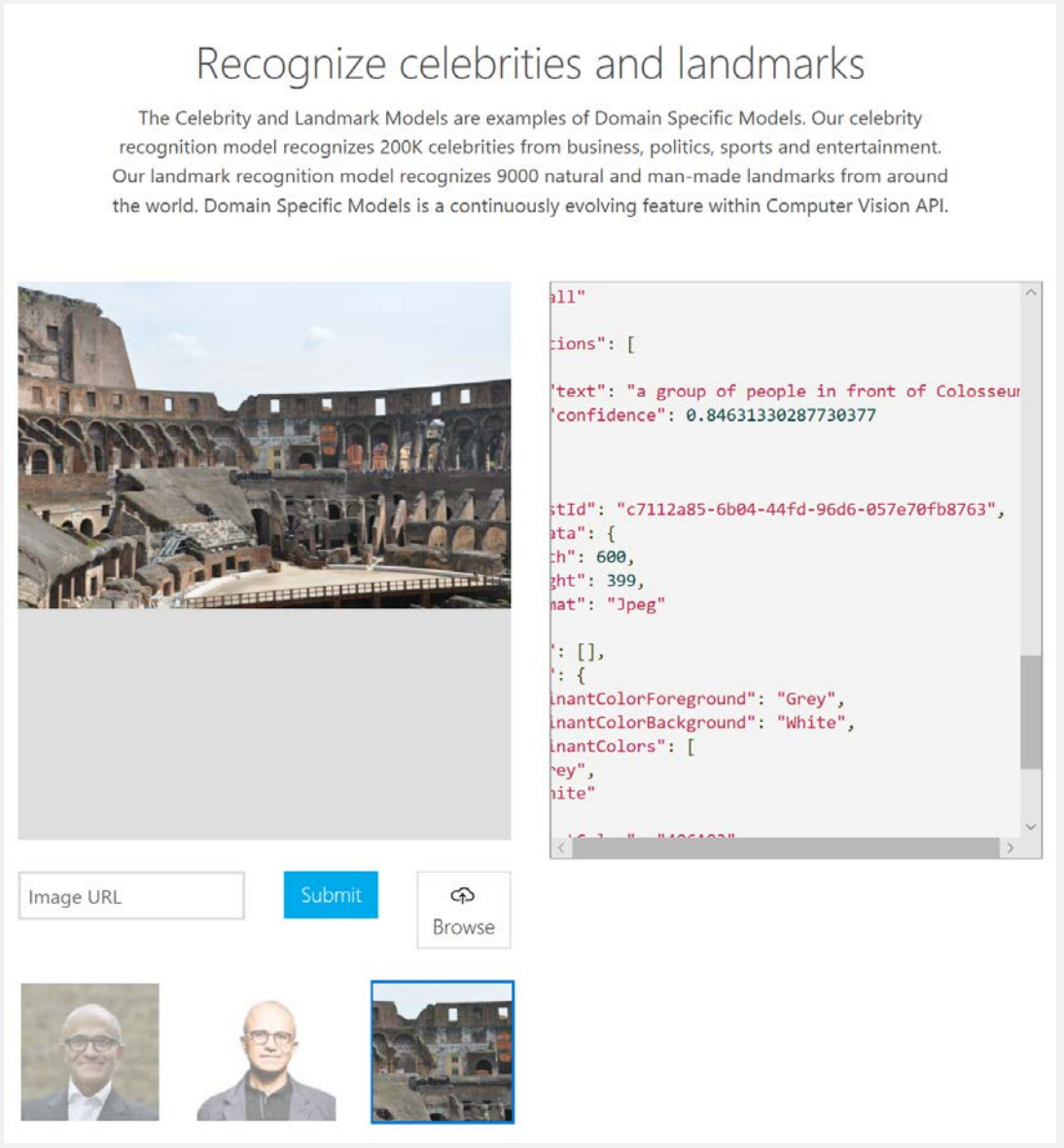

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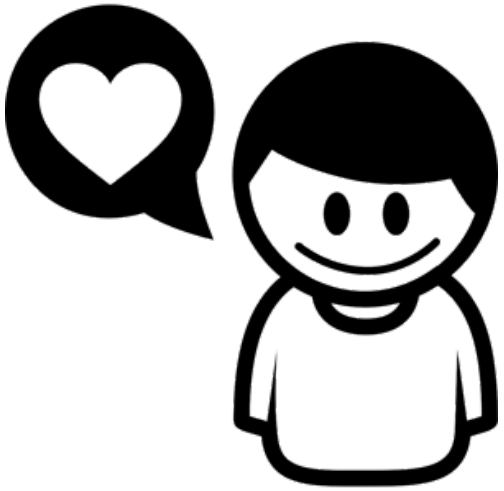
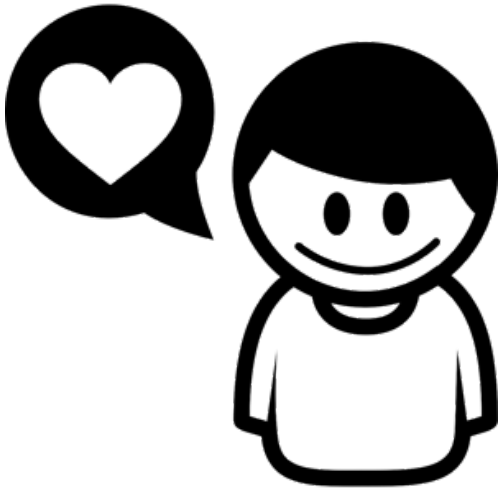


Sentiment analysis



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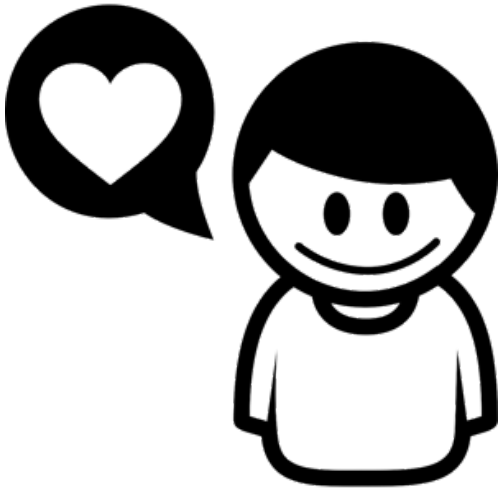
- Finding out **the sentiment of a text, image or video** can help with a lot of things



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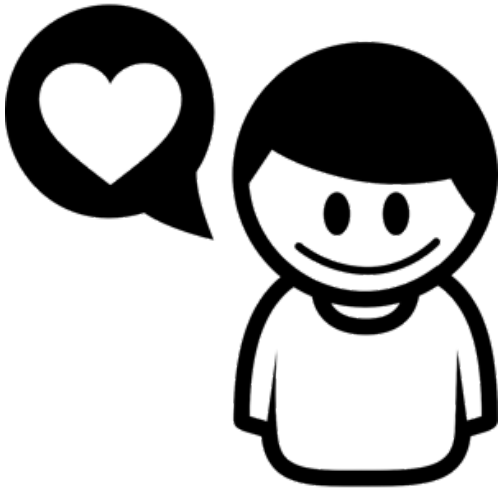

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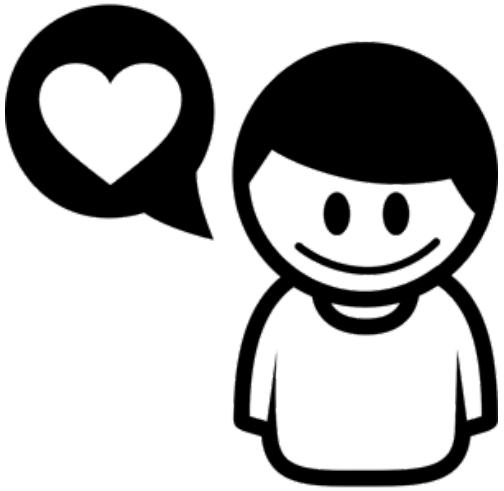

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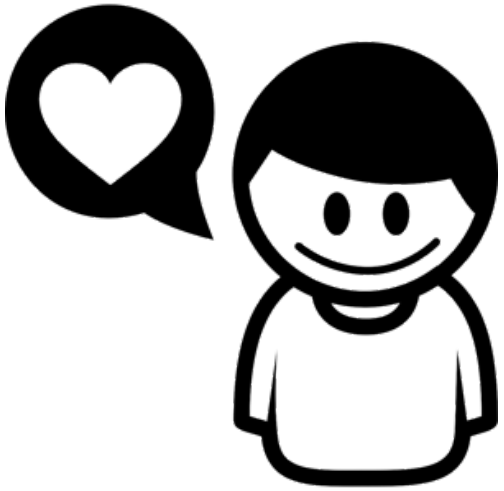
- You can **predict** when drivers of cars get **tired**



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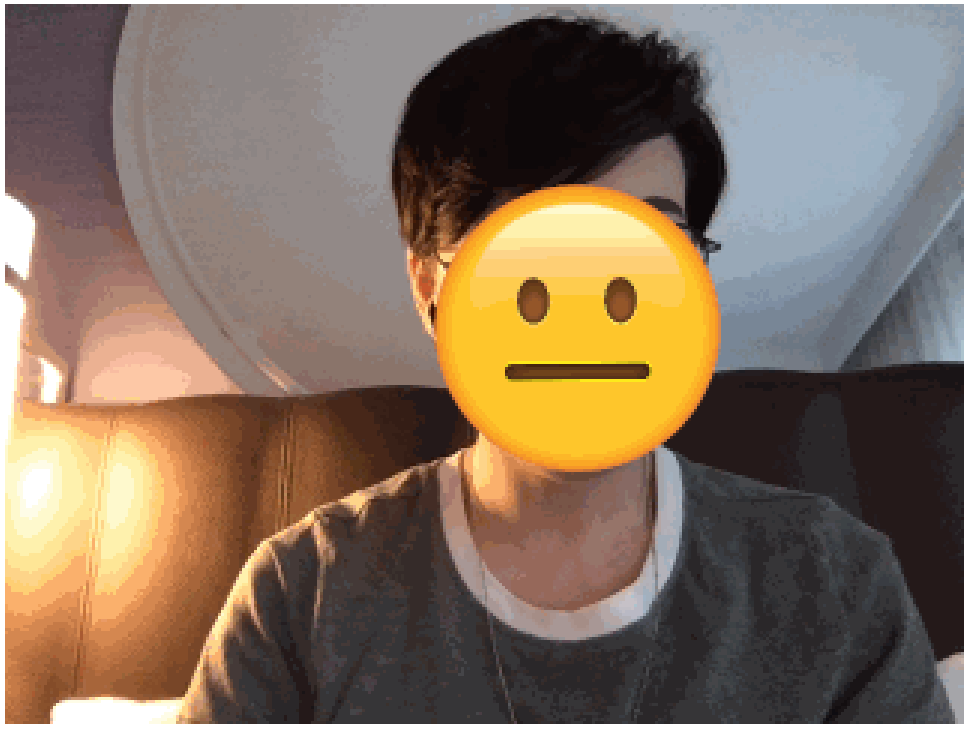

github.com/noopkat/face-api-emoji-face

Speech

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Speech

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- You can allow **hands-free control** of devices
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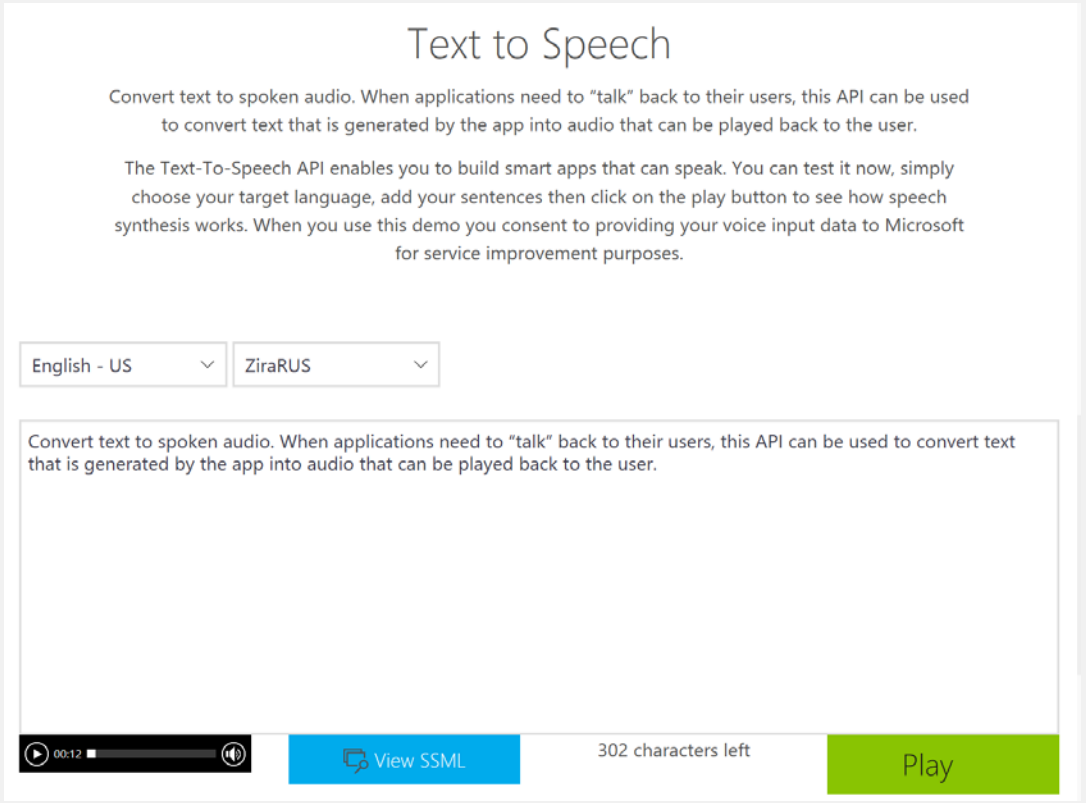
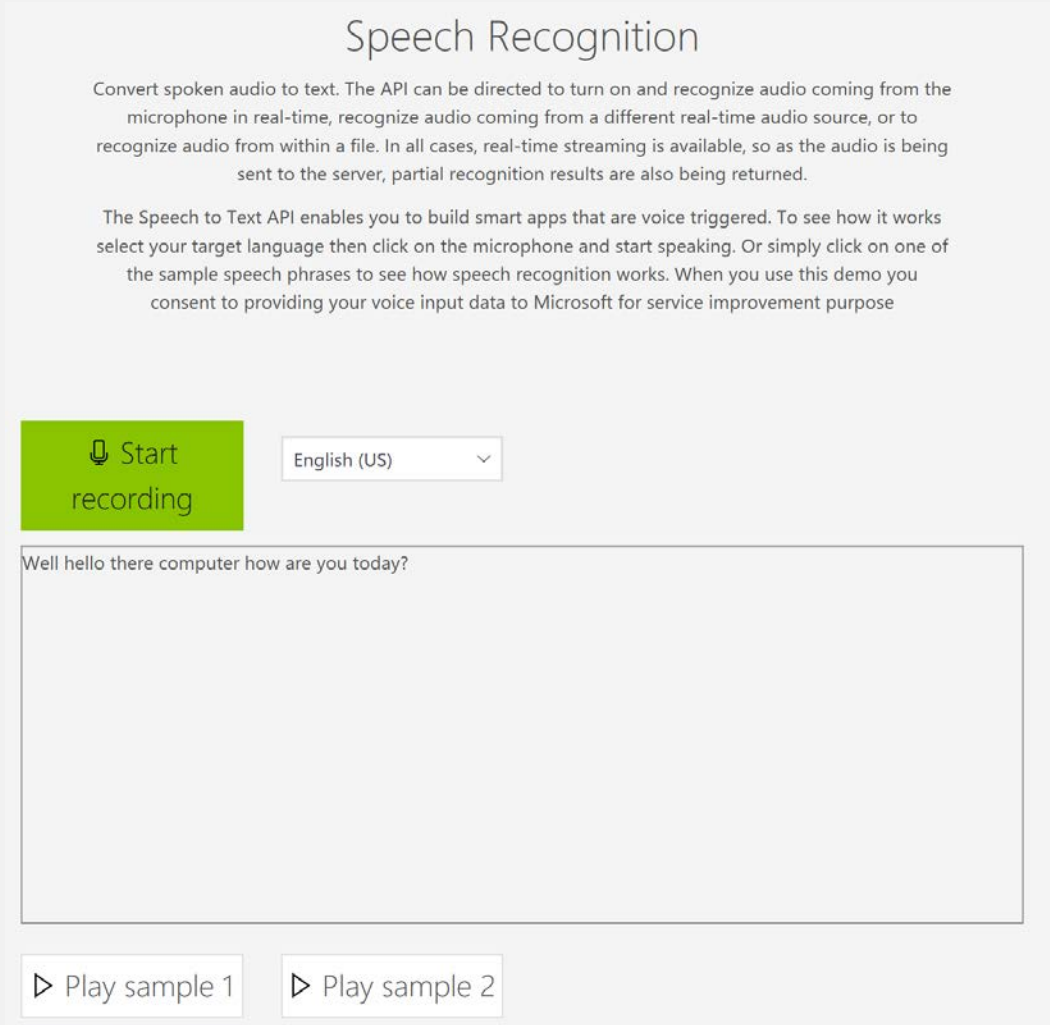
- It feels natural and has **a massive Sci-Fi feeling** – when it works.

Text to speech



aka.ms/text-to-speech

Speech recognition



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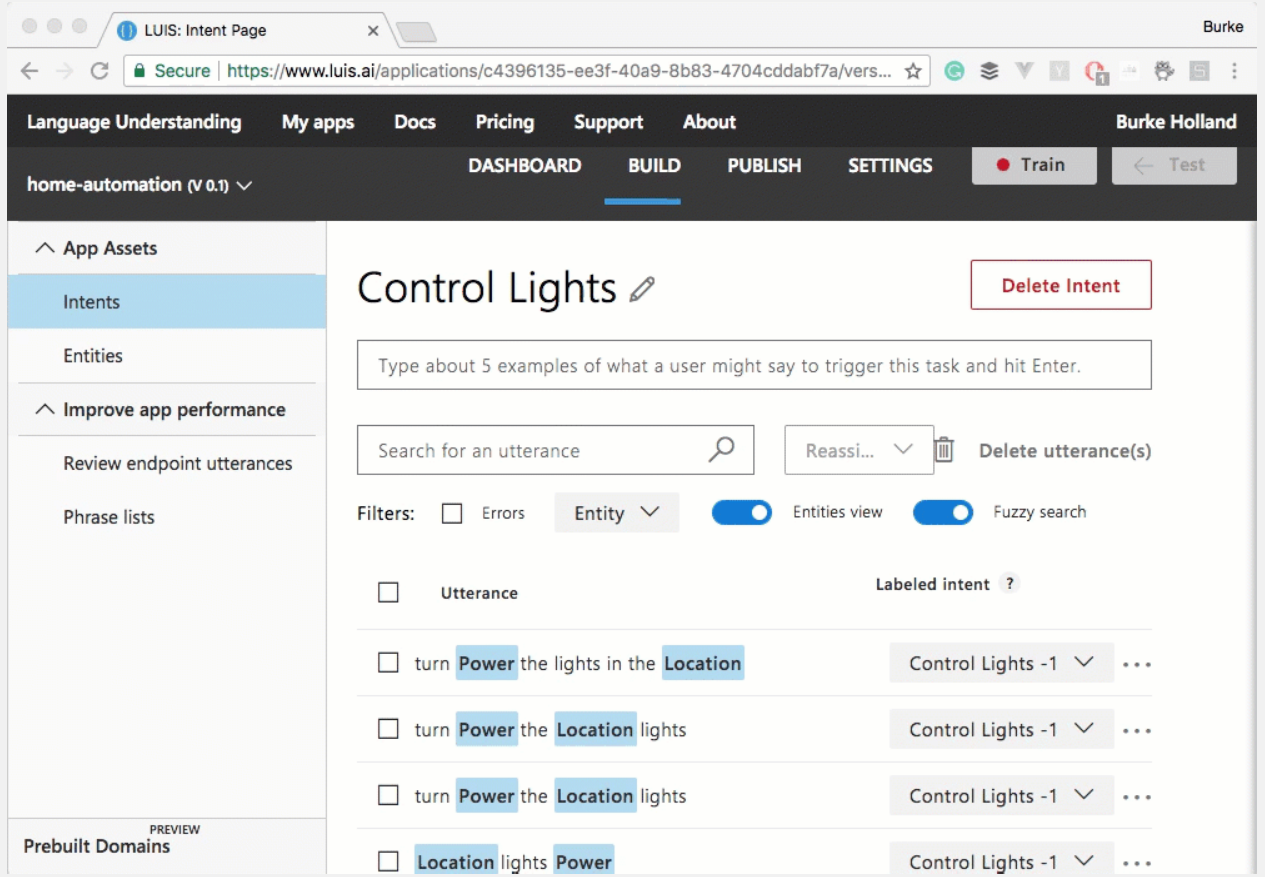
Turning sentences into commands



luis.ai

aka.ms/luis-api

Conversation as an interface

The Rise Of Intelligent Conversational UI

UI 54 # Visual Design 59 # Interfaces 32 # User Interaction 49

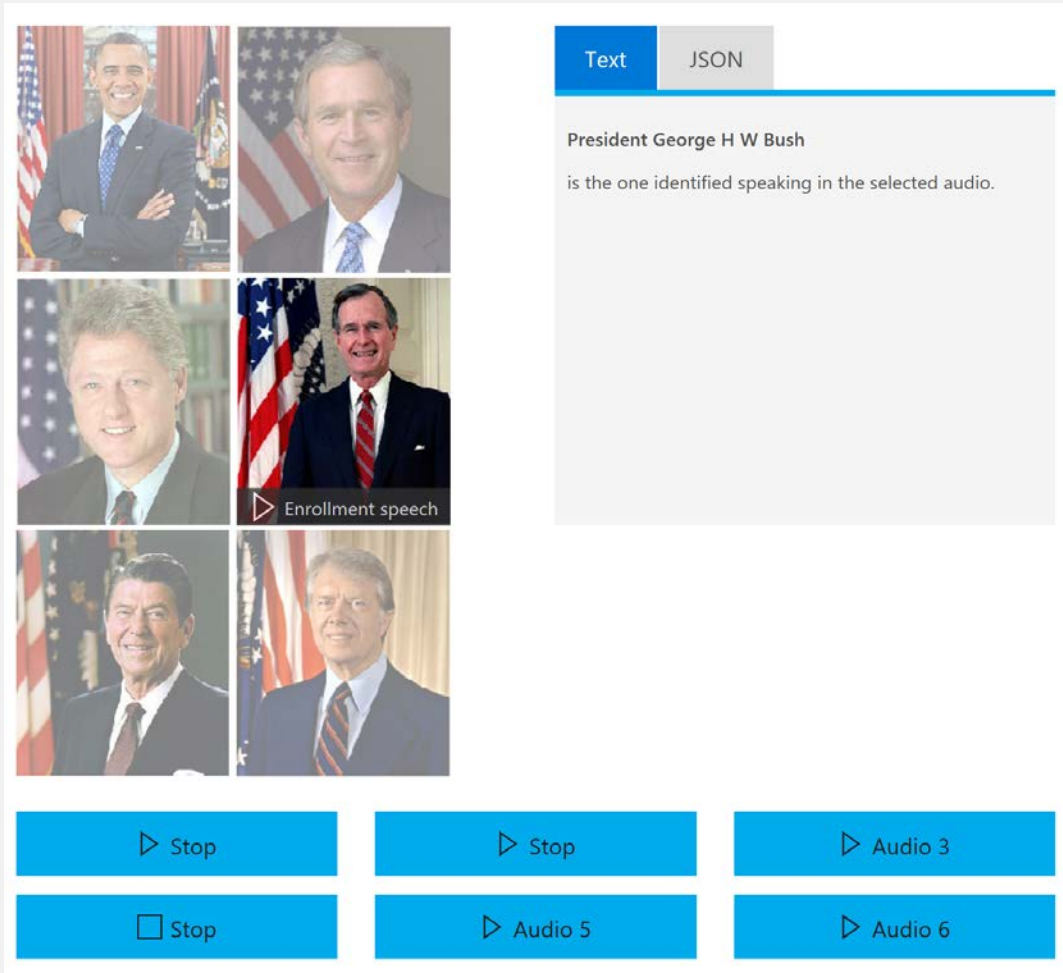
ABOUT THE AUTHOR

Burke Holland is a front-end developer living in Nashville, TN; the greatest city in the world. He enjoys JavaScript a lot because it's the only way he … More about Burke…

For a long time, we've thought of interfaces strictly in a visual sense: buttons, dropdown lists, sliders, carousels (please no more carousels). But now we are staring into a future composed not just of visual interfaces, but of conversational ones as well. Microsoft alone reports that three thousand new bots are built every week on their bot framework. Every. Week.

aka.ms/conversation-ui

Speaker recognition



aka.ms/speaker-recognition

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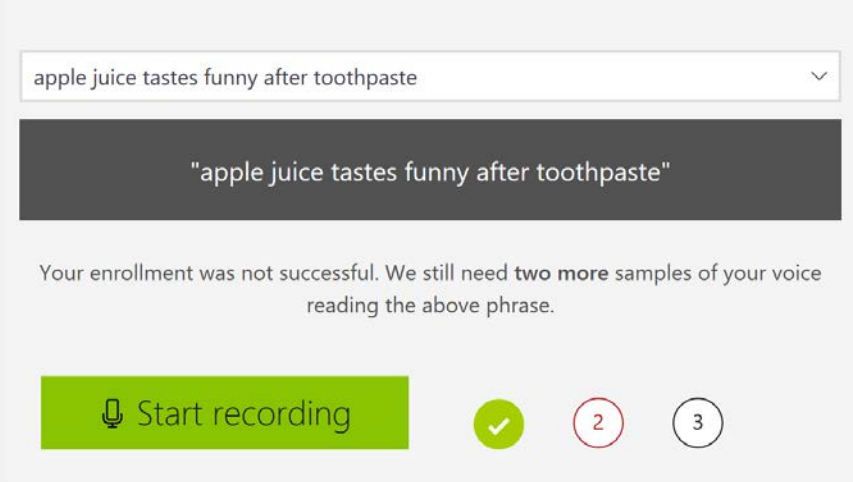

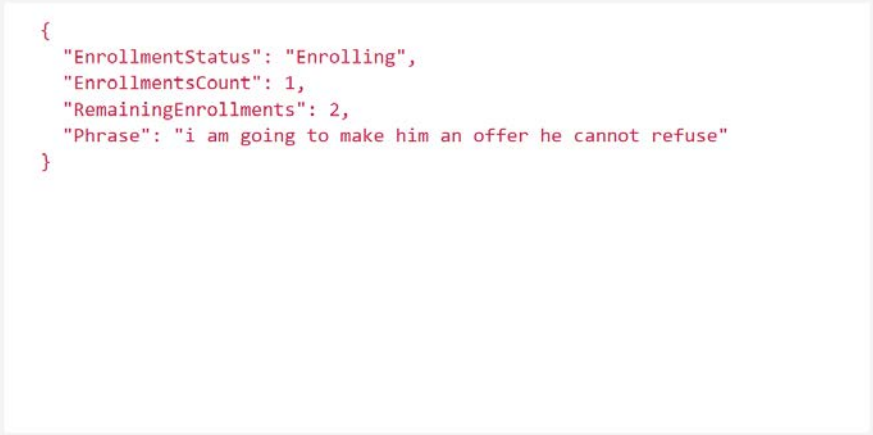

aka.ms/speaker-recognition

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Moderation

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- **Computers don't need counselling** once they saw them – people should
- Known **illegal and terrible content** can be automatically **removed**

With great power comes great responsibility…

Our responsibilities..

- AI can be an **amazing help** for humans

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- It does need **transparency** – if you use people as data sources, they need to know what and where it goes

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- People need to have a **chance to dispute** when an algorithm tagged or disallowed them access.

Want to go deep?

- The Math behind ML
- The ethics of AI
- Working with Data using Python
- Machine Learning Models
- Deep Learning Models
- Reinforcement Learning Models
- Microsoft Professional Program Certificate in Artificial Intelligence

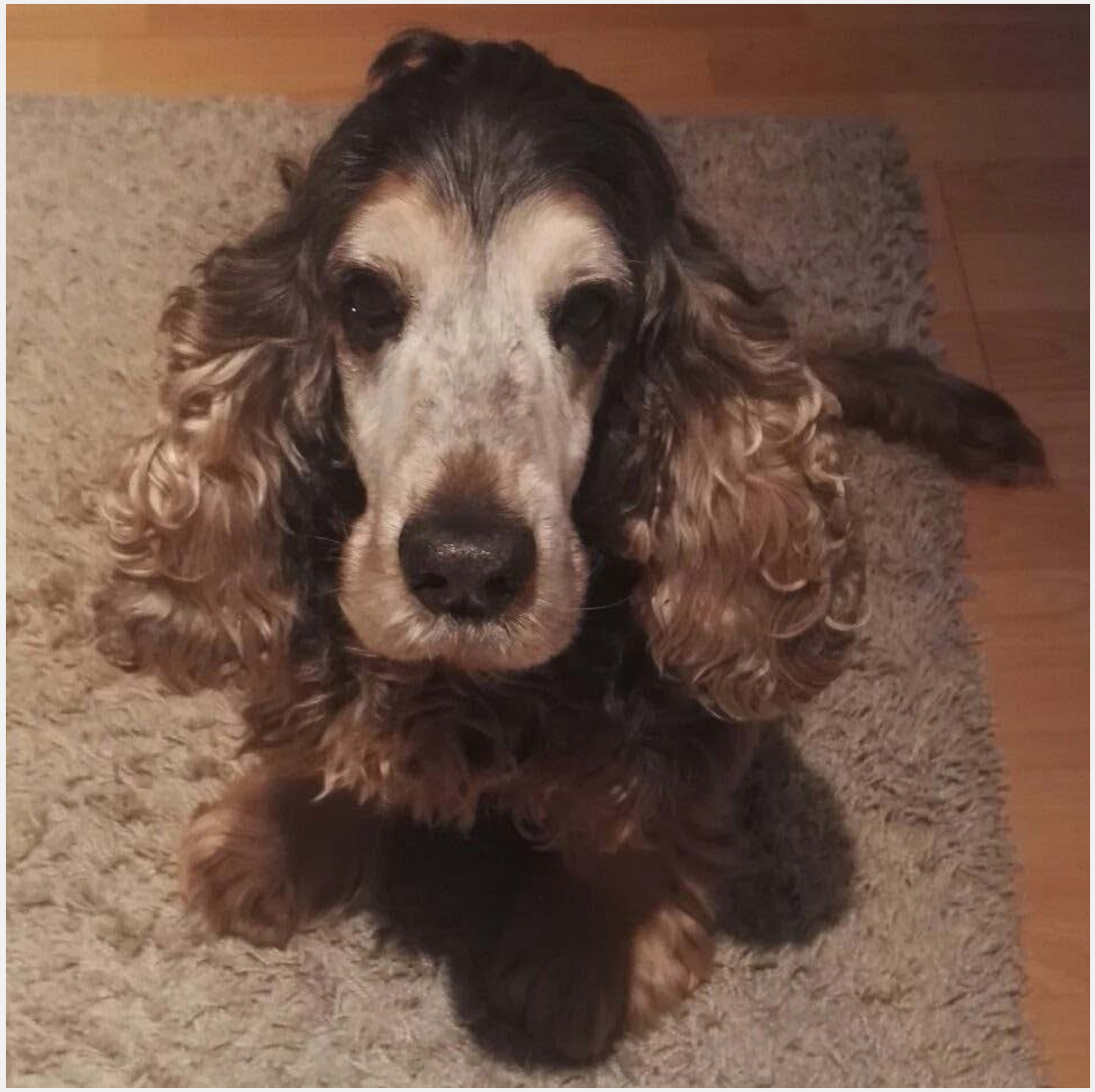
aka.ms/learn-ai

10 courses, (8-16 hours each), 10 skills

Thanks!

Chris Heilmann
Christianheilmann.com
Developer-evangelism.com

@codepo8



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Completing a session evaluation in the mobile app by 10:00 a.m. tomorrow automatically enters you in a drawing to win.

Copies of the complete sweepstakes rules are available at the Concierge Desks.