

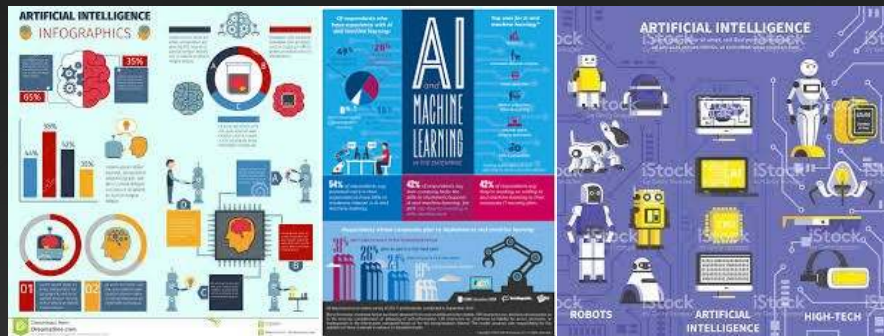
# AI: Myth vs. Reality

Julien Simon

@julsimon

AI Evangelist, EMEA

# Myth #1 - AI is the flavour of the month

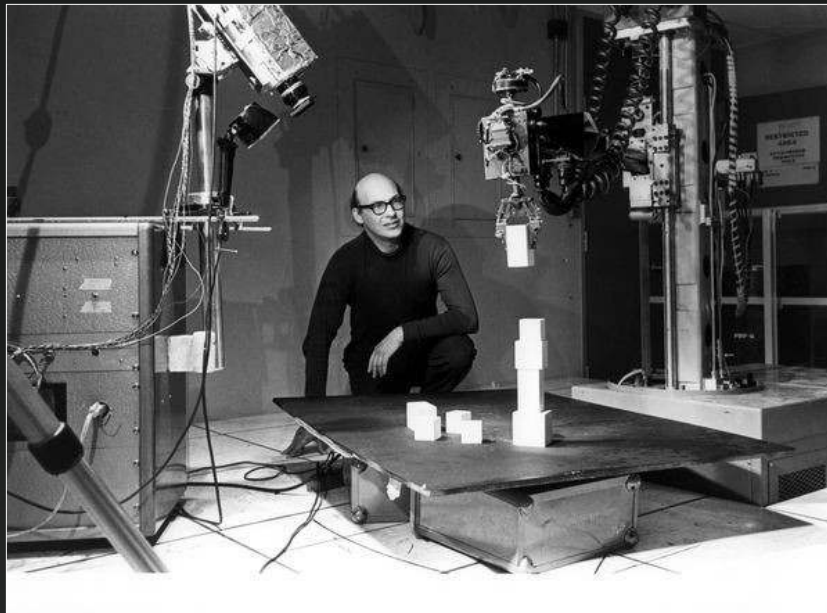


# Fact #1 - AI is 60 years old



John McCarthy (1927-2011)  
1956 - Coined the term “Artificial Intelligence”

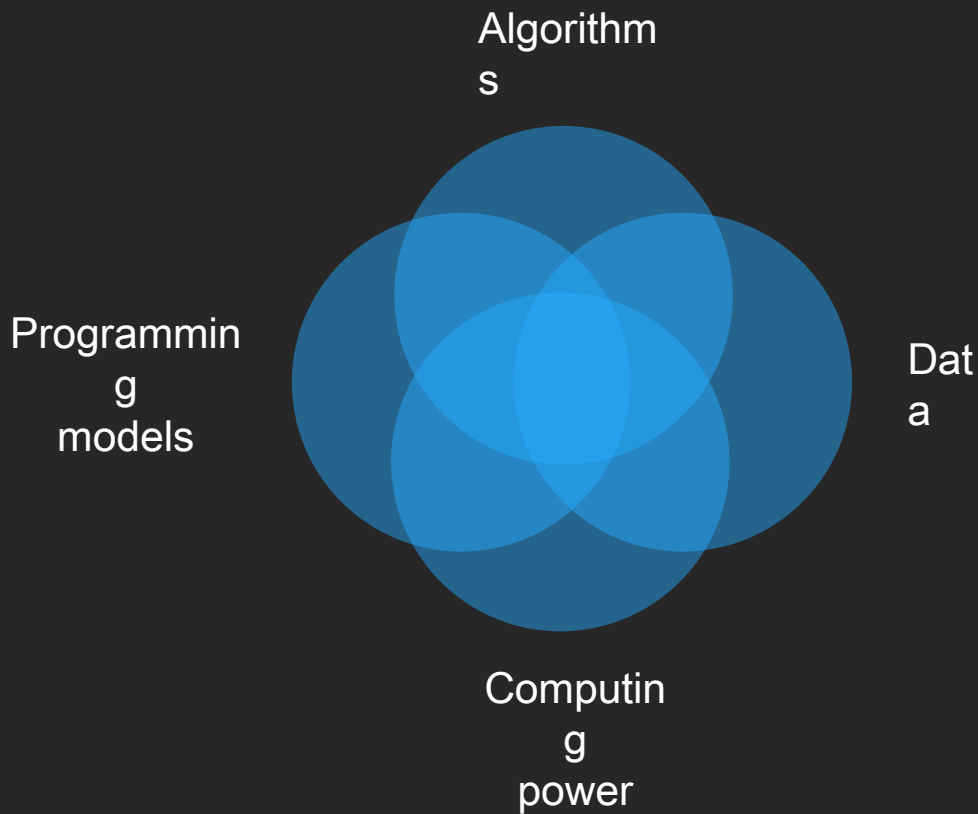
1958 - Invented LISP  
1971 - Received the Turing Award



Marvin Minsky (1927-2016)  
1959 - Co-founded the MIT AI Lab  
1968 - Advised Kubrick on “2001: A Space Odyssey”  
1969 - Received the Turing Award

- **Artificial Intelligence**: design software applications which exhibit human-like behavior, e.g. speech, natural language processing, reasoning or intuition
- **Machine Learning**: teach machines to learn without being explicitly programmed
- **Deep Learning**: using neural networks, teach machines to learn from data where features cannot be explicitly expressed

# The Rise of Deep Learning





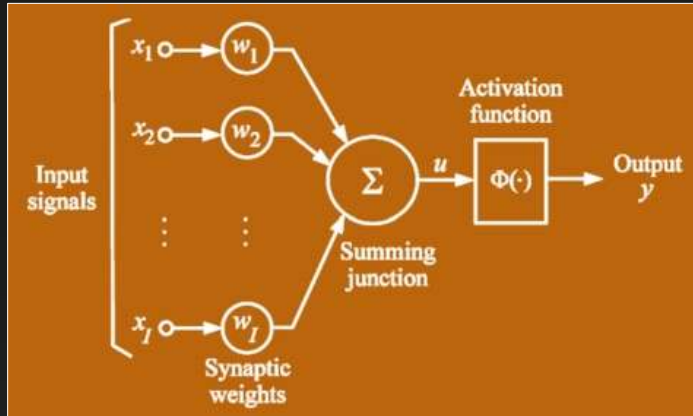
# Myth #2 - AI is dark magic

aka « You're not smart enough »



# Fact #2 - AI is math, code and chips

A bit of Science, a lot of Engineering



```
data = mx.symbol.Variable('data')
conv1 = mx.sym.Convolution(data=data, kernel=(5,5), num_filter=20)
relu1 = mx.sym.Activation(data=conv1, act_type="relu")
pool1 = mx.sym.Pooling(data=relu1, pool_type="max", kernel=(2,2), stride=(2,2))
conv2 = mx.sym.Convolution(data=pool1, kernel=(5,5), num_filter=50)
relu2 = mx.sym.Activation(data=conv2, act_type="relu")
pool2 = mx.sym.Pooling(data=relu2, pool_type="max", kernel=(2,2), stride=(2,2))
flatten = mx.sym.Flatten(data=pool2)
fc1 = mx.symbol.FullyConnected(data=flatten, num_hidden=500)
relu3 = mx.sym.Activation(data=fc1, act_type="relu")
fc2 = mx.sym.FullyConnected(data=relu3, num_hidden=10)
lenet = mx.sym.SoftmaxOutput(data=fc2, name='softmax')
```



# Myth #3 – The “cognitive” unicorn





# Myth #3 – The “cognitive” unicorn



# Fact #3: AI is a wide range of techniques and tools

- Machine Learning
- Natural Language Processing
- Speech
- Vision
- Expert Systems
- And more



python

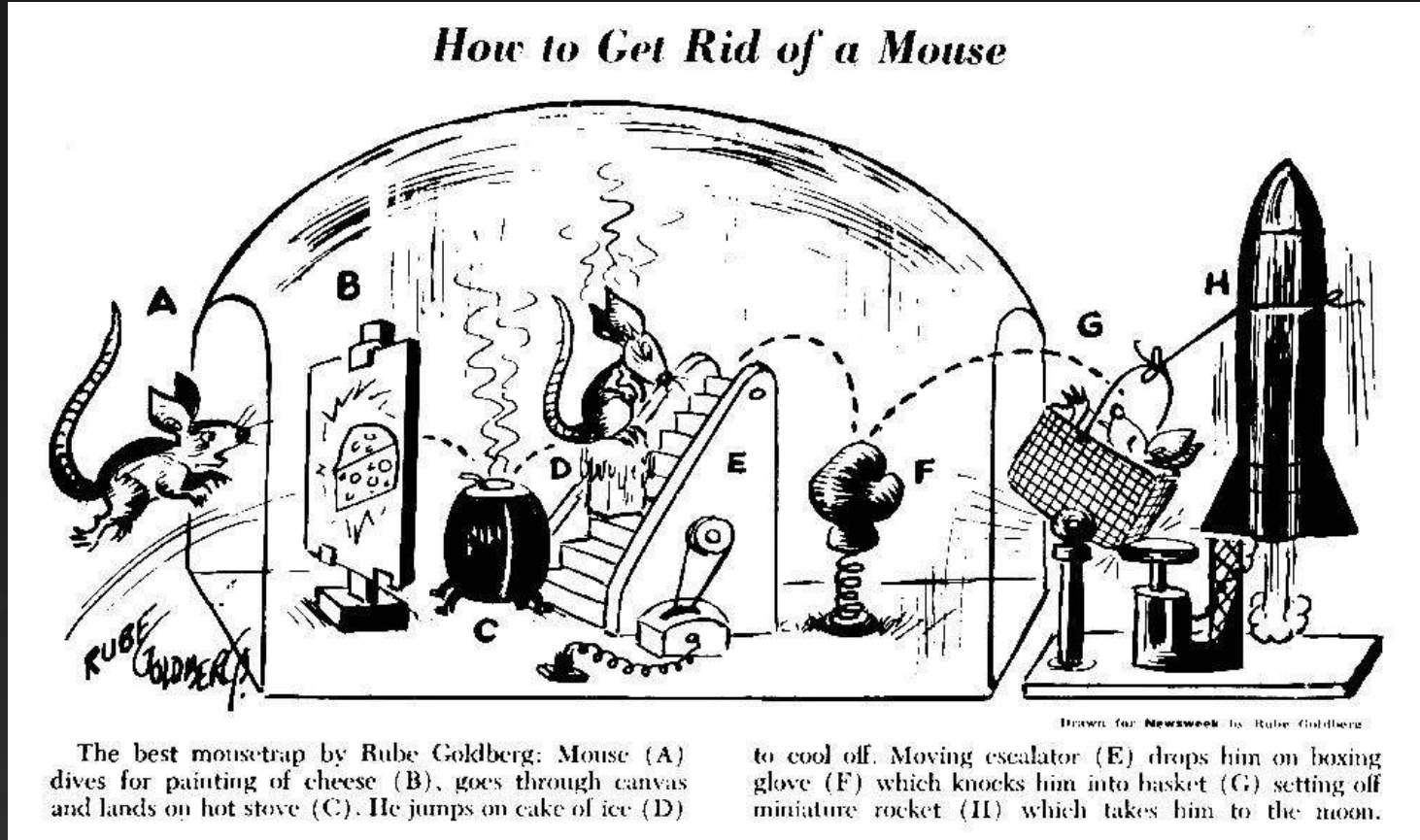


C++



Caffe

# Myth #4 - AI is reserved for esoteric use cases



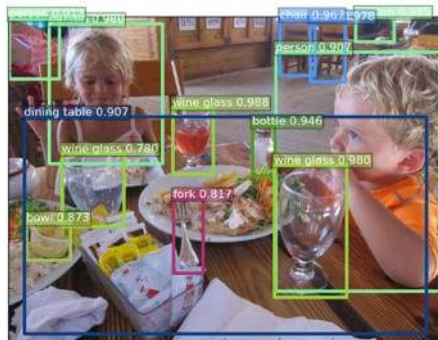
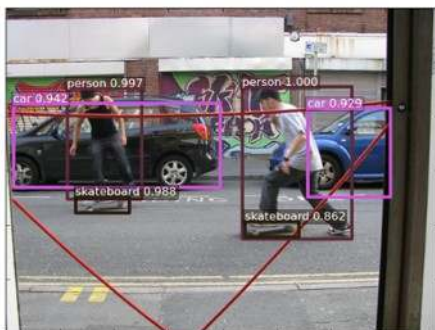
## Fact #4: AI shines on intuitive problems



Credits:  
Shutterstock



# Object Detection



<https://github.com/precedenceguo/mx-rcnn>

<https://github.com/zhreshold/mxnet-yolo>



# Object Segmentation



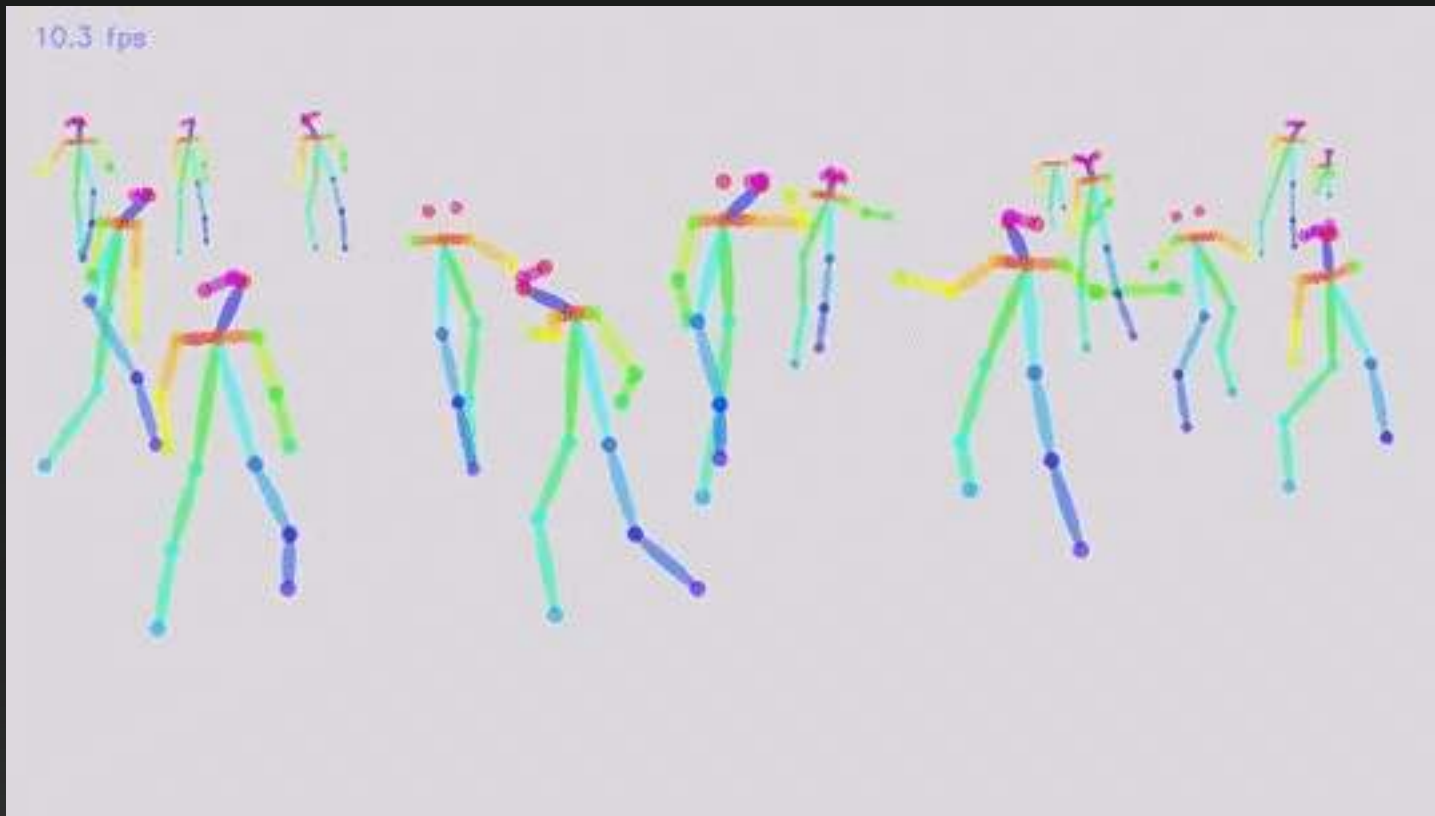
<https://github.com/TuSimple/mx-maskrcnn>

# Text Detection and Recognition



<https://github.com/Bartzi/stn-ocr>

# Real-Time Pose Estimation

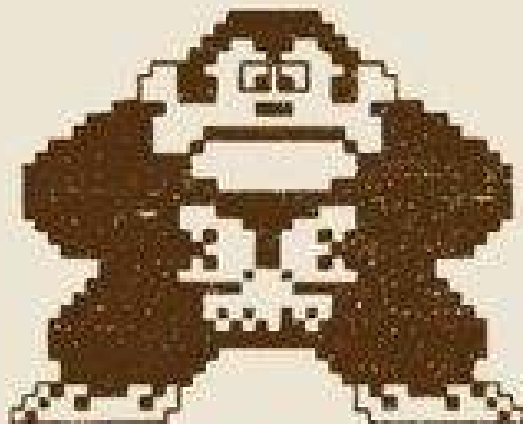


[https://github.com/dragonfly90/mxnet\\_Realtime\\_Multi-Person\\_Pose\\_Estimation](https://github.com/dragonfly90/mxnet_Realtime_Multi-Person_Pose_Estimation)

## Myth #5 - AI is not production-ready



## Fact #5: AI means business



**IT'S ON LIKE  
DONKEY KONG**



# Jeff Bezos' letter to Amazon shareholders

*"We are **solving problems** with **machine learning** and **artificial intelligence** that were in the realm of science fiction for the last several decades. Natural **language** understanding, machine **vision** problems, it really is an amazing renaissance.*

<https://www.geekwire.com/2017/jeff-bezos-explains-amazons-artificial-intelligence-machine-learning-strategy/>

APR 18, 2017 @ 11:26 AM

## The Great AI Recruitment War: Amazon Is On Top, And Apple Is Almost Nowhere To Be Seen

[https://www.forbes.com/sites/aarontilley/2017/04/18/the-great-ai-recruitment-war-amazon-is-on-top-and-apple-is-almost-nowhere-to-be-seen](https://www.forbes.com/sites/aarontilley/2017/04/18/the-great-ai-recruitment-war-amazon-is-on-top-and-apple-is-almost-nowhere-to-be-seen/)



25,000 skills

amazon echo







INTRODUCING  
**amazon** go





# Selected customers running AI on AWS



NETFLIX

Stanford



The Washington Post



Carnegie Mellon

Pinterest



C-SPAN



real networks



GoAnimate



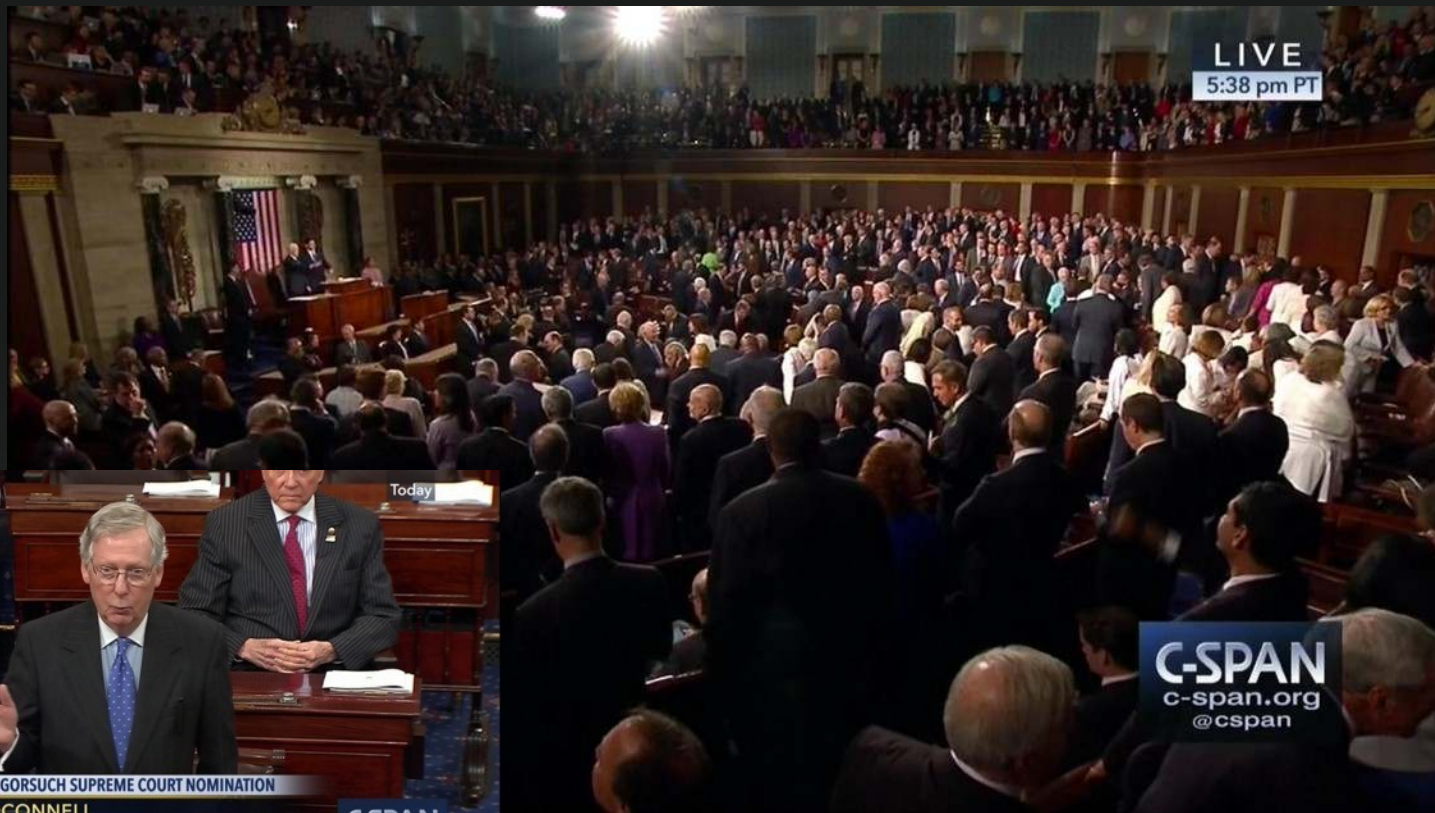
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duolingo



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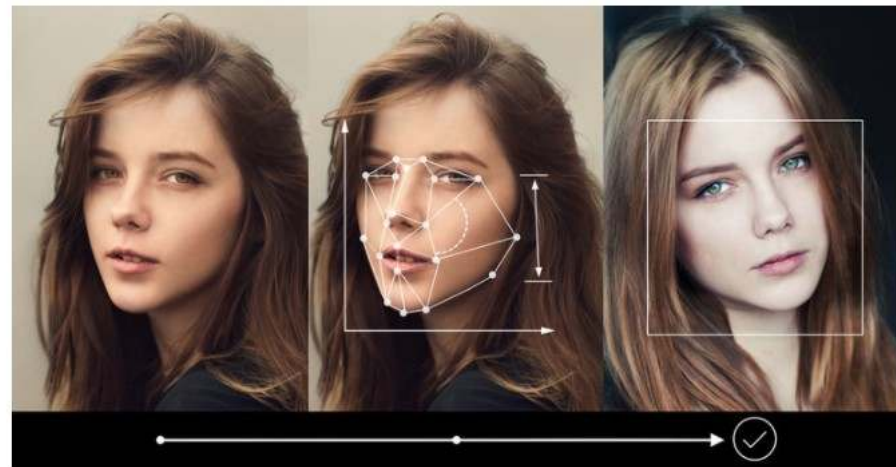
C-SPAN



October 19, 2017

# Amazon Rekognition Helps Marinus Analytics Fight Human Trafficking

Marinus Analytics provides law enforcement with tools, founded in artificial intelligence, to turn big data into actionable intelligence. The Marinus flagship software, Traffic Jam, is a suite of tools for use by law enforcement agencies on sex trafficking investigations.





- Expedia have over **10M** images from **300,000** hotels
- Using great images boosts **conversion**
- Using Keras and EC2 GPU instances, they **fine-tuned** a pre-trained Convolutional Neural Network using **100,000** images
- Hotel descriptions now **automatically** feature available images

Some images are really good



Others not so much

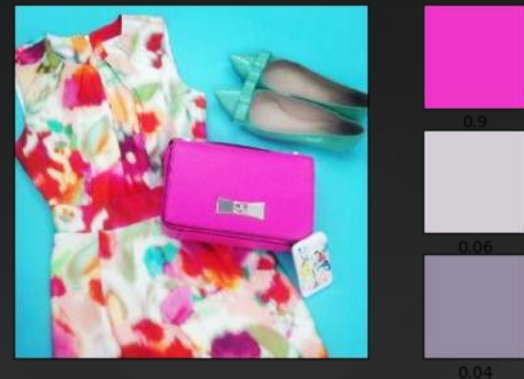




# CONDÉ NAST

- 17,000 images from Instagram
- 7 brands
- Deep Learning model pre-trained on ImageNet
- Fine-tuning with TensorFlow and EC2 GPU instances
- Additional work on color extraction

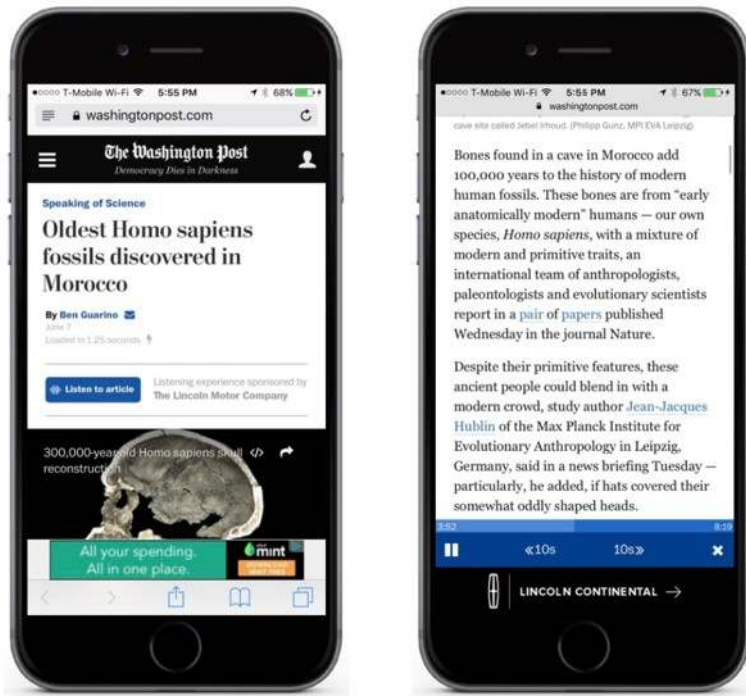
|             | Chanel | Coach | Gucci | Marc Jacobs | Kate Spade | No Handbag | Prada | Vuitton |
|-------------|--------|-------|-------|-------------|------------|------------|-------|---------|
| Chanel      | 0.83   | 0.00  | 0.01  | 0.02        | 0.00       | 0.00       | 0.00  | 0.01    |
| Coach       | 0.01   | 0.85  | 0.00  | 0.05        | 0.05       | 0.01       | 0.04  | 0.03    |
| Gucci       | 0.01   | 0.00  | 0.85  | 0.02        | 0.00       | 0.01       | 0.01  | 0.02    |
| Marc Jacobs | 0.00   | 0.03  | 0.01  | 0.78        | 0.00       | 0.01       | 0.03  | 0.00    |
| Kate Spade  | 0.00   | 0.01  | 0.01  | 0.01        | 0.87       | 0.00       | 0.00  | 0.00    |
| No Handbag  | 0.09   | 0.06  | 0.08  | 0.09        | 0.04       | 0.97       | 0.04  | 0.09    |
| Prada       | 0.03   | 0.03  | 0.02  | 0.03        | 0.01       | 0.00       | 0.85  | 0.01    |
| Vuitton     | 0.01   | 0.00  | 0.00  | 0.02        | 0.00       | 0.01       | 0.01  | 0.81    |





## The Washington Post to start experimenting with audio articles using Amazon Polly

By WashPostPR June 9



<https://www.washingtonpost.com/pr/wp/2017/06/09/the-washington-post-to-start-experimenting-with-audio-articles-using-amazon-polly/>

图森 **tu** Simple



Last June, tuSimple drove an autonomous truck

for 200 miles from Yuma, AZ to San Diego,

<https://www.oreilly.com/ideas/self-driving-trucks-enter-the-fast-lane-using-deep-learning>

A photograph of the interior of a BMW car, showing the steering wheel with the BMW logo, the dashboard with a digital display, and the rearview mirror. A text overlay is present in the upper center of the image.

As soon as 2018, Alexa will be your companion in  
BMW's

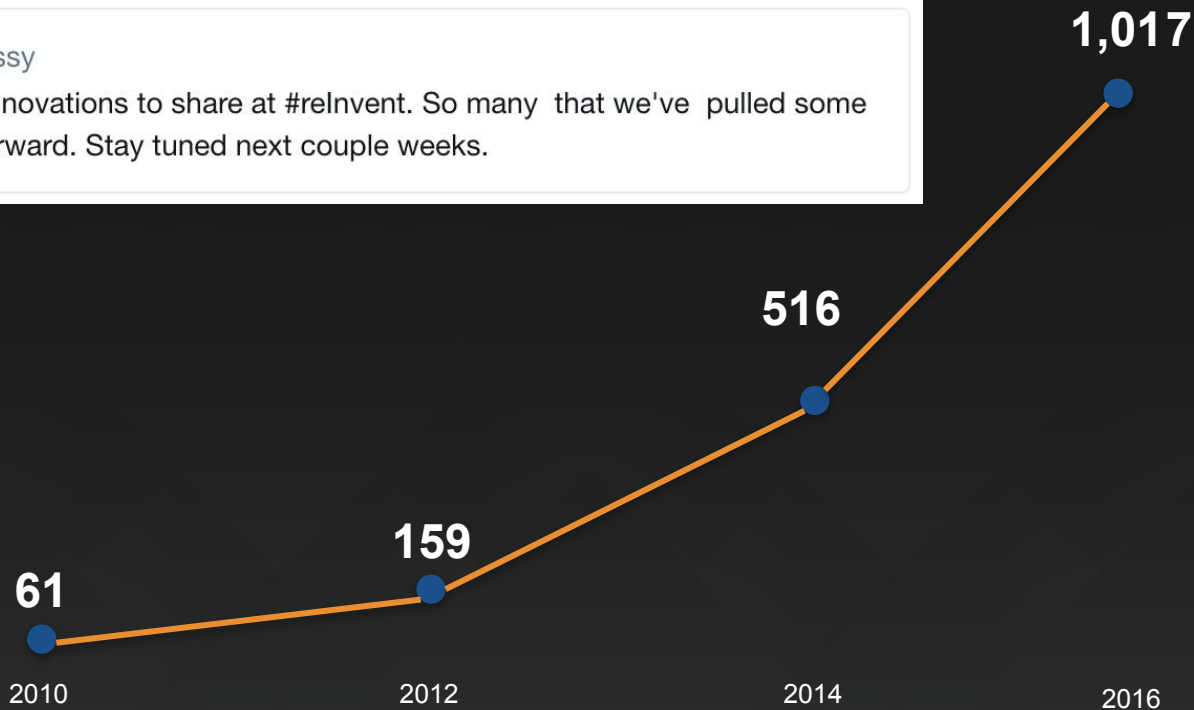
# Amazon AI: Artificial Intelligence In The Hands Of Every Developer

|                |                       |                   |                           |        |                                 |      |
|----------------|-----------------------|-------------------|---------------------------|--------|---------------------------------|------|
| Services       | Chat<br>Amazon<br>Lex |                   | Speech<br>Amazon<br>Polly |        | Vision<br>Amazon<br>Rekognition |      |
| Platforms      | Amazon<br>ML          | Spark<br>&<br>EMR | Kinesis                   | Batch  | EC<br>S                         |      |
| Engines        | MXNet                 | TensorFlow        | Caffe                     | Theano | Pytorch                         | CNTK |
| Infrastructure | CPU                   | GPU               | FPGA                      | IoT    | Mobile                          |      |

# AWS Pace of Innovation

**Andy Jassy** @ajassy

Bunch of #AWS innovations to share at #reInvent. So many that we've pulled some out and moved forward. Stay tuned next couple weeks.





# AWS re:Invent

NOVEMBER 27 – DECEMBER 1, 2017

LAS VEGAS, NEVADA

<http://reinvent.aws.events.com>

# Resources

<https://aws.amazon.com/ai/>

<https://aws.amazon.com/blogs/ai/>

<https://mxnet.incubator.apache.org/>

<https://medium.com/@julsimon/>

# Thank you!

**Julien Simon**  
**@julsimon**

<https://aws.amazon.com/evangelists/julien-simon>