AI: Myth vs. Reality

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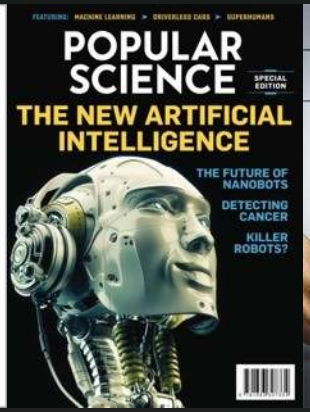
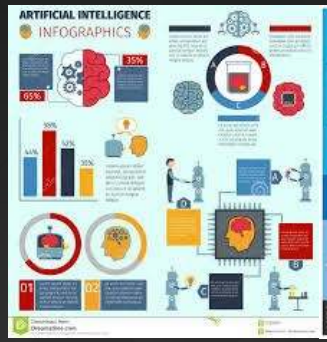
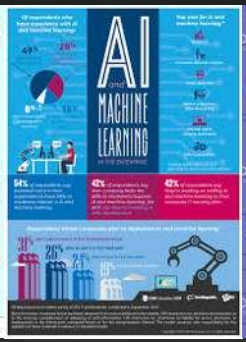
Myth #1 - AI is the flavour of the month







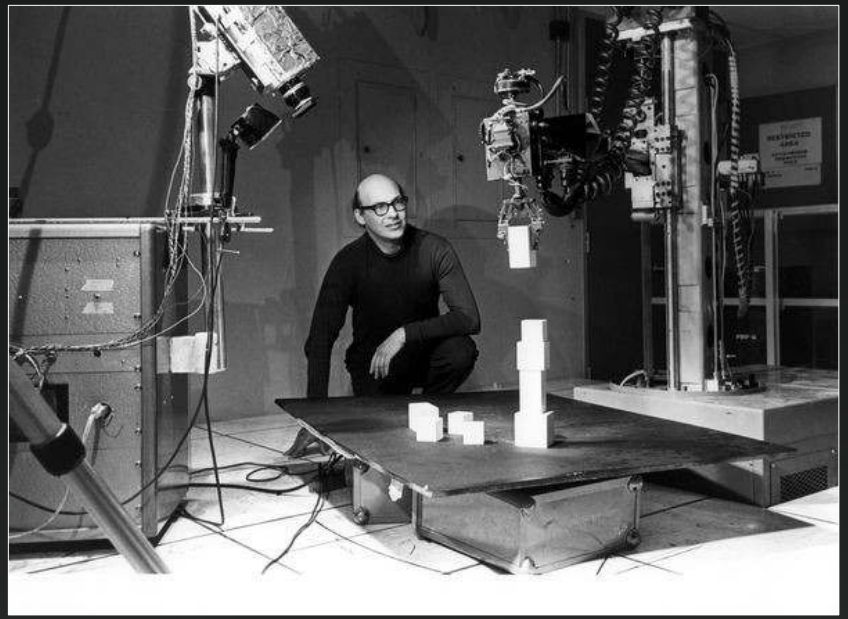
Fact #1 - AI is 60 years old

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”

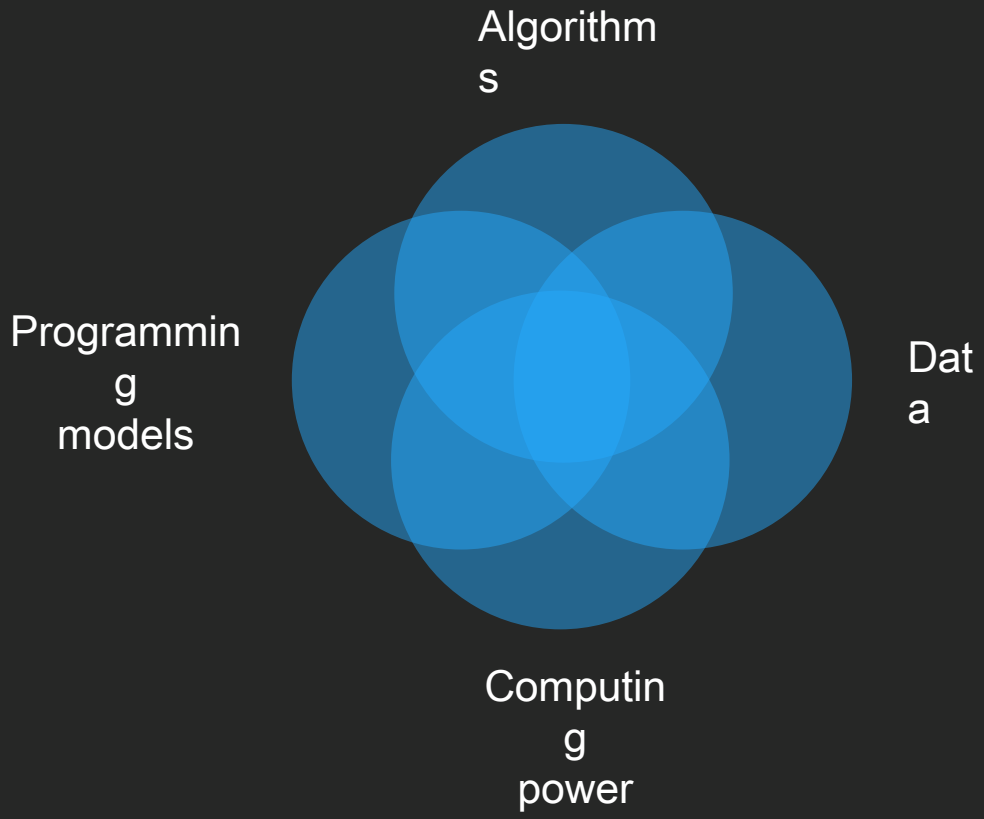
1969 - Received the Turing Award

- 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

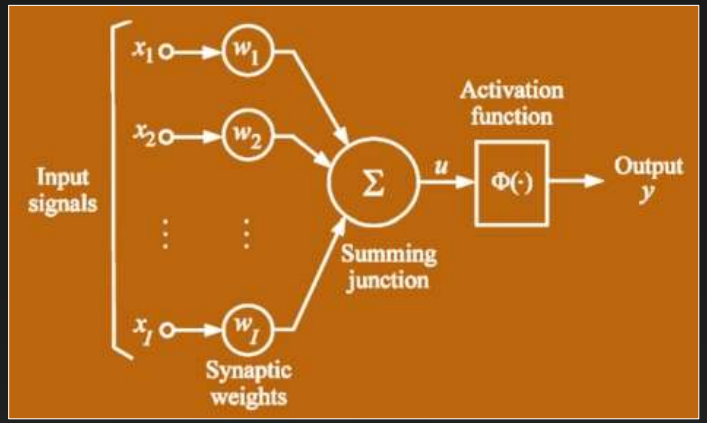


Myth #2 - AI is dark magic

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')
```

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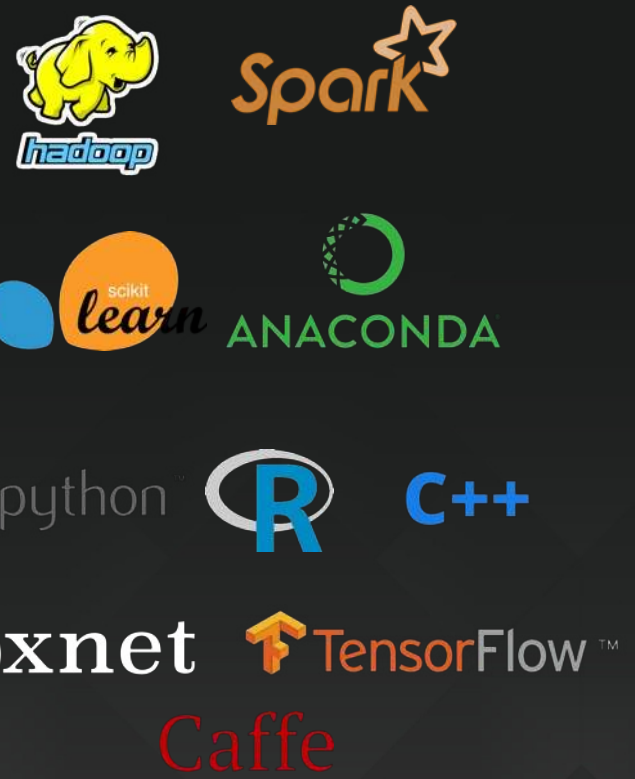
Myth #3 – The “cognitive” unicorn

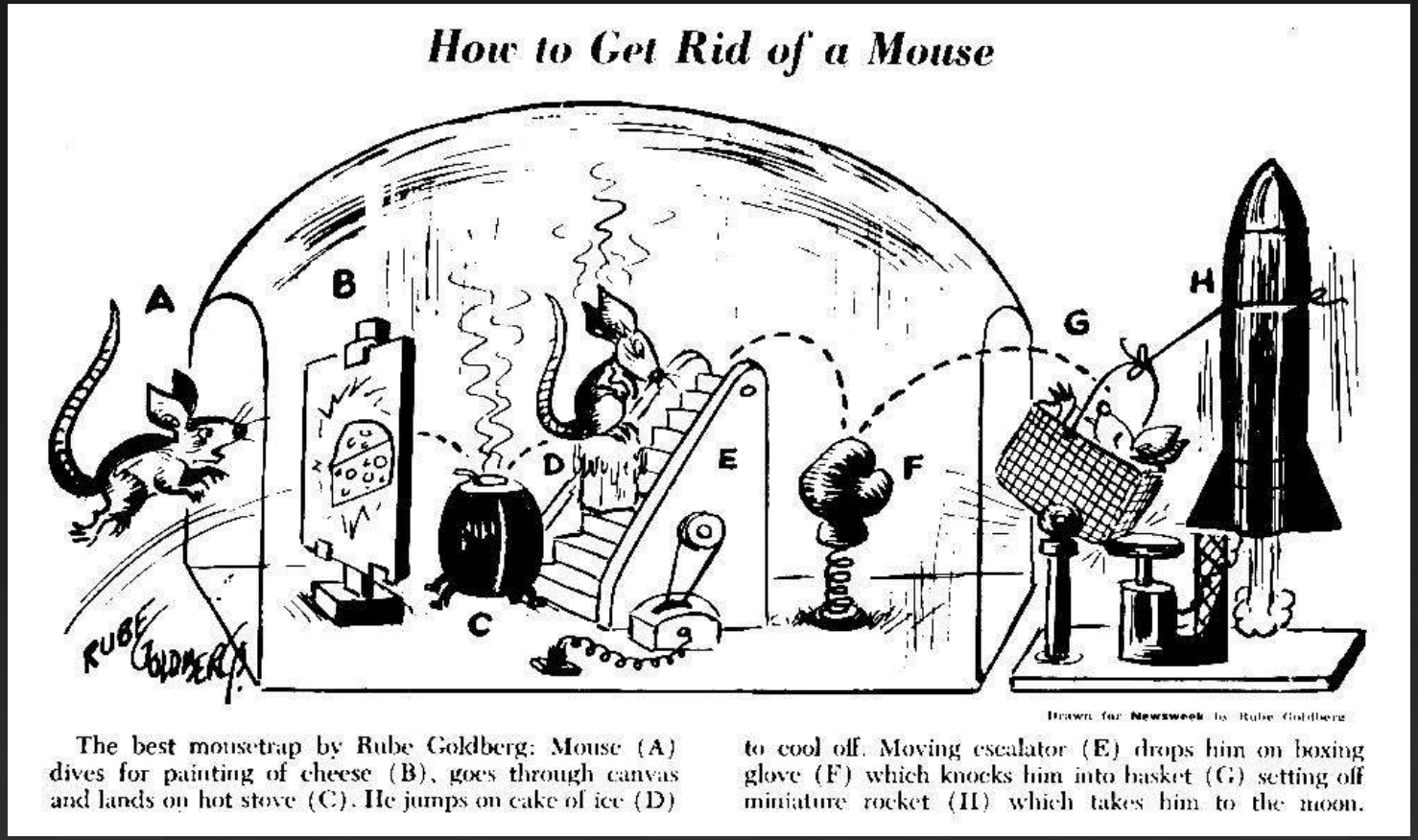
Myth #3 – The “cognitive” unicorn

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

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



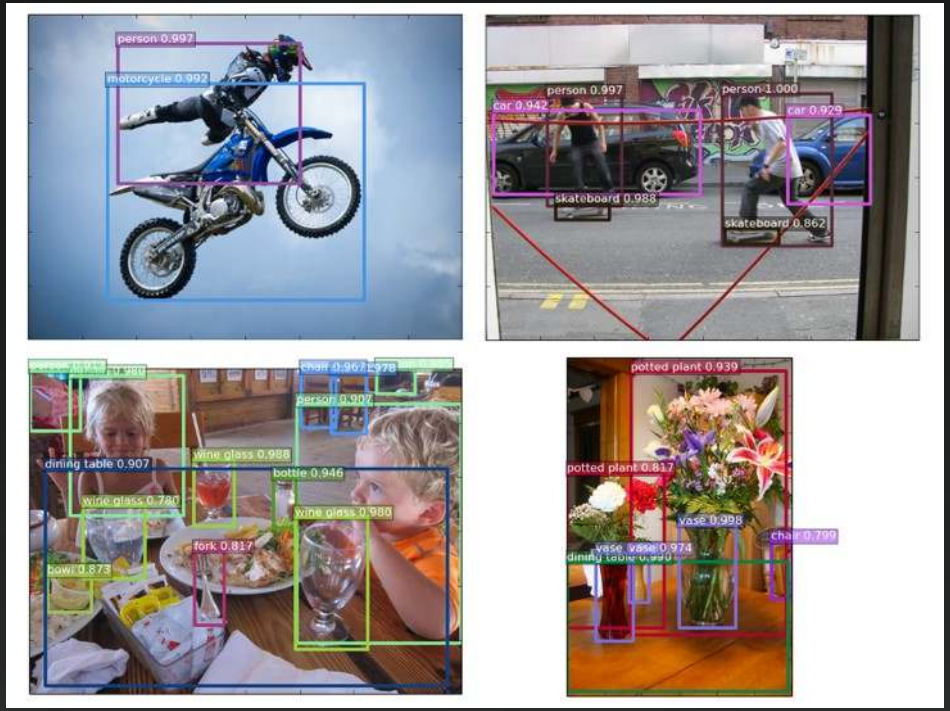
Myth #4 - AI is reserved for esoteric use cases



Fact #4: AI shines on intuitive problems

Credits:
Shutterstock

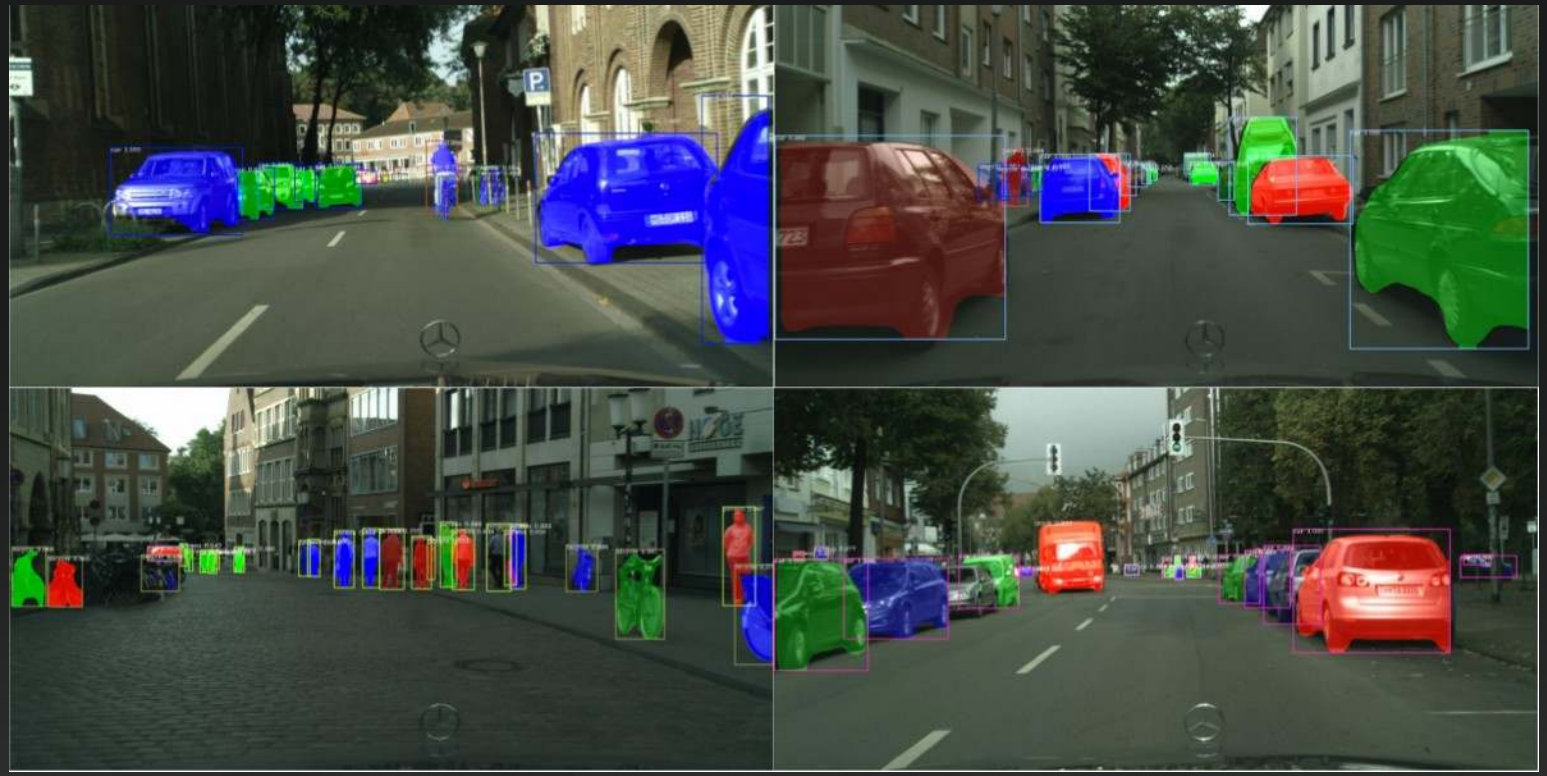
Object Detection



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

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

Object Segmentation

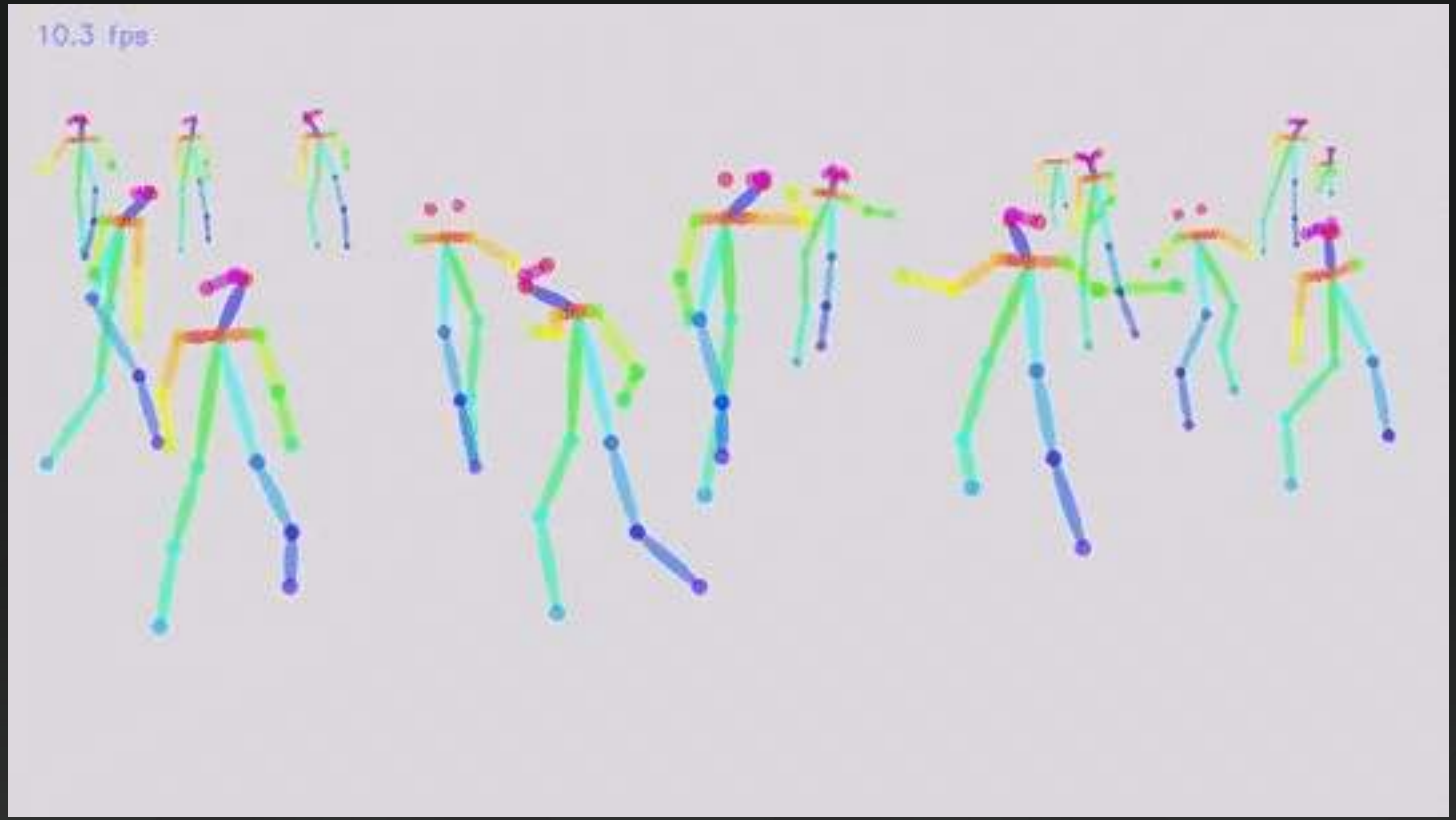


https://github.com/TuSimple/mx-maskrcnn

Text Detection and Recognition

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

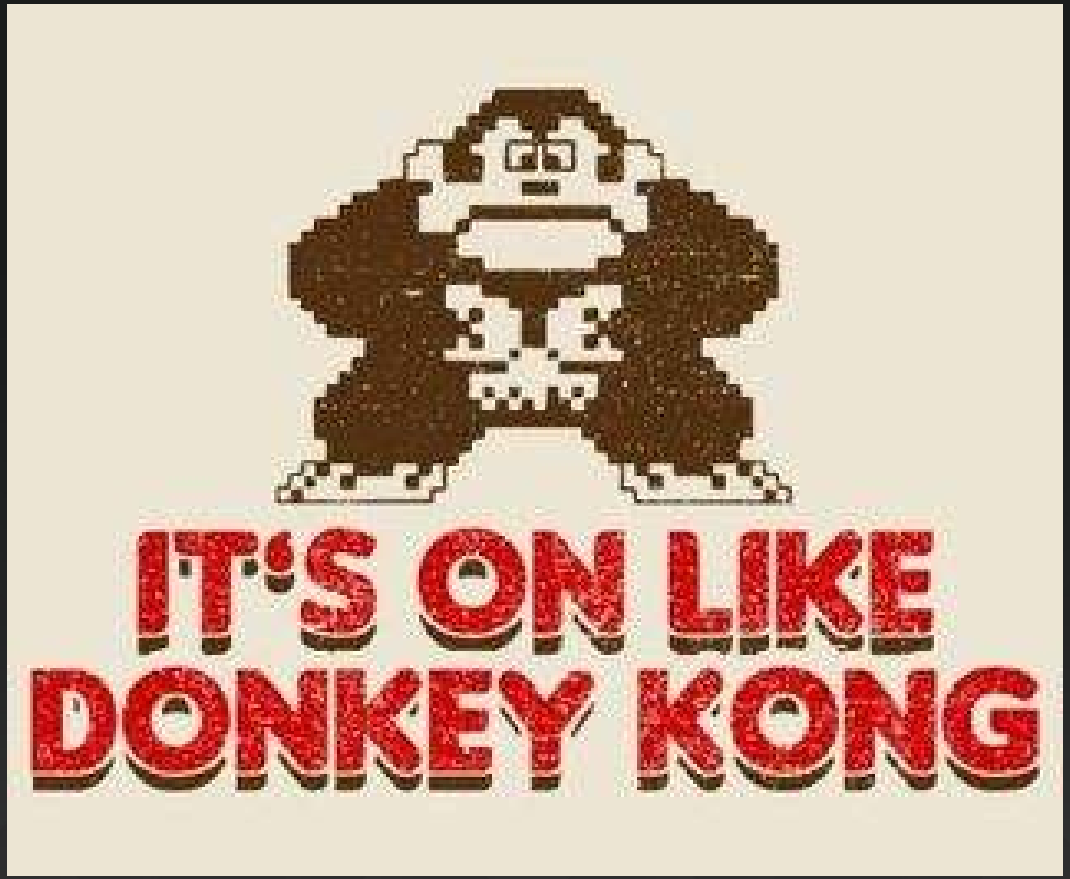
Real-Time Pose Estimation



https://github.com/dragonfly90/mxnet_Realtime_Multi-Person_Pose_Estimation

Myth #5 - AI is not production-ready

Fact #5: AI means business



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/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3A↑
4A↑
750 lbs. BASE CAPACITY
DO NOT EXCEED LIMIT
2446
amazon robotics

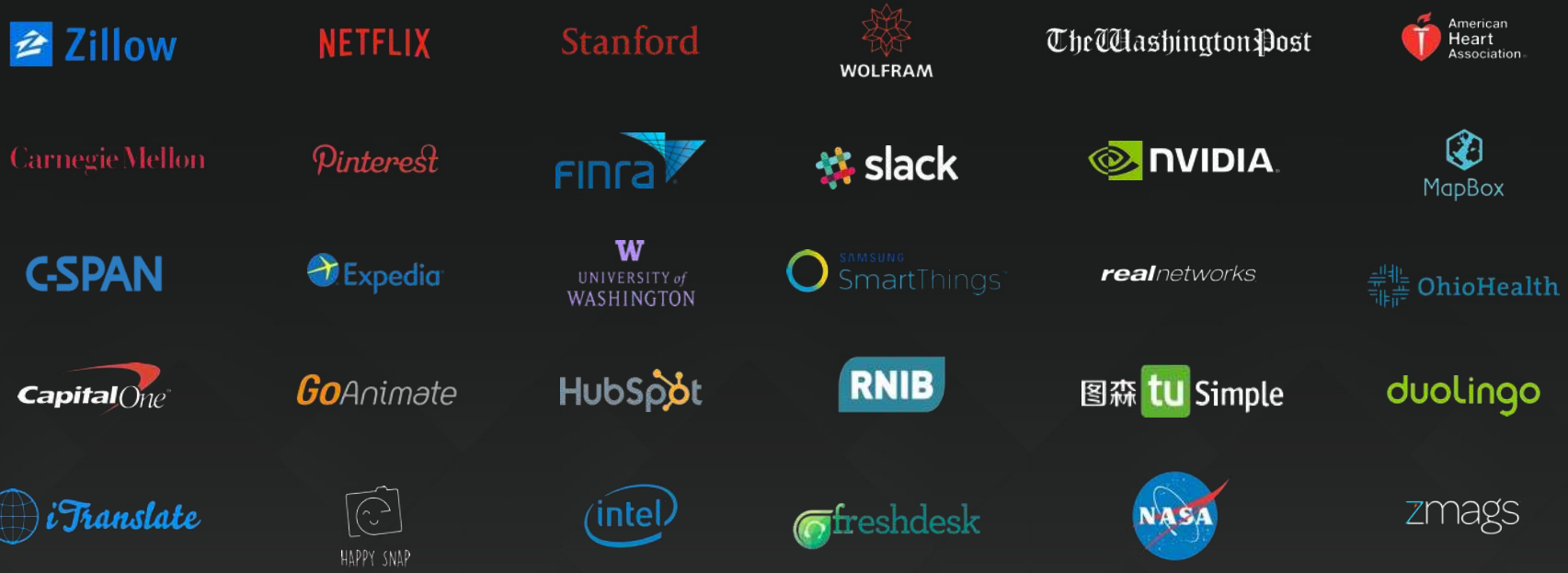
25,000 skills

amazon echo


INTRODUCING
amazon go


amazon
PrimeAir
amazon
PrimeAir

Selected customers running AI on AWS



C-SPAN

https://aws.amazon.com/solutions/case-studies/cspan/

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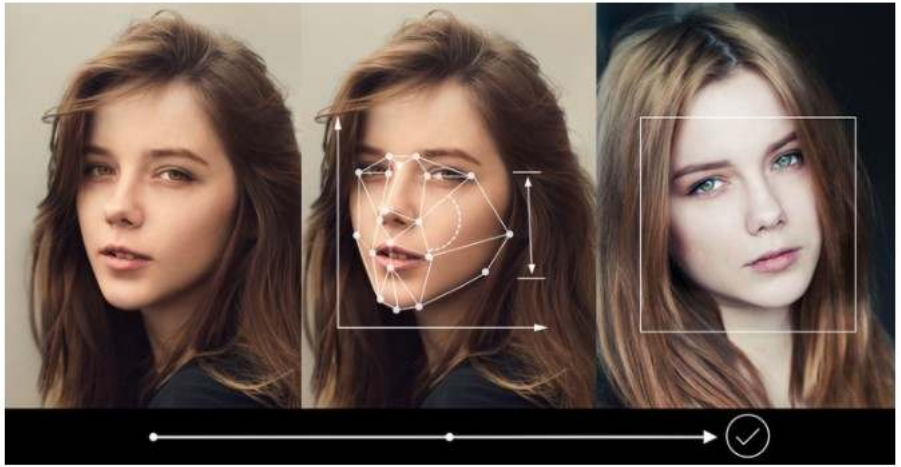
October 19, 2017

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.



http://www.marinusanalytics.com/articles/2017/10/17/amazon-rekognition-helps-marinus-analytics-fight-human-trafficking

Expedia®

- 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

https://news.developer.nvidia.com/expedia-ranking-hotel-images-with-deep-learning/

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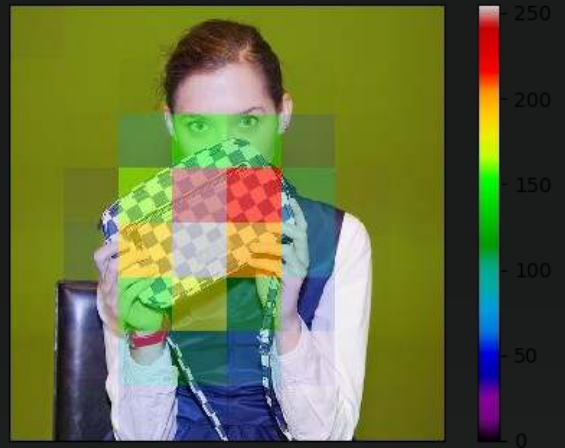
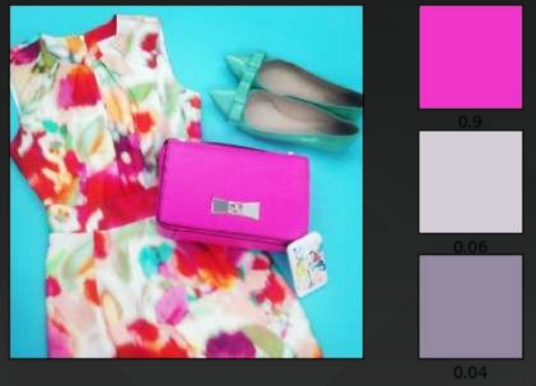
- 17,000 images from Instagram
- 7 brands
- Deep Learning model pre-trained on ImageNet
- Fine-tuning with TensorFlow and EC2 GPU instances
- Additional work on color extraction





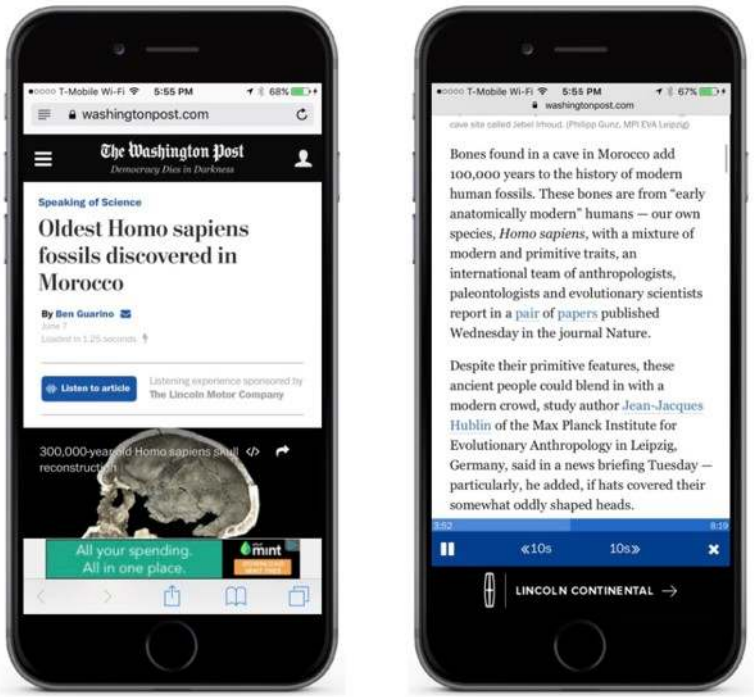
	Chanel	Coach	Gucci	Marc Jacobs	Kate Spade	No Handbag	Prada	Vuitton
Chanel	0.83	0.00	0.01	0.02	0.00	0.00	0.00	0.01
Coach	0.01	0.85	0.00	0.05	0.05	0.01	0.04	0.03
Gucci	0.01	0.00	0.85	0.02	0.00	0.01	0.01	0.02
Marc Jacobs	0.00	0.03	0.01	0.78	0.00	0.01	0.03	0.00
Kate Spade	0.00	0.01	0.01	0.01	0.87	0.00	0.00	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

https://technology.condenast.com/story/handbag-brand-and-color-detection

The Washington Post

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 /

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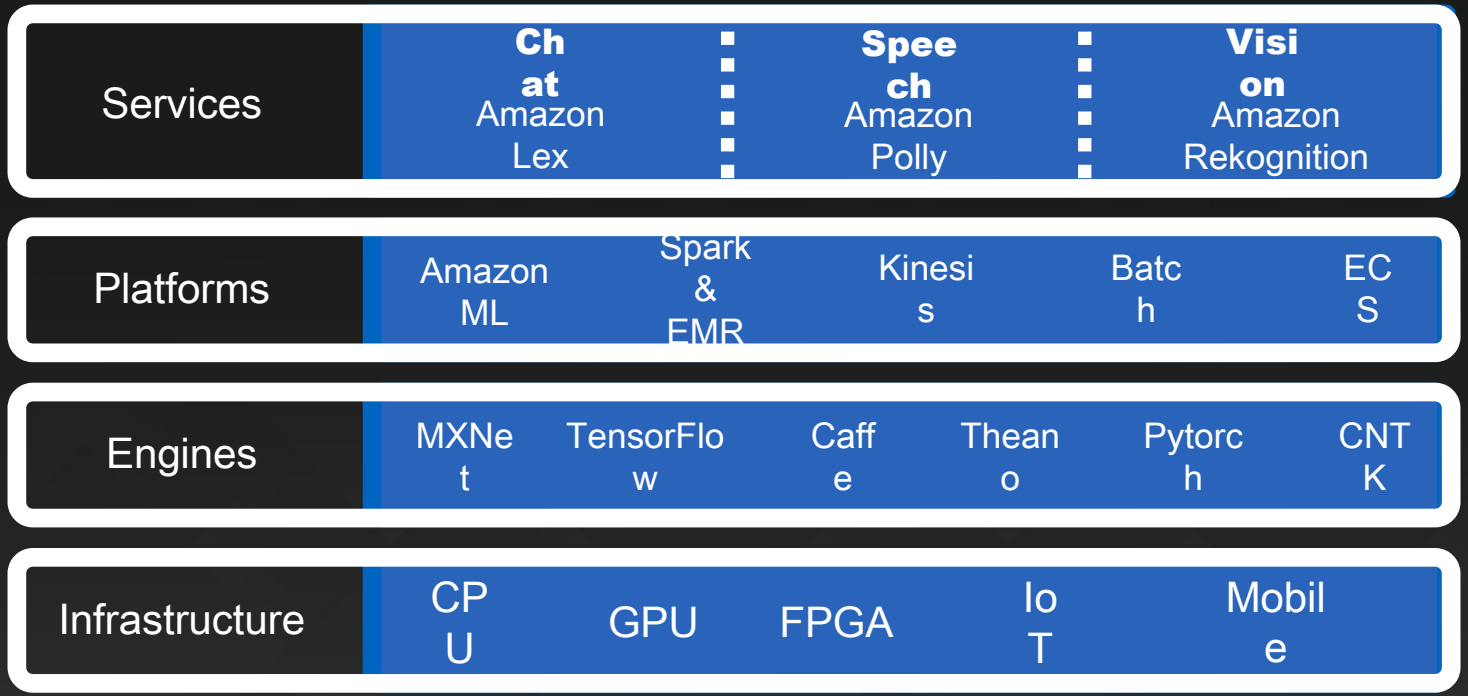
Last June, tuSimple drove an autonomous truck

for 200 miles from Yuma, AZ to San Diego,

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


As soon as 2018, Alexa will be your companion in BMWs
https://techcrunch.com/2017/09/27/bmw-to-bring-alexa-to-its-cars-starting-in-2018/

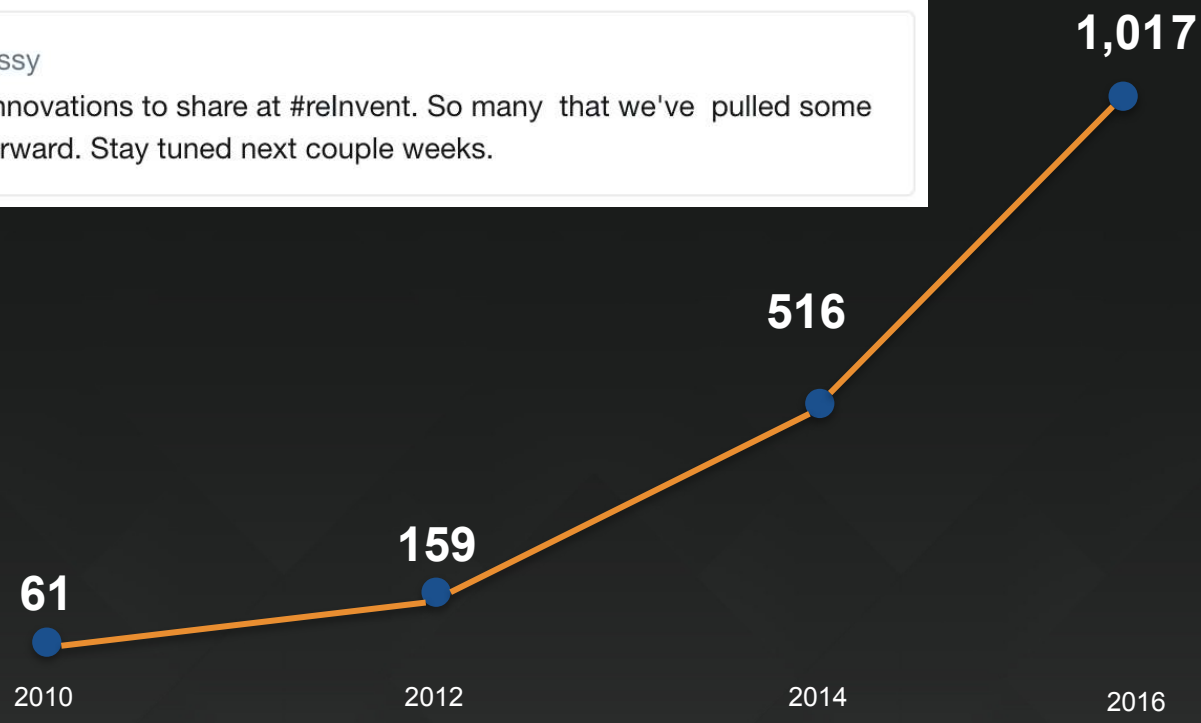
Amazon AI: Artificial Intelligence In The Hands Of Every Developer



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.awsevents.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
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https://aws.amazon.com/evangelists/julien-simon