The Future of Technology and Society

Chapter 10 – Machine Intelligence and Business

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AGENDA

Machine Intelligence

Cases: The State of Machine Intelligence in Business

"In the end, all technology revolutions are propelled not just by discovery, but also by business and societal need. We pursue these new possibilities not because we can, but because we must."

John Kelly, III. IBM Research (2015)

Future Technology as viewed by key players

	Gartner	IBM	Intel	Samsung
IoT	IoT; IoT Platforms	Healthcare IoT; IoT Security; Industrial IoT	IoT; Digital Mesh	Human-centred IoT; IoT Infra; IoT Convergence
Computation Intelligence	Advanced analytics; machine learning	Cognitive Computing; Analytic Agents		Ambient intelligence; Personal Advisors
Social Bots	Smart advisors; Virtual Personal Assistants	real-time insights		Personal Advisors
Augmented Interfaces	Virtual reality; augmented reality	Data Visualization	3D visualisation and Virtual Reality	Virtual Reality; 3D Glasses
Ambient Intelligence	Ambient User Experience	Personal Computing; digital mesh	Personalised care; wearables; digital mesh	Human-centred IoT; Ambient Intelligence

IT IS ALL ABOUT DATA

How to generate more data?

- IoT
- Social Media
- Participatory Sensing
- Open Data

DATA DRIVEN SOCIETY

How to analyse all data being generated?

- Data Science
- Cognitive Computing
- Machine Learning
- Citizen Data Science

How to make money out of all data being generated?

Better Products	Optimized Business	Insight Technologies
Recommendation Systems	Sharing Economy	Self-Driving Cars

(…)

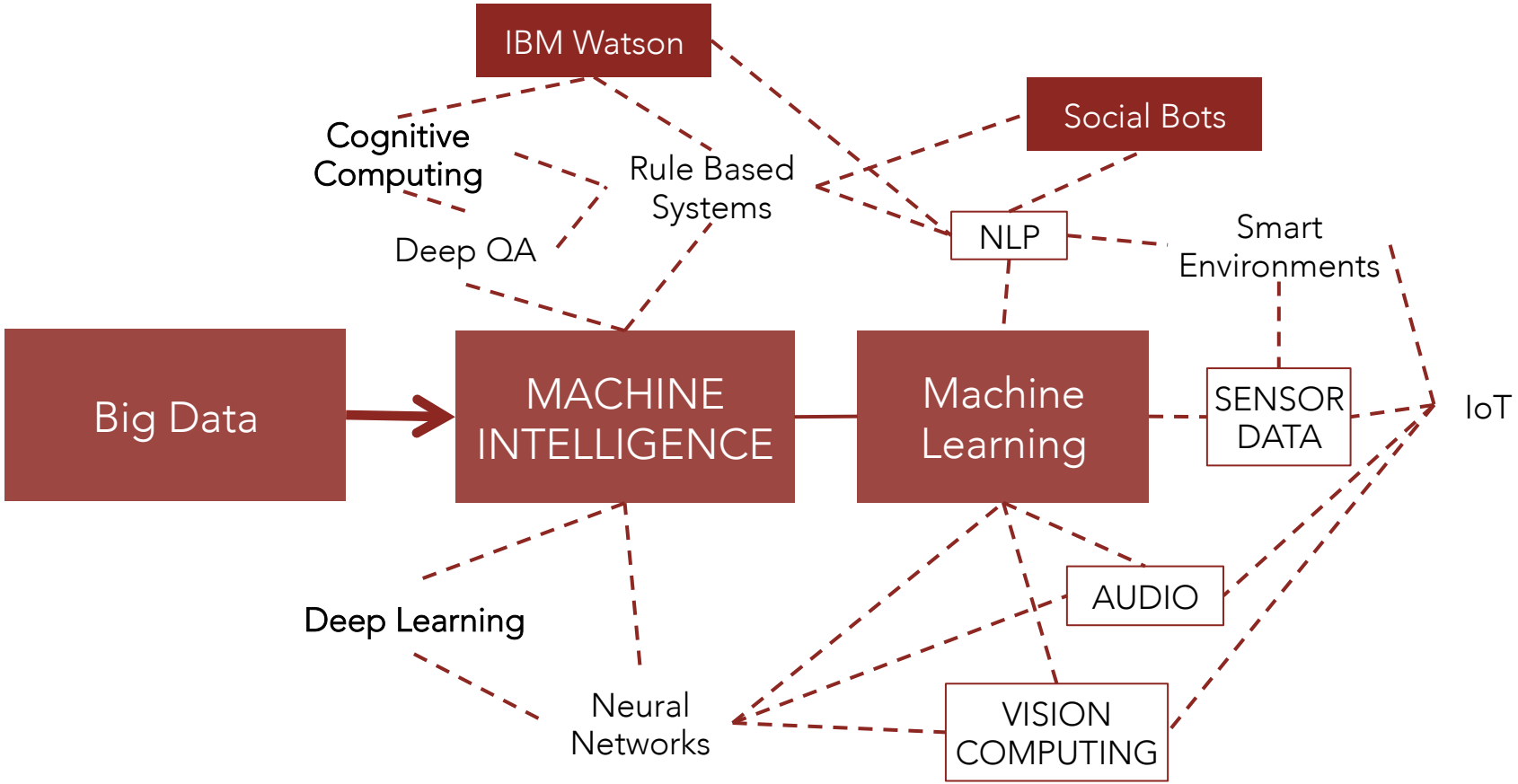
ARTIFICIAL INTELLIGENCE

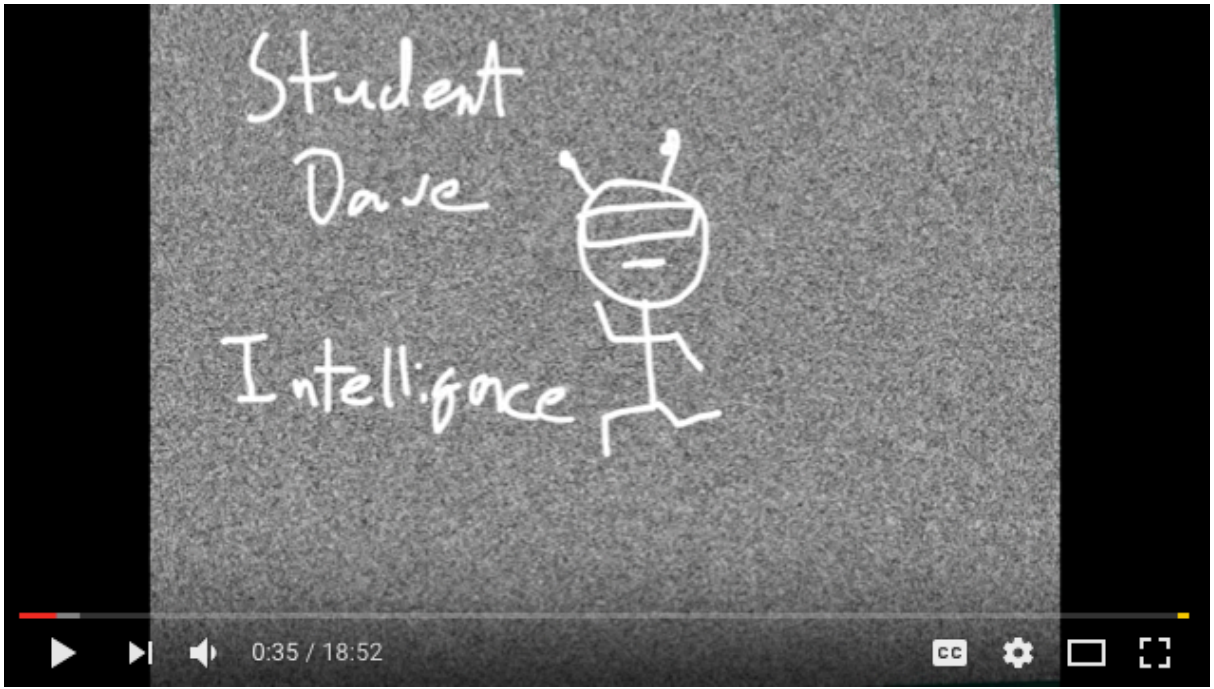
Weak AI ✖ Strong AI ✖ Artificial Emotional AI

https://www.youtube.com/watch?v=9TRv0cXUVQw

MACHINE INTELLIGENCE

MACHINE LEARNING + ARTIFICIAL INTELLIGENCE


IBM Watson
Social Bots
Cognitive Computing
Rule Based Systems
Deep QA
NLP
Smart Environments
Big Data
MACHINE INTELLIGENCE
Machine Learning
SENSOR DATA
IoT
Deep Learning
AUDIO
Neural Networks
VISION COMPUTING



Artificial Intelligence: Machine Learning Introduction

https://www.youtube.com/watch?v=-rMMTv7XLYw

The Current State of Machine Intelligence

The current state of machine intelligence 3.0

Watching the appeal and applications of machine intelligence expand.

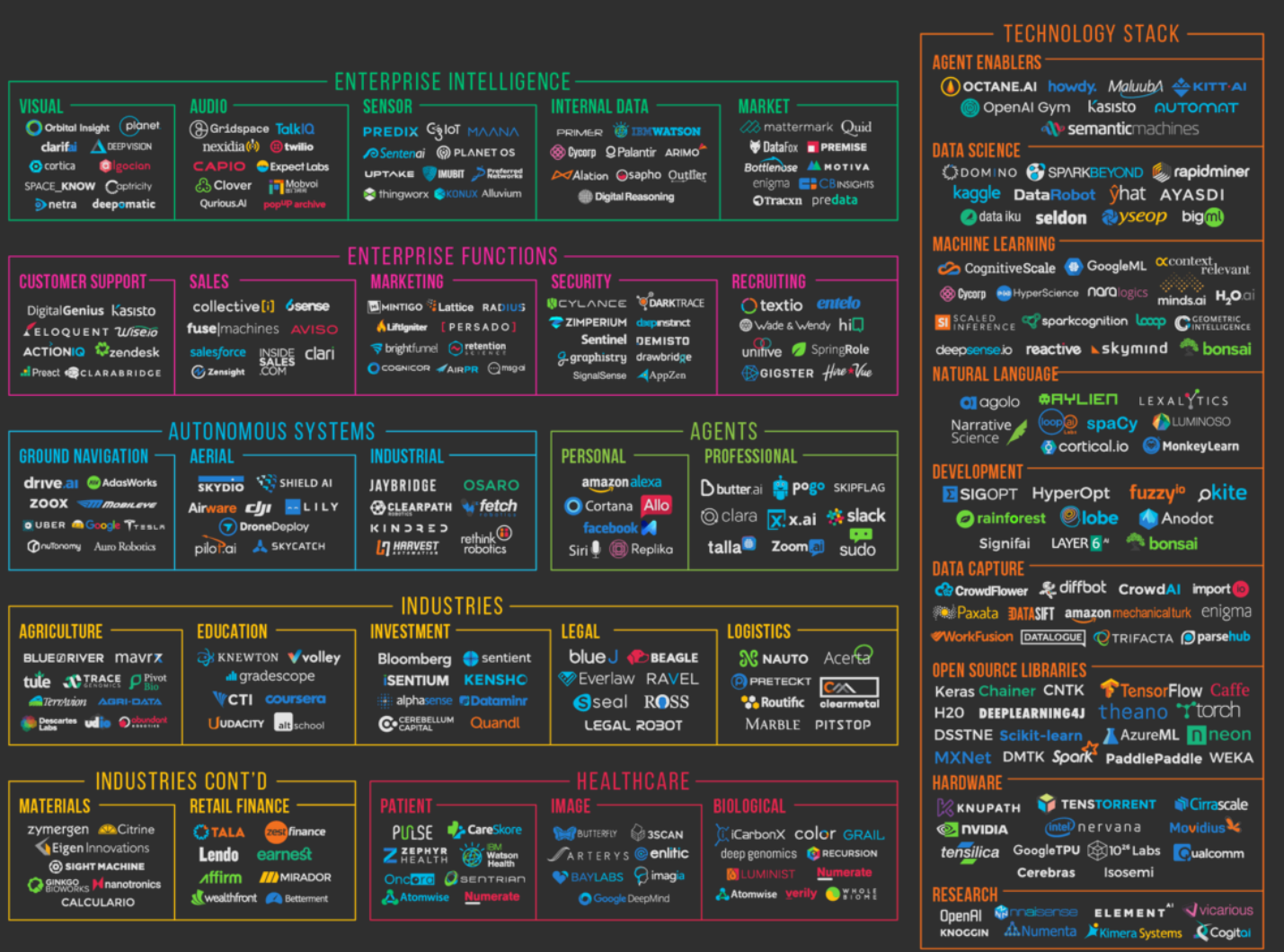
By Shivon ZilisJames Cham • November 7, 2016

Follow this topic

The current state of machine intelligence 3.0. (source: Image courtesy of Shivon Zilis and James Cham, designed by Heidi Skinner).

Shivon & Cham, 2016

- The maturing of the Development Stack might explain why more established companies are more focused on building legitimate machine intelligence capabilities.
- Successful use of machine intelligence at a large organization is hard to do. But once machine intelligence is enabled, an organization sees everything through the lens of its potential.
- Machine intelligence business models are going to be different from licensed and subscription software -- but we don't know how.
- Established companies struggle to understand machine intelligence technology.
- The absence of a market today makes it difficult scenario for a machine intelligence startup.
- Future: more open source packages; more data; more people involved; more problems worth solving.



Source: Zilis & Cham (2016), The current state of machine intelligence 3.0

CASES – MACHINE INTELLIGENCE STARTUPS

Technology Stack

Agent Enablers
- Chatbots
- Conversational AI interfaces
- Gamers
- Wearable technology

Machine Learning
- Enterprise analytics
- AI for the enterprise
- Industry automation
- Security / Intrusion Detection

Natural Language
- Summarization Service
- Enterprise Intelligence
- Translation services

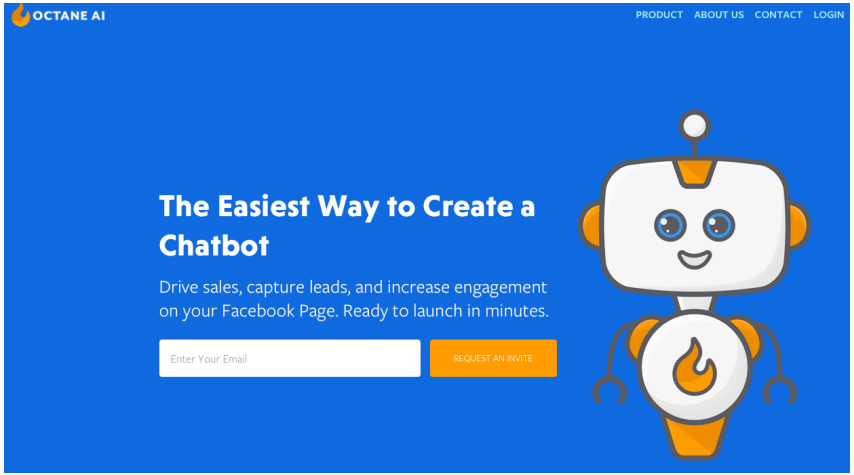
Data Capture
- Man-in-the-middle AI
- Distributed data services
- Image annotation

Development & Open Source Libraries
- Open Source Software Library for Machine Learning
- Cloud based, Web-services (“Wix”-like) for Machine Learning

Agent Enabler

OCTANE.AI

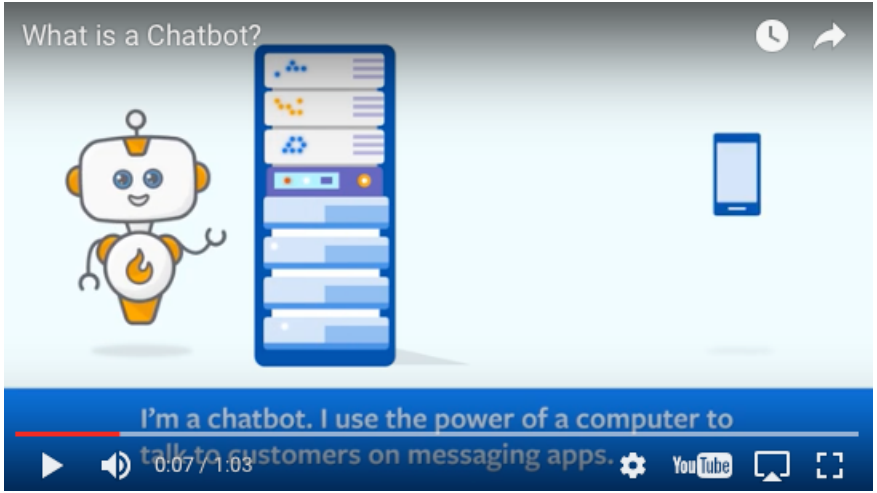
https://octaneai.com



Train your bot to respond instantly to every message.

Make your chatbot smarter by training it how to respond to incoming messages. Automatically hand it off to a human when a bot doesn't understand a message.

- Cloud-based Chatbot Service -- like web design platforms Wix or Weebly, but for chatbots.
- "Chatbots will be used by anyone who has an audience"
- Chatbot Platform Octane AI Raises $1.5M (Nov/ 2016)

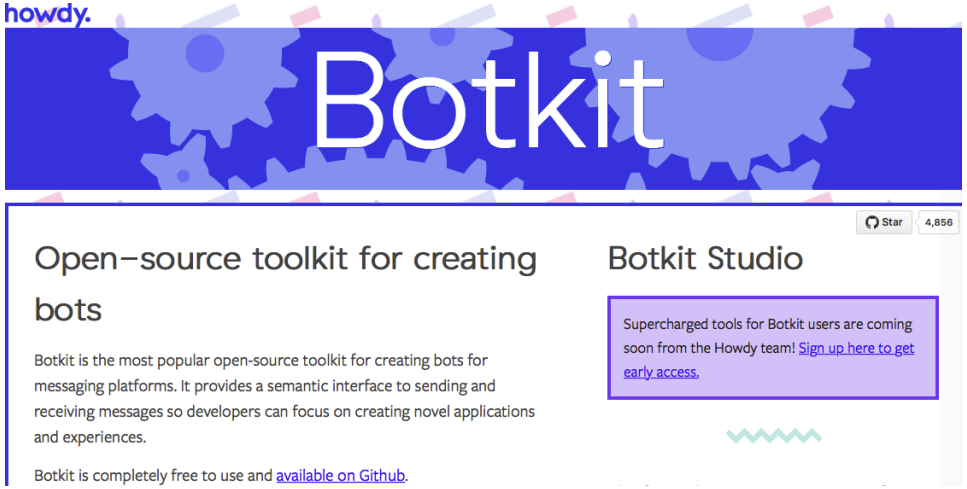


https://www.youtube.com/watch?v=IYJjrvXSbnM

Agent Enabler

Howdy

https://howdy.ai

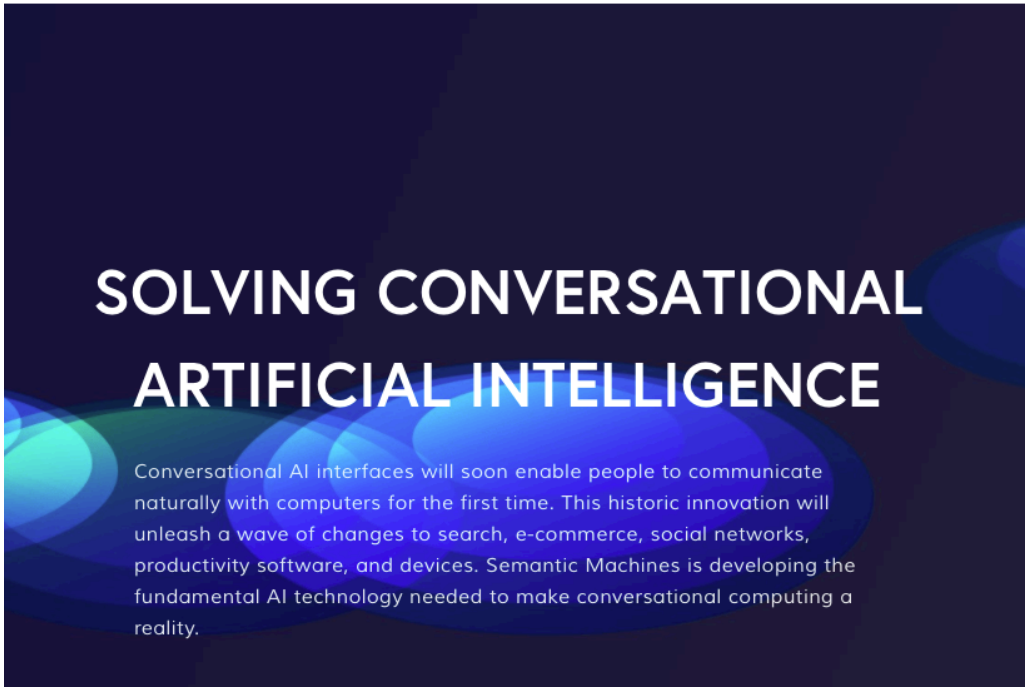


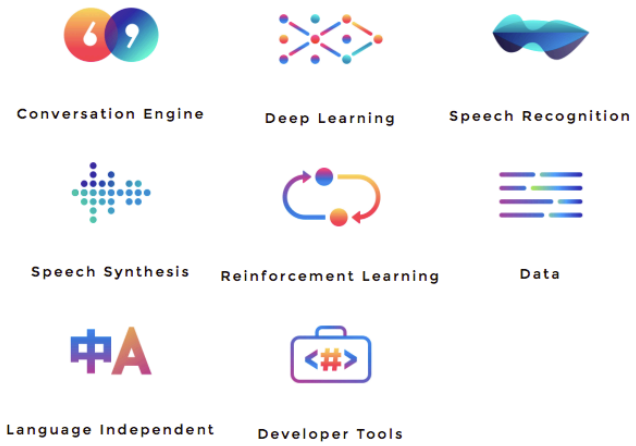
Agent Enabler

Semantic Machines

http://www.semanticmachines.com

semanticmachines





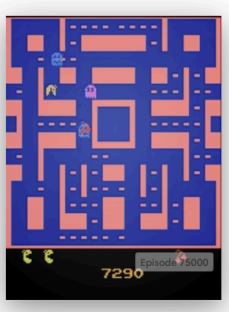
Agent Enabler

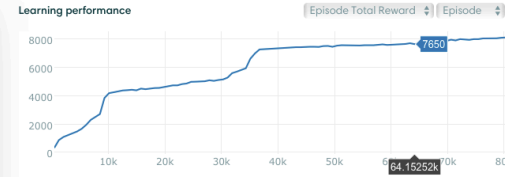
OpenAI Gym

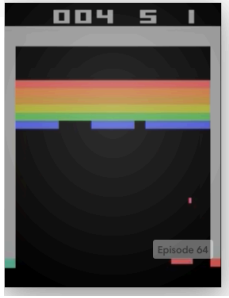
https://gym.openai.com

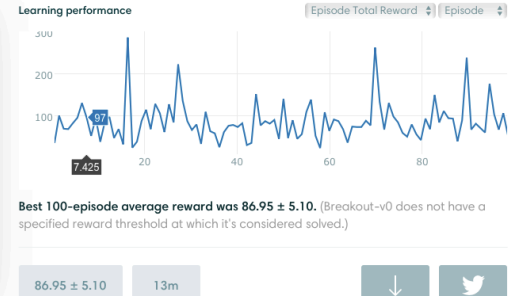
OpenAI Gym BETA

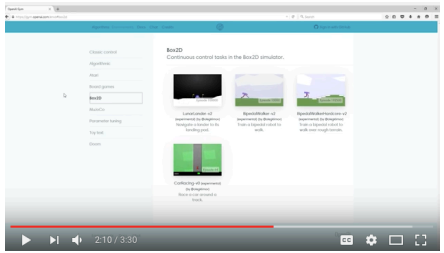
A toolkit for developing and comparing reinforcement learning algorithms. It supports teaching agents everything from walking to playing games like Pong or Go.









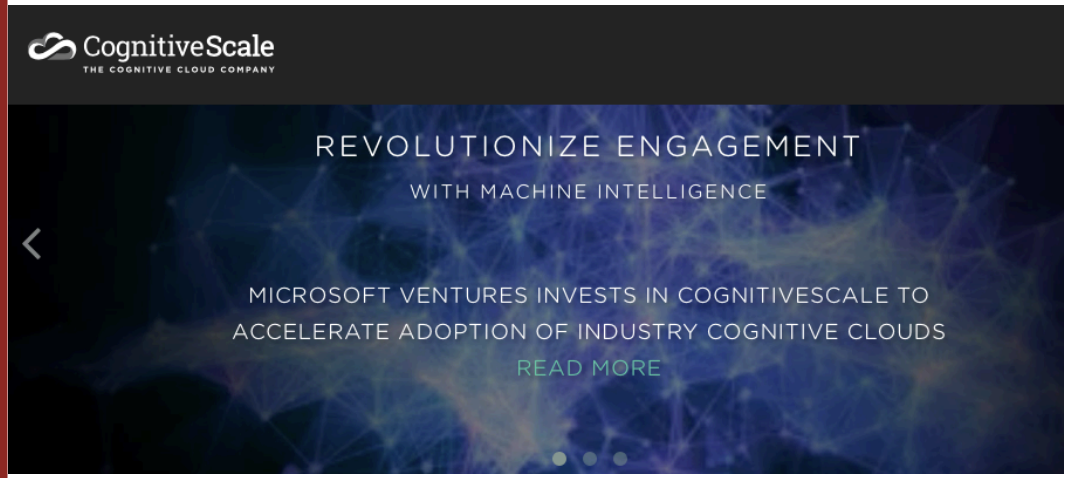


https://www.youtube.com/watch?v=1PNhuHa7lS0

Machine Learning

CognitiveScale

http://www.cognitivescale.com



SOFTWARE THAT TRANSFORMS ENGAGEMENT & PROCESS INTELLIGENCE

We bring scalable, practical machine intelligence to the enterprise.

Our industry-specific cognitive software pairs man and machine so they can achieve something new and exponentially valuable together: intelligent user engagement and business processes that get smarter and more useful with time.

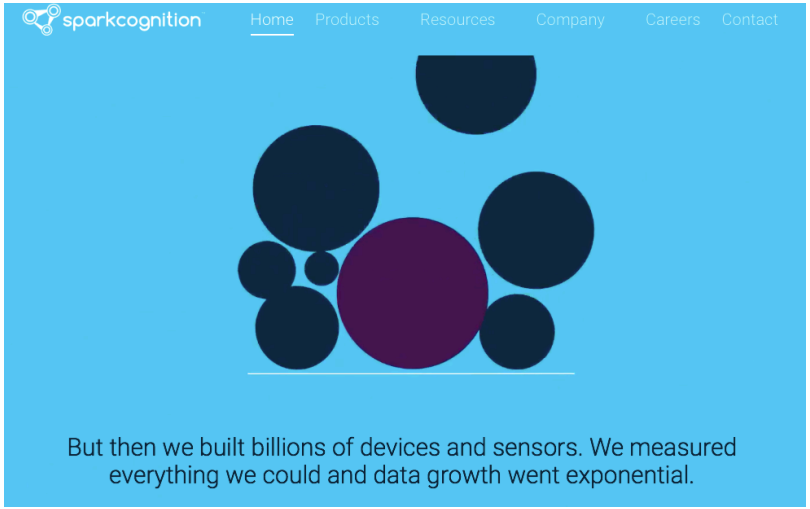
Products that interpret multi-structured big data and weave knowledge and learning across the enterprise—from the front office to back office to mission critical core functions.

https://www.youtube.com/watch?v=97hp4nPBz4g

Machine Learning

SparkCognition

https://sparkcognition.com



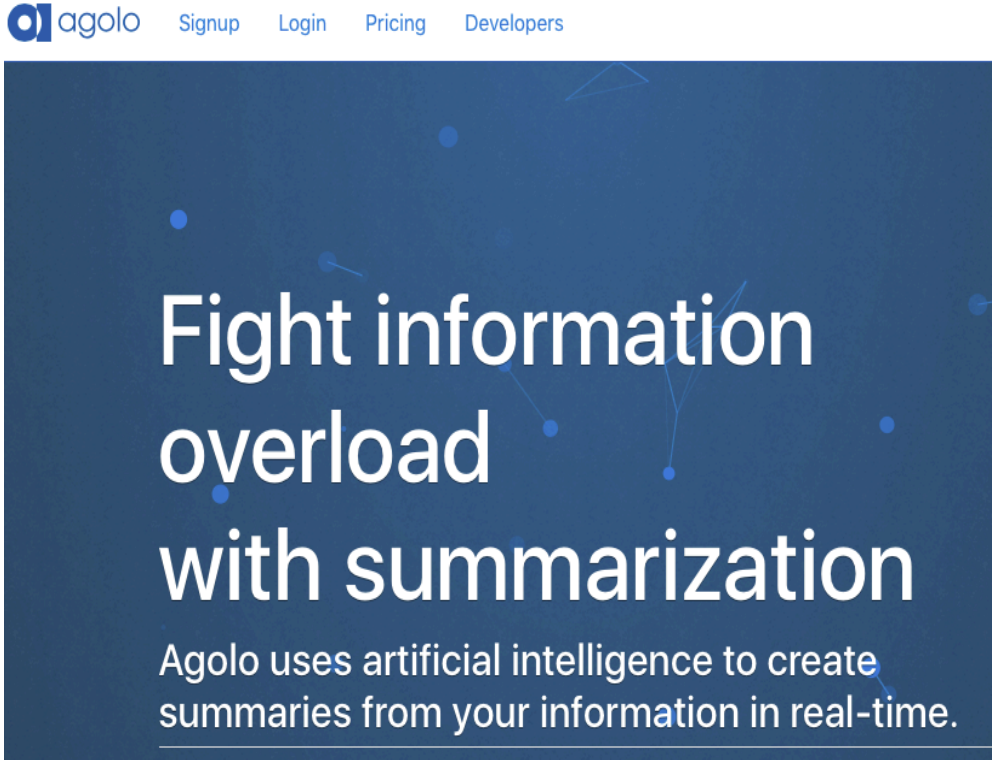
IBM Watson

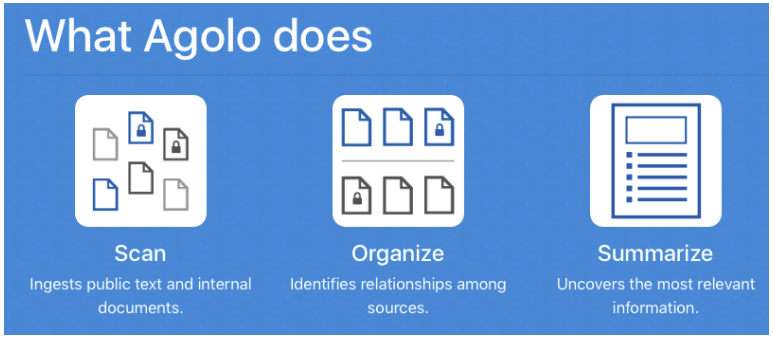
https://www.youtube.com/watch?v=4Ird_fc62yw

Natural Language

Agolo

https://www.agolo.com/



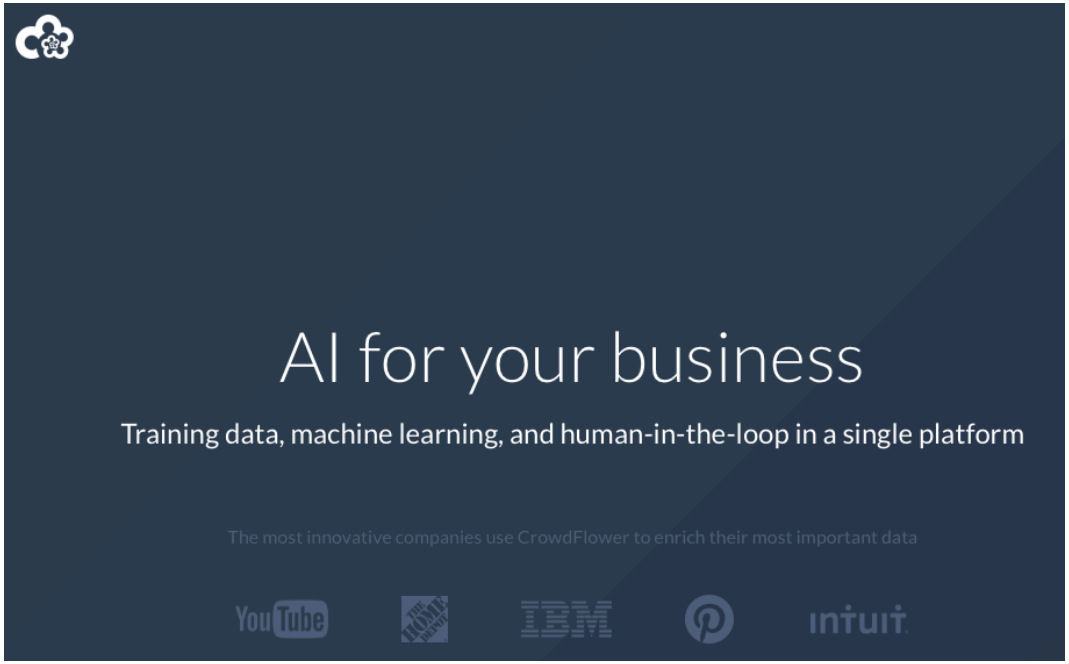


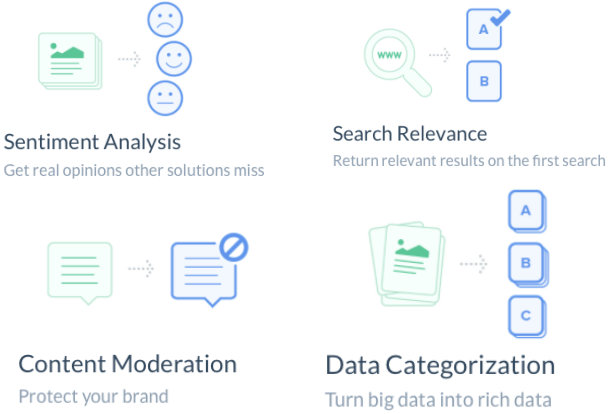
https://www.youtube.com/watch?v=ukhTMowMDXc

Data Capture

CrowdFlower

https://www.crowdflower.com





https://www.youtube.com/watch?v=oj0xKuIQwss

Data Capture

CrowdAI

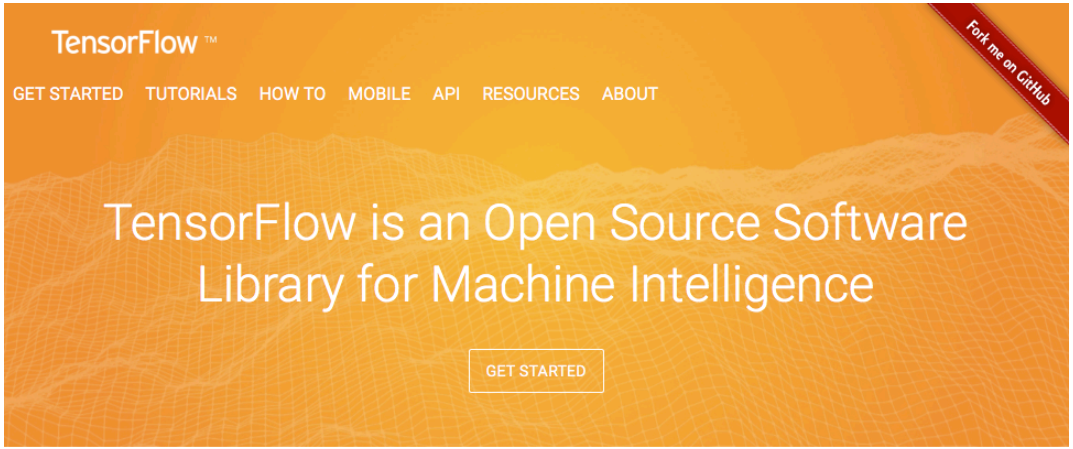
http://crowdai.com

Identify features in satellite imagery

Development

TensorFlow

https://www.tensorflow.org/



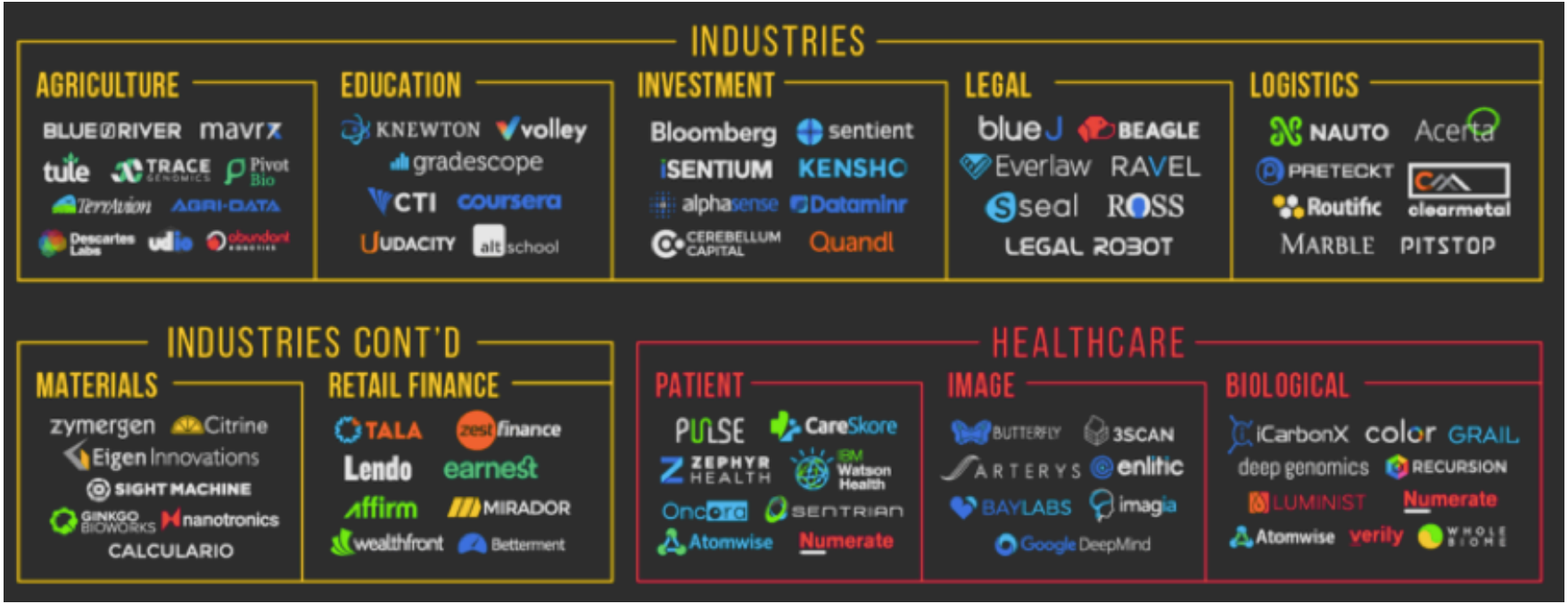
About TensorFlow

TensorFlow™ is an open source software library for numerical computation using data flow graphs. Nodes in the graph represent mathematical operations, while the graph edges represent the multidimensional data arrays (tensors) communicated between them. The flexible

Research at Google

https://www.youtube.com/watch?v=oZikw5k_2FM

Industries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CTI
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RECURSION
LUMINIST
Numerate
Atomwise
verily
WHOLE BIOME

Near-Term Technology Development

Where we should see Data-Driven Economy emerging first?

- Large data volumes available
- Combination Structure/ Unstructured data
- Demand of advanced analytics / insights generation
- Demand of Support to Decision-Making

Healthcare | Oil & Gas | Retail | Law, FinTech, Insurance..

IBM Watson, Siemens Partner To Tap Population Health Industry

Big Oil Taps IBM's Watson To Fend Off Anti-Frack Attack On Twitter

Law firm hires IBM Watson AI based legal assistant Ross

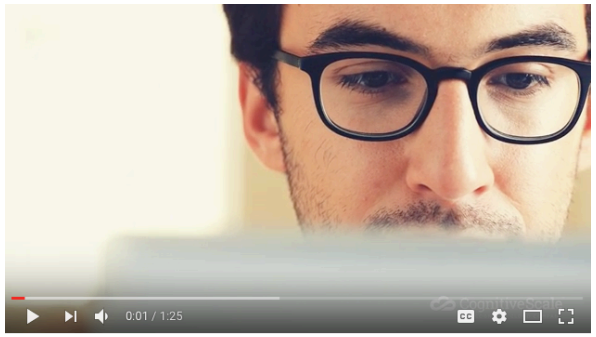
Medtronic introduces IBM Watson-powered Sugar.IQ diabetes app

The cognitive computing software can inform users about how specific foods will influence their glucose levels, track diets over time and spot otherwise hidden patterns in that data.

Cases Machine Learning at Business

Cognitive Scale and Finance

https://www.youtube.com/watch?v=-oAX1Xpelk8



Cognitive Scale and Retail

https://www.youtube.com/watch?v=VtVZ5RoBFOQ

Cognitive Scale and Health

https://www.youtube.com/watch?v=uFZzBnJ3OAE

Cases Machine Learning at Business

Sparkcognition and Power Grids

https://www.youtube.com/watch?v=4Ird_fc62yw

IBM Watson's integration with Spark Cognition

https://www.youtube.com/watch?v=9POpuKbdfy4

Thank you
고맙습니다

Presentation at:
http://www.fernandokoch.me/fts-ku
password: kumot2016

Please email questions to:
fkoch@acm.org

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