

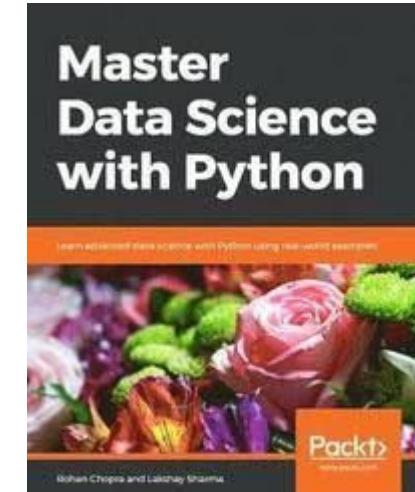
INTRODUCTION TO AI & ML

THANK YOU

WELCOME

Mohamed Noordeen Alaudeen

Senior Data Scientist



<https://www.linkedin.com/in/nursnaaz/>

<https://github.com/nursnaaz>

<https://stackoverflow.com/users/6949469/nursnaaz>

Agenda

1. Introduction Jargons
2. Is Data science career is still a good hype?
3. Demand for Data science
4. Why Python?
5. Machine Learning
6. Machine Learning in the past
7. Machine Learning in present
8. Machine Learning in the future
9. How do you want tame?
10. Use Case: Predict corono virus using X-Ray Image?
11. Coding
12. Application - Flask
13. Deployment in the cloud - GCP

ARTIFICIAL INTELLIGENCE

Early artificial intelligence stirs excitement.



1950's

1960's

1970's

1980's

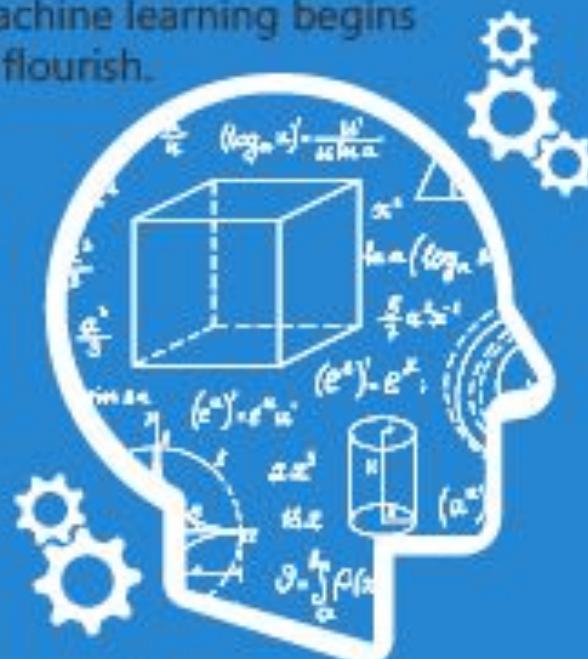
1990's

2000's

2010's

MACHINE LEARNING

Machine learning begins to flourish.



DEEP LEARNING

Deep learning breakthroughs drive AI boom.



Breaking the jargons

Artificial Intelligence

Emulate the intelligent Behaviour. Make machines do tasks, human are good at.

Machine Learning

Uses Statistical techniques that enable machines to improve performance with experience.

Deep Learning

Multiple (Deep) layers of **Neural Networks**, that can be trained to perform task like speech and image recognition by learning through vast amounts of data.

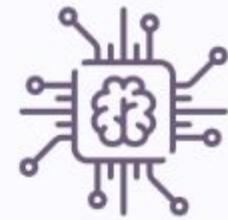
Data Science

- based on strict analytical evidence
- deals with structured & unstructured data
- includes various data operations



Artificial Intelligence

- imparts human intellect to machines
- uses logic and decision trees
- includes machine learning



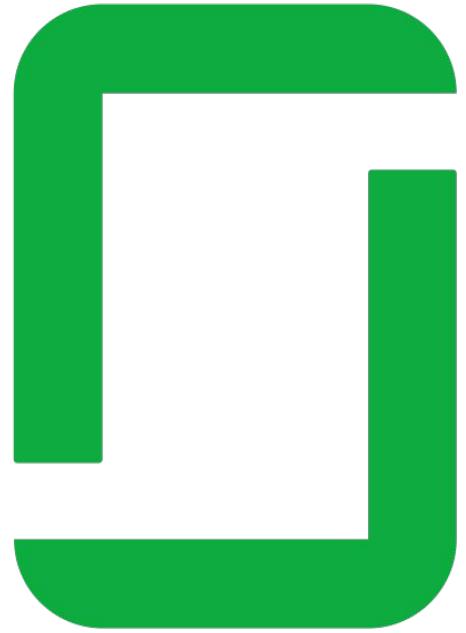
Machine Learning

- subset of AI
- uses statistical models
- machines improve with experience



IS DATA SCIENCE A RISING CAREER 2020





glassdoor

25 Best Jobs in America (2016)

Best Jobs ▾ 2016 ▾ United States ▾

Share



Job Title	Median Base Salary	Career Opportunity	Job Openings	
#1 Data Scientist	\$116,840	4.1/5	1,736	View Jobs
#2 Tax Manager	\$108,000	3.9/5	1,574	View Jobs
#3 Solutions Architect	\$119,500	3.5/5	2,906	View Jobs

25 Best Jobs in America (2017)

Best Jobs ▾

2017 ▾

United States ▾

Share



Job Title	Median Base Salary	Job Satisfaction	Job Openings	
#1 Data Scientist	\$110,000	4.4/5	4,184	View Jobs
#2 DevOps Engineer	\$110,000	4.2/5	2,725	View Jobs
#3 Data Engineer	\$106,000	4.3/5	2,599	View Jobs

25 Best Jobs in America (2018)

Best Jobs ▼ 2018 ▼ United States ▼

Share |

Job Title	Median Base Salary	Job Satisfaction	Job Openings	
#1 Data Scientist	\$110,000	4.2/5	4,524	View Jobs
#2 DevOps Engineer	\$105,000	4.0/5	3,369	View Jobs
#3 Marketing Manager	\$85,000	4.0/5	6,439	View Jobs

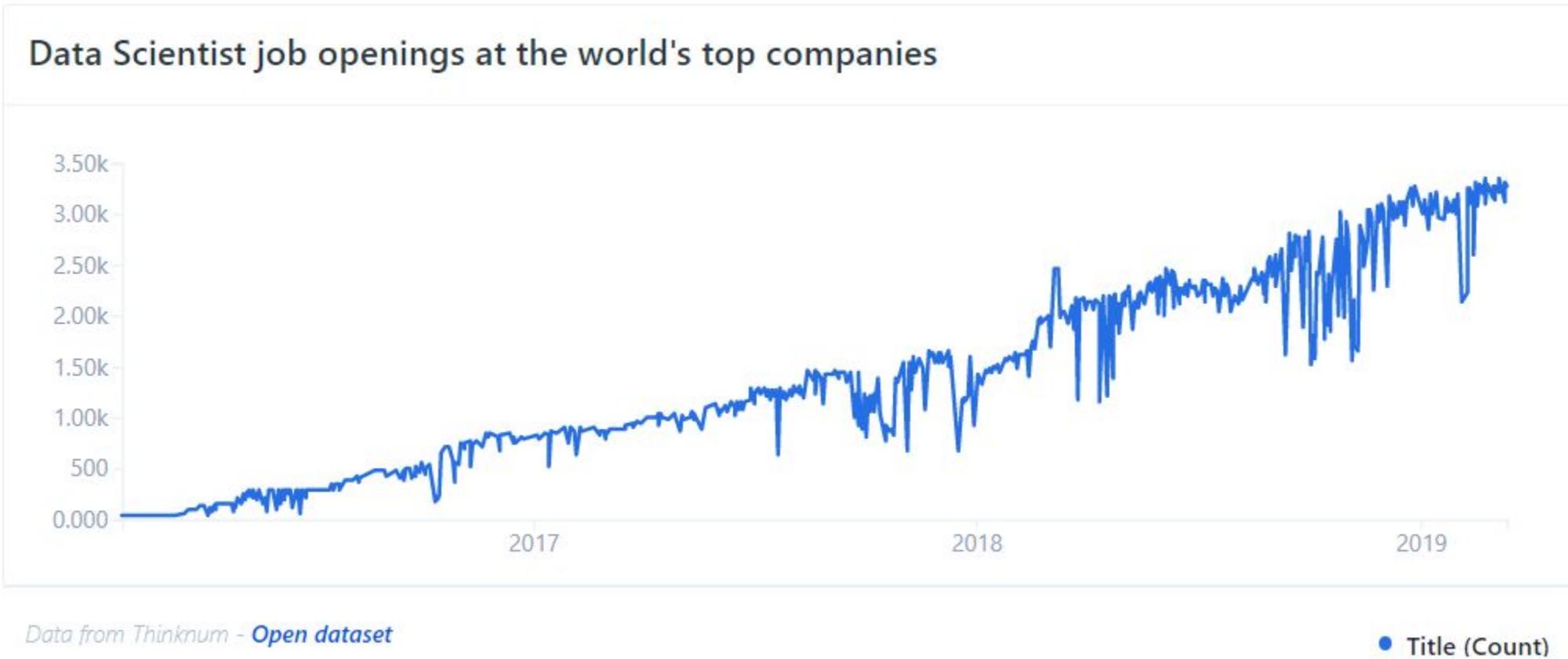
25 Best Jobs in America (2019)

Best Jobs ▾ 2019 ▾ United States ▾

Share | [f](#) [t](#) [in](#) [e](#)

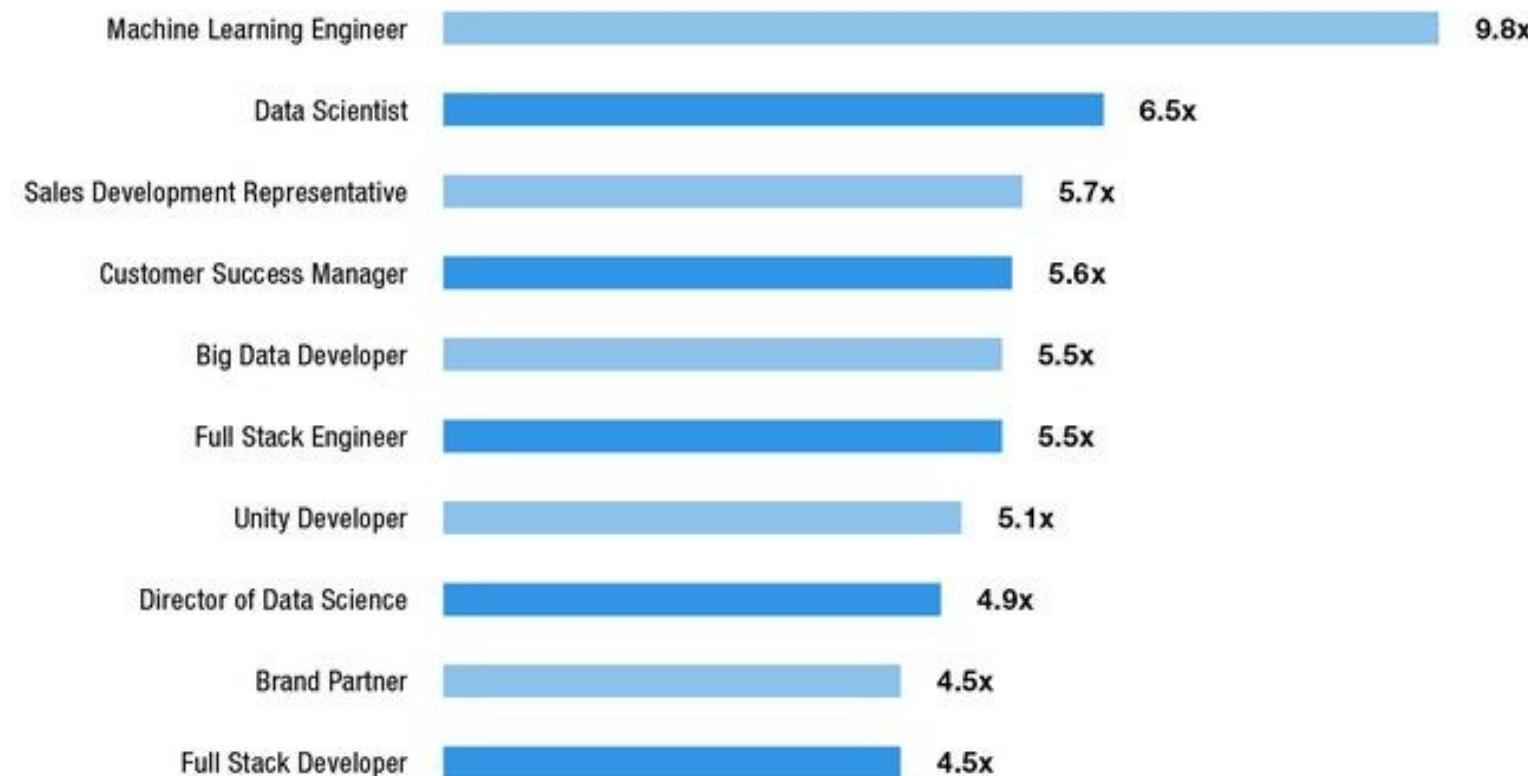
Job Title	Median Base Salary	Job Satisfaction	Job Openings	
#1 Data Scientist	\$108,000	4.3/5	6,510	View Jobs
#2 Nursing Manager	\$83,000	4/5	13,931	View Jobs
#3 Marketing Manager	\$82,000	4.2/5	7,395	View Jobs

High Demand of Data Scientist



Low Supply of Data Scientist

1. The world needs **28%** more data scientists worldwide by **2020** to meet growing demand
2. There's a shortage of **151,717** data scientists in the U.S. alone.
3. **59%** of data science job demand is in Finance, Professional Services, and IT
4. The highest demand for data skills is in the area of **machine learning**.



WHY THE DEMAND IS HIGH?

DATA SCIENCE DOMAINS

FINANCE

Asset pricing, trading strategies and more

HEALTHCARE

Epidemiology, Insurance, Image recognition

PHARMACEUTICALS

Patient Journey, Treatment Pathways

GOVERNMENT

Climate Change, Public Policy, Security

MANUFACTURING

Supply Chain, Equipment maintenance and others

RETAIL

Pricing, Discounts, Market Basket Analysis

OIL & GAS

Drilling, Sensors, Equipment Maintenance

TRANSPORTATION

Airline Promotions, Passenger promotions

UTILITIES

Smart Meter Grids, Power consumption

WEB INDUSTRY

Clickthrough Ads, Marketing

INTERNET SECURITY

Log monitoring, Alerts, Detecting intrusions

SPACE & SCIENCE

High Energy Physics, R&D and much more

My Theory

ERA 1



ERA 2



Google Analytics



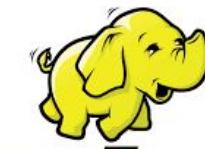
tableau



Power BI



ERA 3



hadoop



Azure



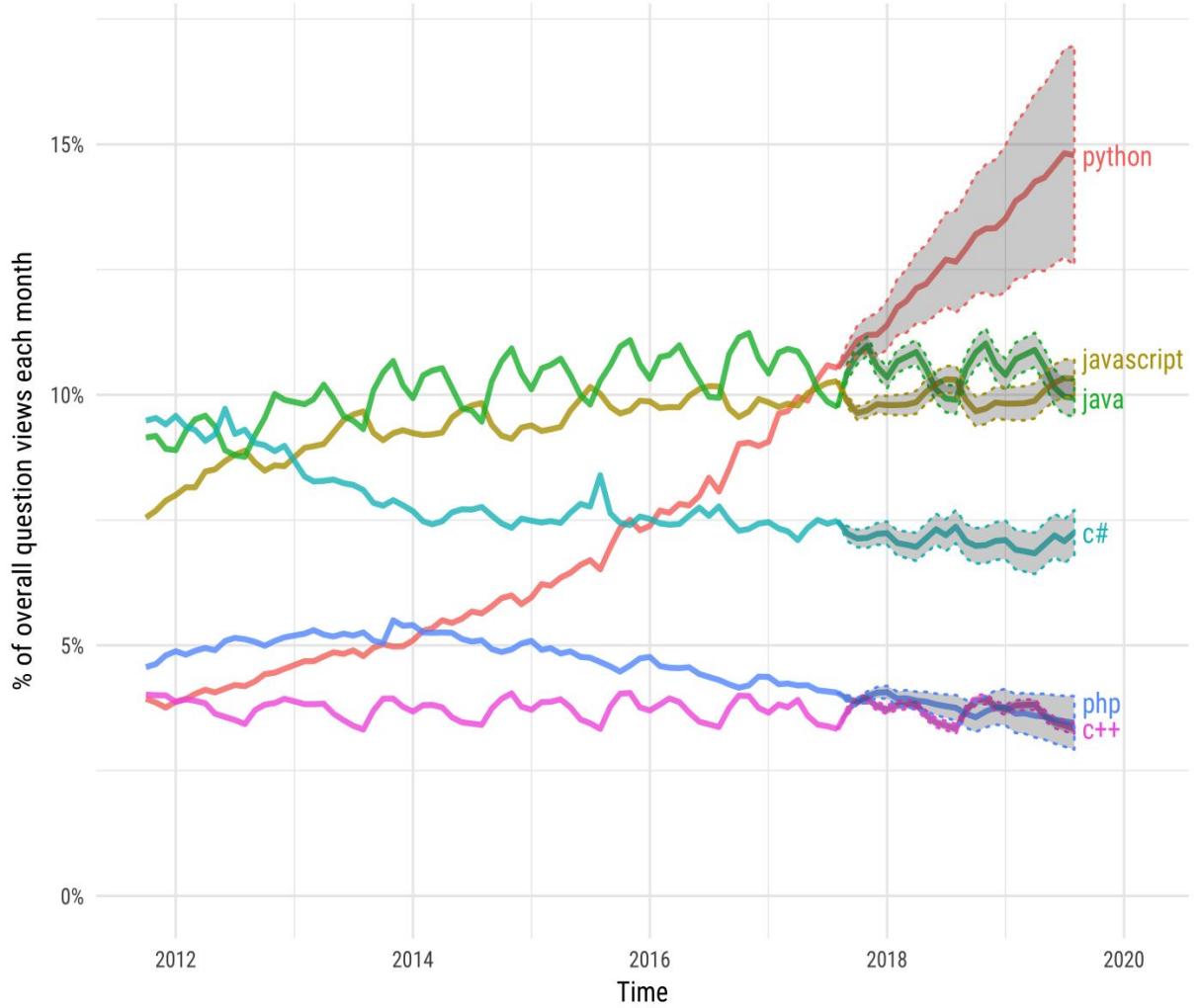
Google Cloud

python™

Python's Huge Demand and Popularity

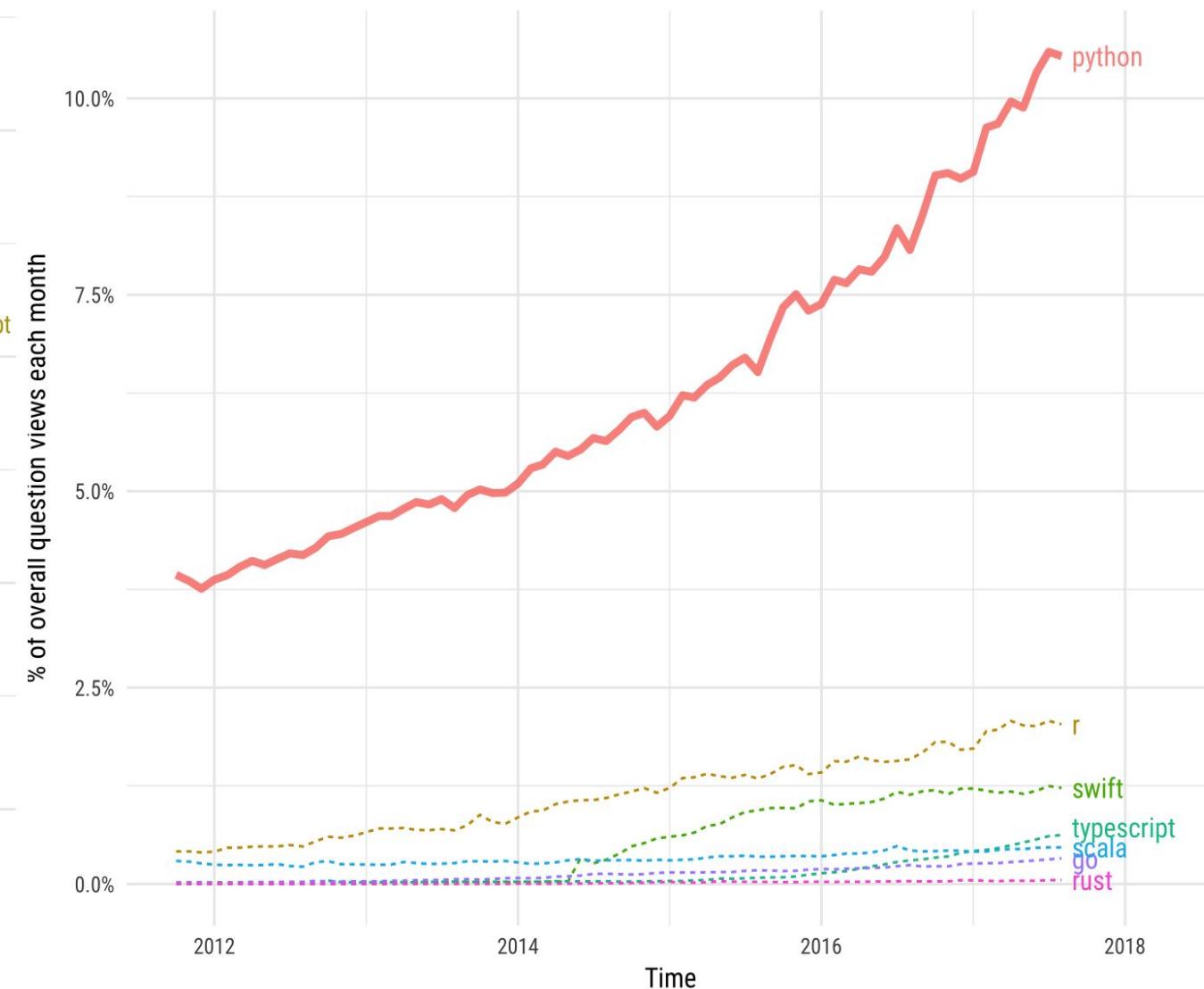
Projections of future traffic for major programming languages

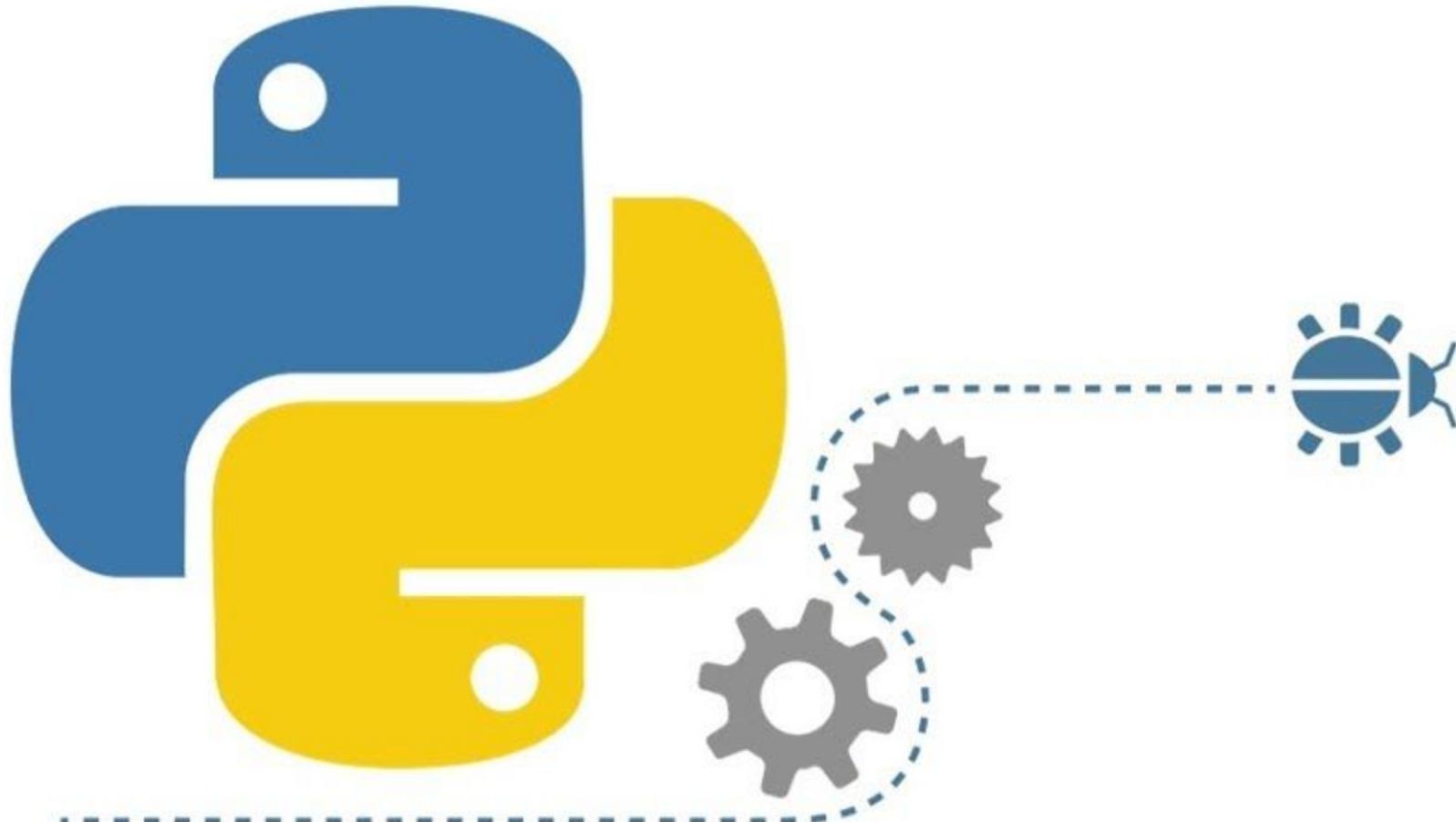
Future traffic is predicted with an STL model, along with an 80% prediction interval.



Python compared to smaller, growing technologies

Based on question traffic in World Bank high-income countries





WHY PYTHON?

10. Simple & Easy To Learn



Open Source

```
a=3  
b=5  
Sum=a+b
```

High-level



Interpreted



Large community

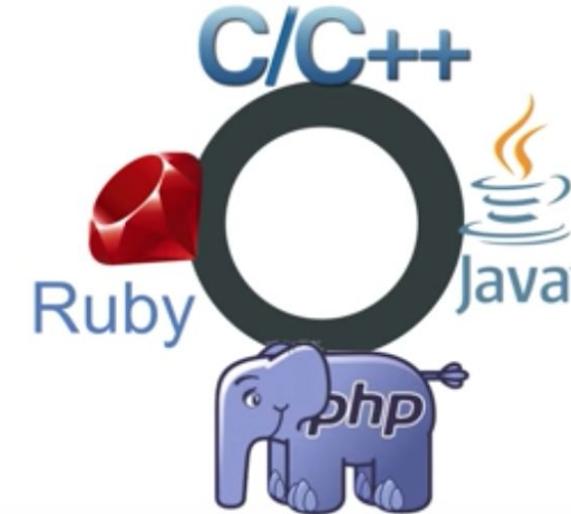
Java

```
public class HelloWorld {  
    public static void main(String[] args) {  
        System.out.println("Hello, world");  
    }  
}
```

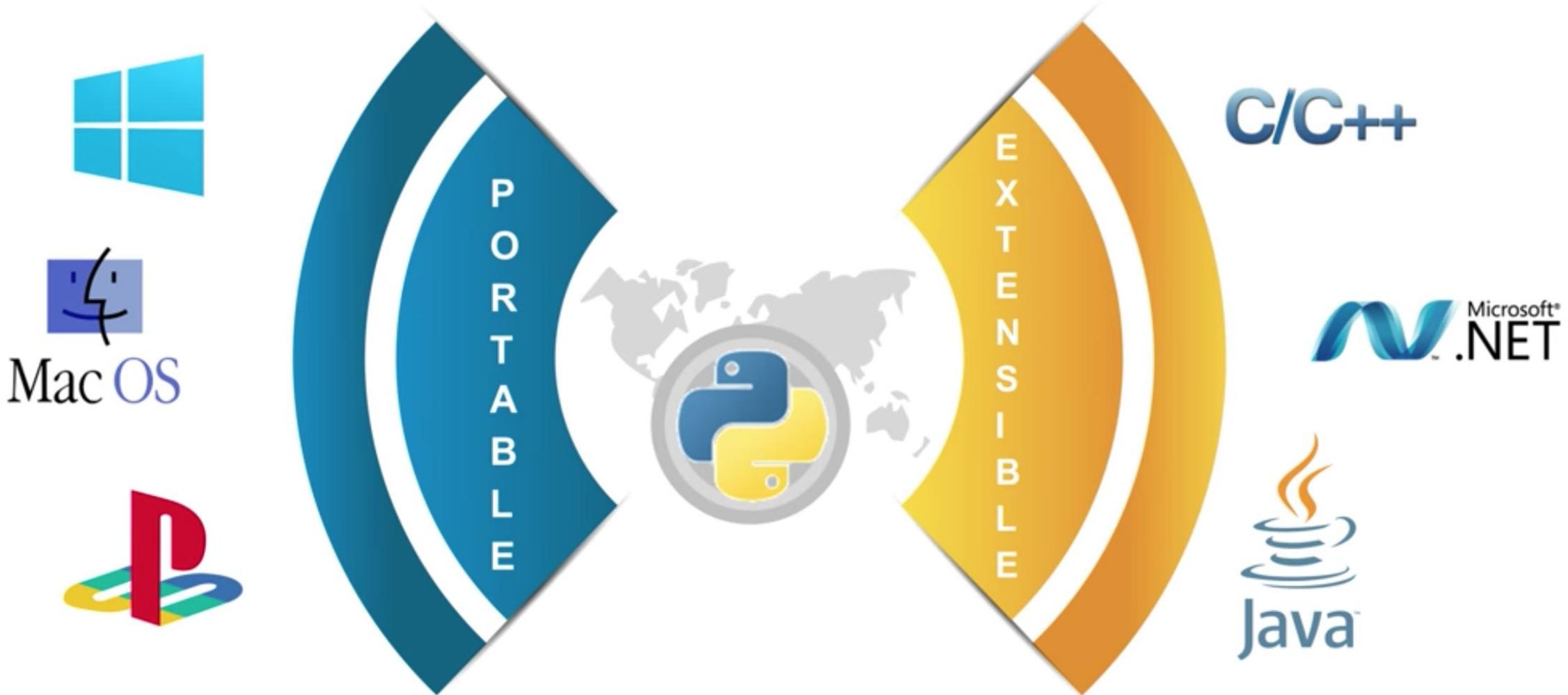
Python

```
print("Hello, world")
```

It's that **SIMPLE!**



9. Portable & Extensible



8. Web Development



- Develop web applications
- Scrape websites

Frameworks

django



Flask



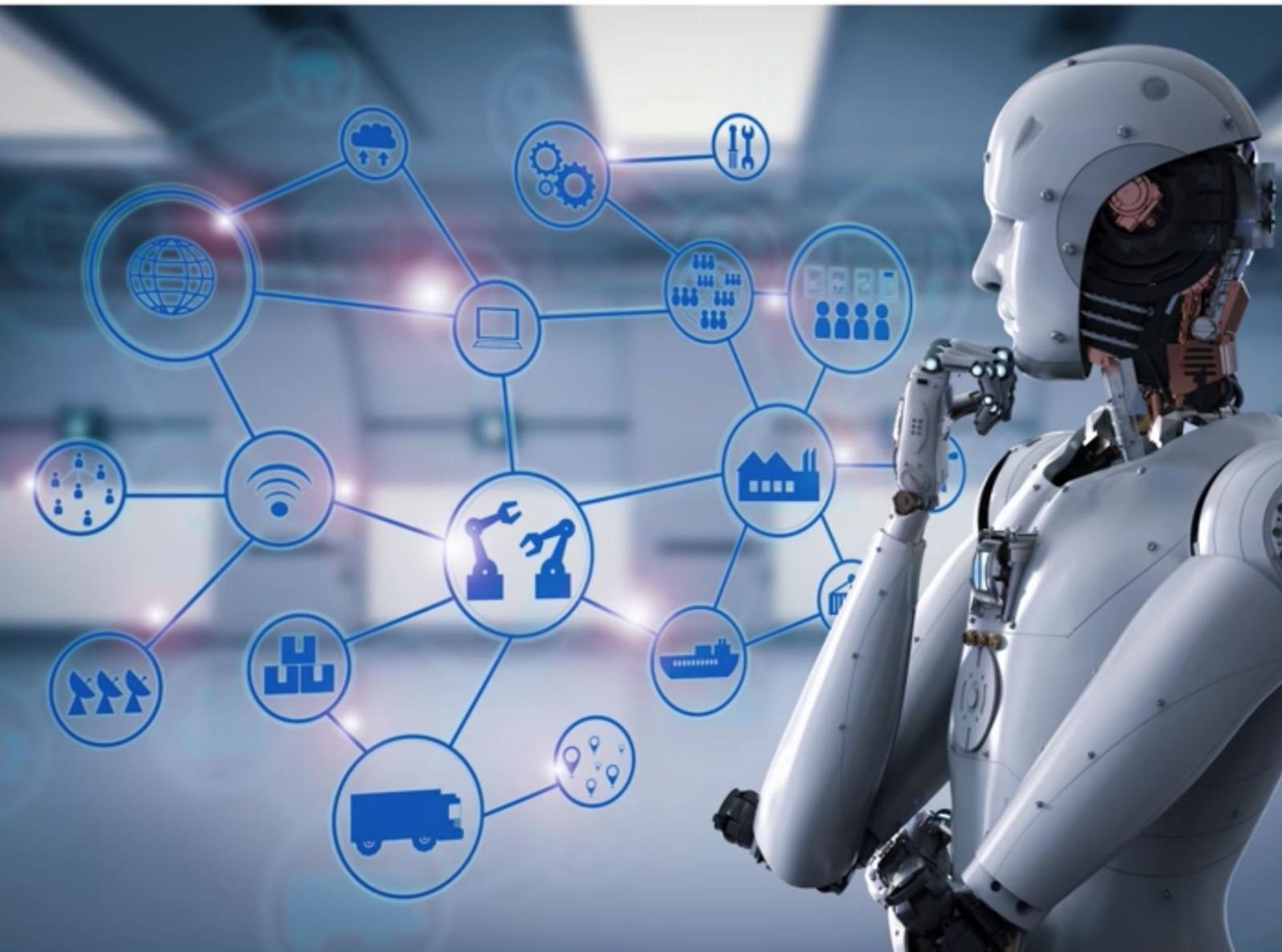
Pylons

WEB2PY

7. Artificial Intelligence

Libraries

-  Scikit-learn
-  Keras
-  Tensorflow
-  OpenCV



6. Computer Graphics

➤ Graphical User Interface

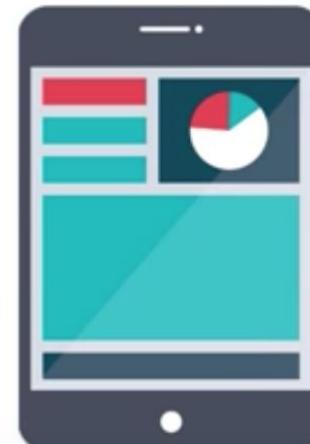
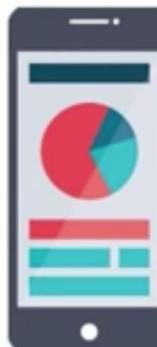
➤ Desktop applications

➤ Game development

Libraries

TK
Tkinter

 Jython



5. Testing Frameworks

- Python supports testing with cross-platform & cross-browser
- Built in testing framework which covers debugging time and fastest workflows

Tools



Splinter

Framework



4. Big Data

- Python handles **BIG DATA!**
- Python supports parallel computing
- You can write MapReduce codes in Python

Libraries



3. Scripting: Automation



- It is the most popular scripting language in the industry
- Automate certain tasks in a program
- They are interpreted rather than being compiled



Scripts



**Machine reads
& interprets**



**Runtime error
check**

2. Data Science



- Well-suited for data **manipulation & analysis**
- Deals with **tabular** data with heterogeneously-typed columns
- Arbitrary **matrix** data
- Observational/ **statistical** datasets

Libraries



NumPy



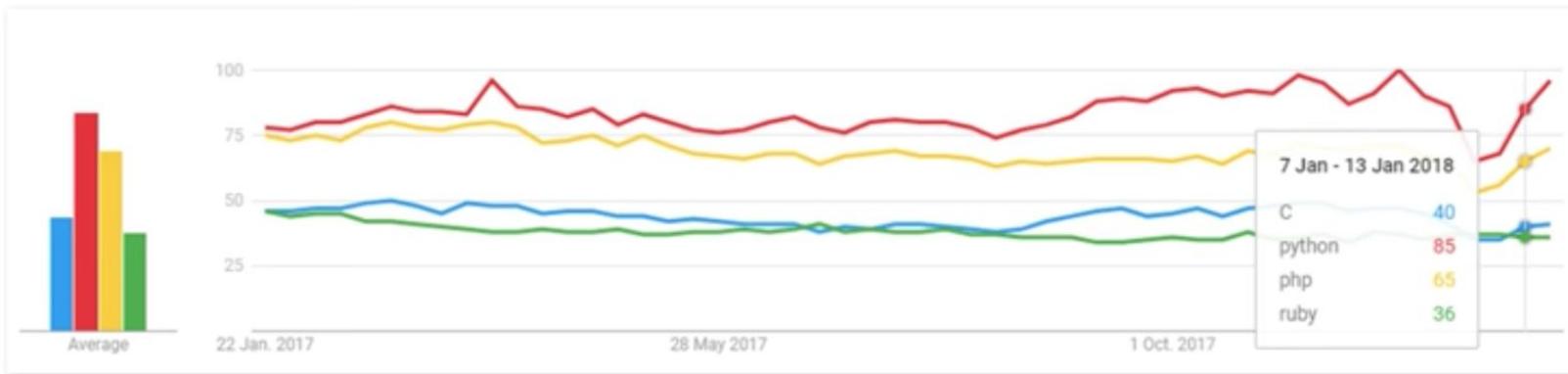
Pandas



seaborn

1. Popularity & High Salary

USD \$116,028



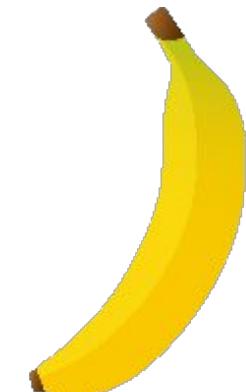
Big Giants



What is Machine Learning?



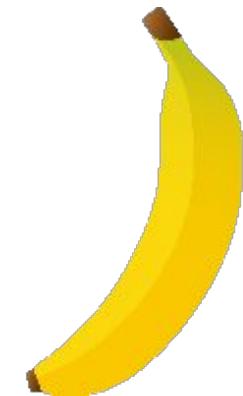
Baby Learning



?

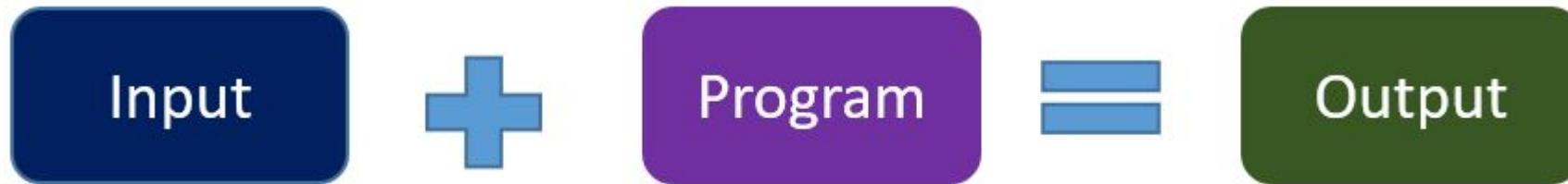


Machine Learning



?

Traditional Programming Vs Machine Learning





**"In God we trust.
All others must bring data."**

- Dr. W. Edwards Deming

Lets take another 5 minute
Meet u at 6.55 pm

Machine learning wonders at past

Google

A large, empty search input field with a light blue border. In the bottom right corner of the input field is a small microphone icon, indicating a voice search feature.

Google Search

I'm Feeling Lucky



Hello, Gil Starkey. We have recommendations for you. (Not Gil?)

Gil's Amazon.com | Today's Deals | Gifts & Wish Lists | Gift Cards

Close

Shop All Departments

Search All Departments

Your Amazon.com > Your Amazon Facebook Page

Facebook Profile Info



[Edit your Facebook profile](#)

Birthday:
June 10

Current City:
Chicago, Illinois

You don't have any information about favorite books, music, or movies on Facebook. [Edit your Facebook profile](#) and add your favorites to get personalized recommendations on this page.

Birthday and Gift Suggestions for Your Friends on Facebook



November 1

(in 3 weeks)

[See gift suggestions](#)



November 23

[See gift suggestions](#)



December 8

[See gift suggestions](#)



December 27

[See gift suggestions](#)



Janu

[See gift suggestions](#)

[See all friends on Facebook and their birthdays](#)

Popular Among Your Friends on Facebook



The Godfather DVD Collection... DVD ~ Marlon Brando

(630) \$41.49

2 friends like this:



[See more](#)



Back in Black ~ AC/DC

(677) \$9.99

2 friends like this:



[See more](#)



Goldfinger DVD ~ Sean Connery

(239) \$12.49

1 friend likes this:



[See more](#)



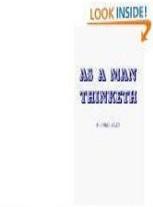
The Beatles Stereo Box Set ~ The Beatles

(383) \$188.00

2 friends like this:



[See more](#)



As a Man Thinketh by James Allen

(261) \$3.50

1 friend likes this:



[See more](#)

Other Movies You Might Enjoy

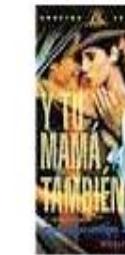
Amelie



[Add](#)

Not Interested

Y Tu Mama Tambien



[Add](#)

Not Interested



Eiken has been added to your Queue at position 2.

This movie is available now.

[Move To Top Of My Queue](#)

[Continue Browsing](#)

[Visit your Queue >](#)

Guys and Balls



[Add](#)

Not Interested

Mostly Martha



[Add](#)

Not Interested

Only Human



[Add](#)

Not Interested

Russian Dolls



[Add](#)

Not Interested

Close

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Home Profile My Network Jobs Interests

Women Sr. Professionals - Join The North American Association of Business Women. Apply Now.

Pending invitations (417)

Hospitality Experts!Menu Corporate Communications/I... Helping people to

Ignore Accept Ignore Accept Ignore Accept

▼ See more ▼

People You May Know

M Reynolds Licensed Clinical Psychologist at Columbia... Connect

Dwight Green Author + Speaker Connect

Invited to join LinkedIn a4booth@acs.rye... Add to network

Senior Manager, Public Relations at Connect

Pluck PR Connect

Elisha Mireles Invite to join LinkedIn elishamusic@hot... Add to network

Bogachstein Partner / Chief Creative Officer Connect

Academic Connect

Invite to join LinkedIn Connect

Walters Communications Connect

Ads

Gartner Free Gartner® Research Key Digital Marketing Trends For 2016-17. Download Our Free White Paper

Replace GSA With Fusion Unmatched Scalability, Reliability and Search Expertise. Free Download!

People You May Know

See All X

 Denise Ruehrschnick Jacobson Add as Friend

 John Mullis Add as Friend

 Travis Johnson Add as Friend

Invite Your Friends

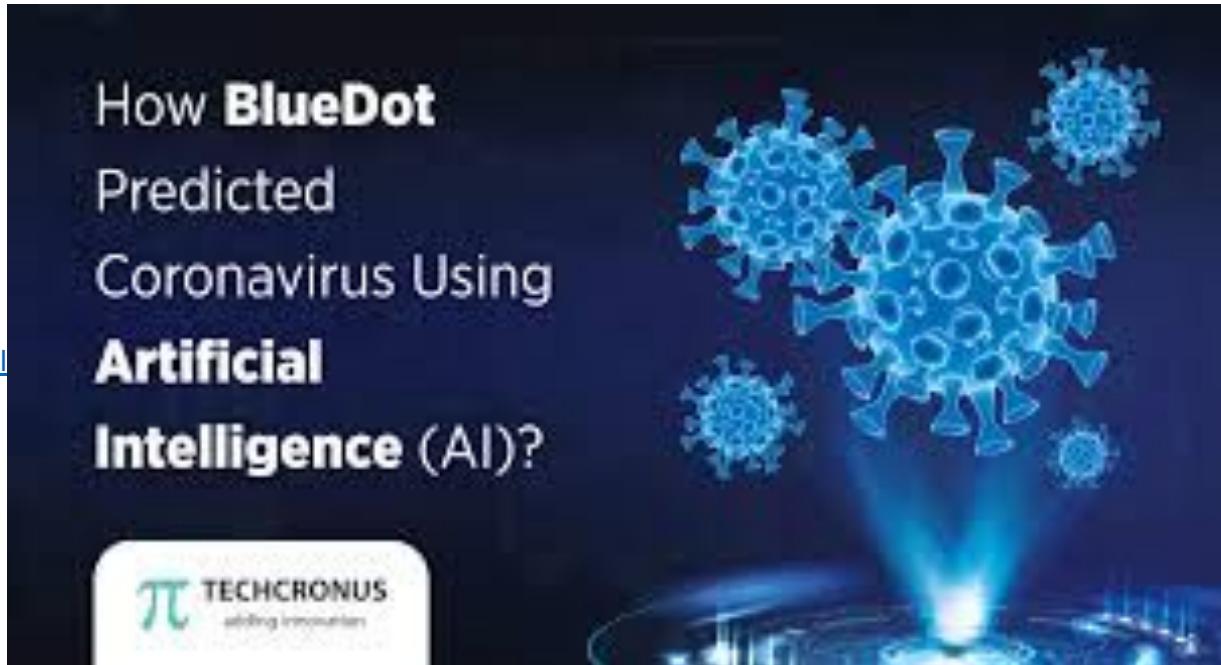
 Invite friends to join Facebook.





Computers can Learn

<https://www.youtube.com/watch?v=J8HSCMYal>

A photograph of Kamran Khan, a man with dark hair and glasses, wearing a light blue shirt, sitting at a desk and looking towards the camera. He is positioned next to a whiteboard covered in various handwritten notes and diagrams, including the words "Mosaic (CDC)", "CASE", "Territory", "Grid", "User", and "Foot".

Kamran Khan
How AI Predicted the Coronavirus Outbreak

twiml AI Podcast
with SAM CHARRINGTON

Automatic drug discover

Geoffrey Hinton

From Wikipedia, the free encyclopedia

Geoffrey Everest Hinton FRS^[12] (born 6 December 1947) is a British-born Canadian^[13] cognitive psychologist and computer scientist, most noted for his work on artificial neural networks. As of 2015 he divides his time working for Google and University of Toronto.^[14] He was one of the first researchers who demonstrated the use of generalized backpropagation algorithm for training multi-layer neural nets and is an important figure in the deep learning community.^{[15][16][17]}

Contents [hide]

- 1 Education
- 2 Career
- 3 Research
- 4 Honours and awards
- 5 Personal life
- 6 References

Education [edit]

Hinton was educated at King's College, Cambridge graduating in 1970, with a Bachelor of Arts in experimental psychology.^[1] He continued his study at the University of Edinburgh where he was awarded a PhD in artificial intelligence in 1977 for research supervised by Christopher Longuet-Higgins.^{[3][18]}

Career [edit]

After his PhD he worked at the University of Sussex, the University of California, San Diego, Carnegie Mellon University.^[1] He was the founding director of the Gatsby Charitable Foundation Computational Neuroscience Unit at University College London,^[1] and is currently^[19] a professor in the computer science department at the University of Toronto. He holds a Canada Research Chair in Machine Learning. He is the director of the program on "Neural Computation and Adaptive Perception" which is funded by the Canadian Institute for Advanced Research. Hinton taught a free online course on Neural Networks on the education platform Coursera in 2012.^[20] Hinton joined Google in March 2013 when his company, DNNresearch Inc, was acquired. He is planning to "divide his time between his university research and his work at Google".^[21]

Geoffrey Hinton	
	
Born	Geoffrey Everest Hinton 6 December 1947 (age 69) ^[1] Wimbledon, London
Residence	Canada
Fields	Machine learning Neural networks Artificial intelligence Cognitive science Object recognition ^[2]
Institutions	University of Toronto Google

Artificial Intelligence helping to save human race

<https://spectrum.ieee.org/the-human-os/artificial-intelligence/medical-ai/companies-ai-coronavirus>

<https://singularityhub.com/2020/03/17/how-deepminds-ai-is-working-to-decode-coronavirus/>

<https://www.thehindu.com/sci-tech/science/coronavirus-tcs-uses-ai-for-drug-discovery/article31257352.ece>

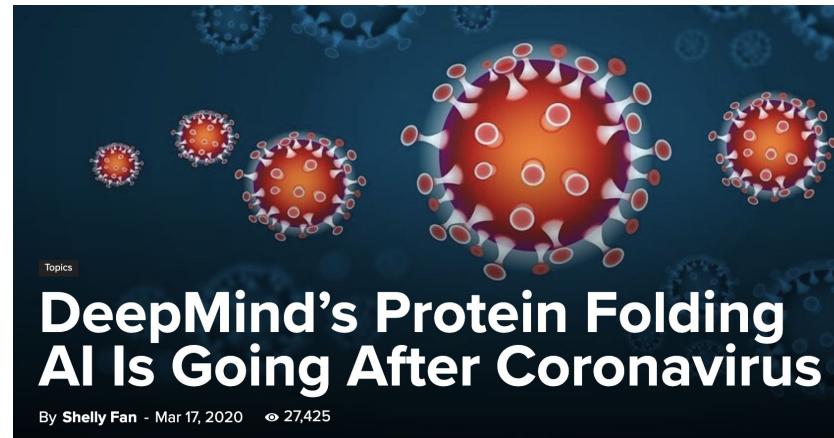
<https://www.wired.com/story/ai-uncovers-potential-treatment-covid-19-patients/>

<https://www.youtube.com/watch?v=a2EMsoR4IXw>

Five Companies Using AI to Fight Coronavirus

Deep learning models predict old and new drugs that might successfully treat COVID-19

By Megan Scudellari



SCIENCE

Coronavirus: TCS uses AI for drug discovery



Shubashree Desikan

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APRIL 04, 2020

UPDATED: APRIL 04, 2020

TOM SIMONITE BUSINESS 04.17.2020 07:00 AM

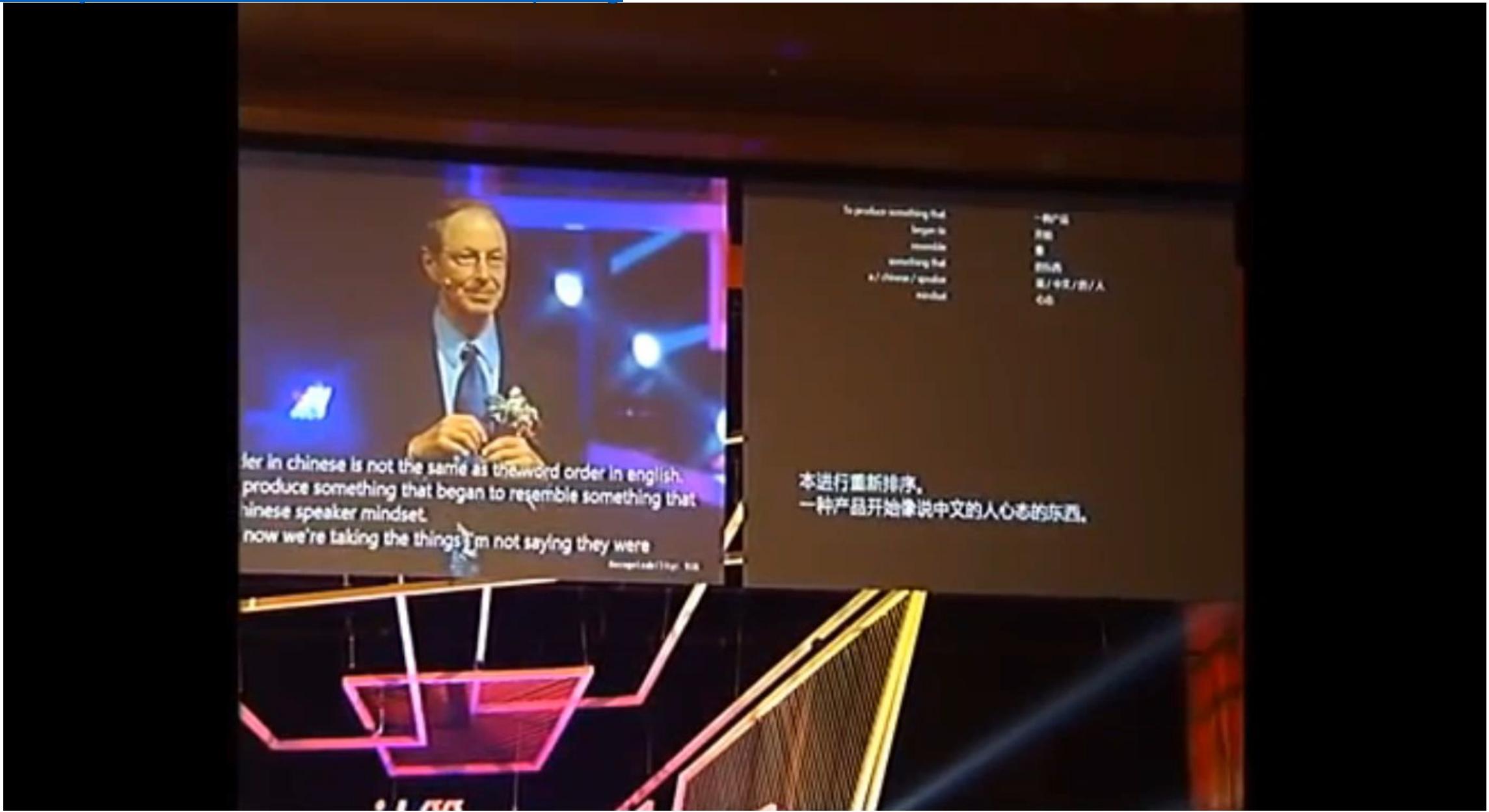
AI Uncovers a Potential Treatment for Covid-19 Patients

Software suggested an arthritis drug might quell an out-of-control immune response that damages the lungs. Now it's being tested in a clinical trial.

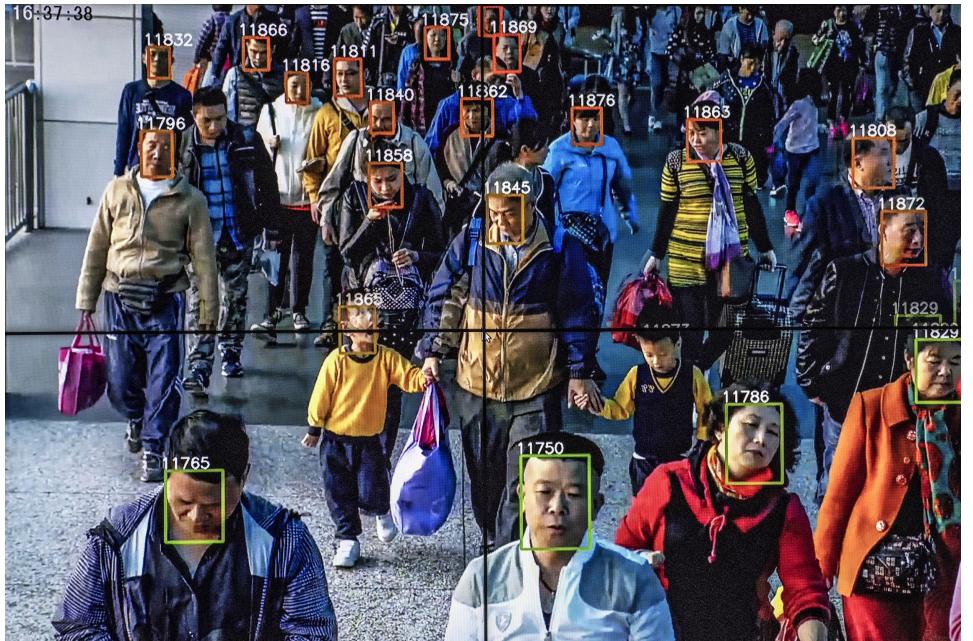
Google DeepMind



**Computers can listen and
understand**



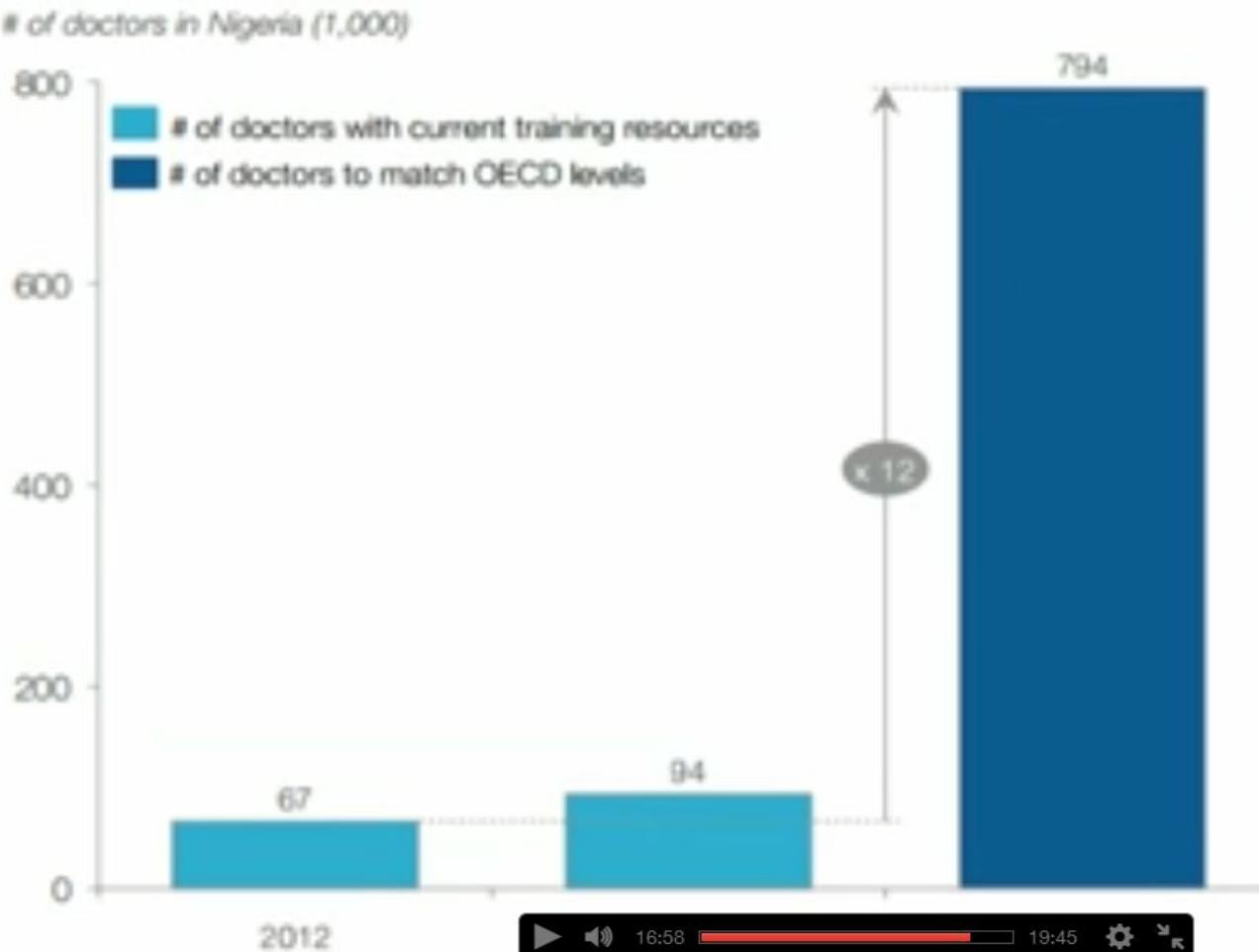
Computers can see



For Future

Exhibit 1: Imitating Traditional Development Paths Is Impossible for Emerging Economies
 Nigeria would need over 700,000 additional doctors to reach OECD levels by 2030

Sources: World Bank, WHO, Africa Health Workforce Observatory, BMI, IFC, BCG



Cost:
 US\$ 51 billion, equalling 20%
 of GDP (2012) or 10 times
 public health expenditure
 (2012)

Duration:
 300 years with existing
 training infrastructure

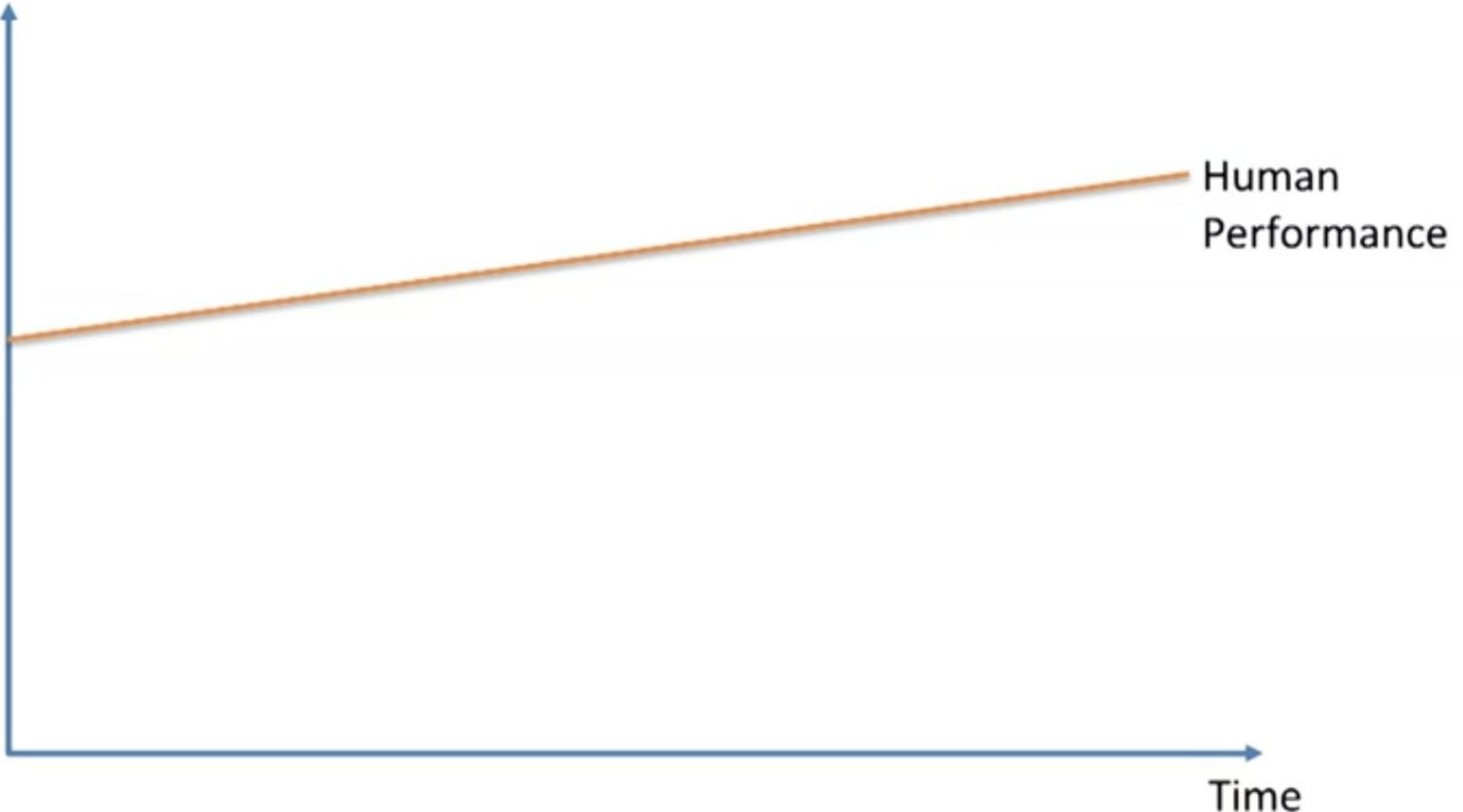
Reading &
Writing

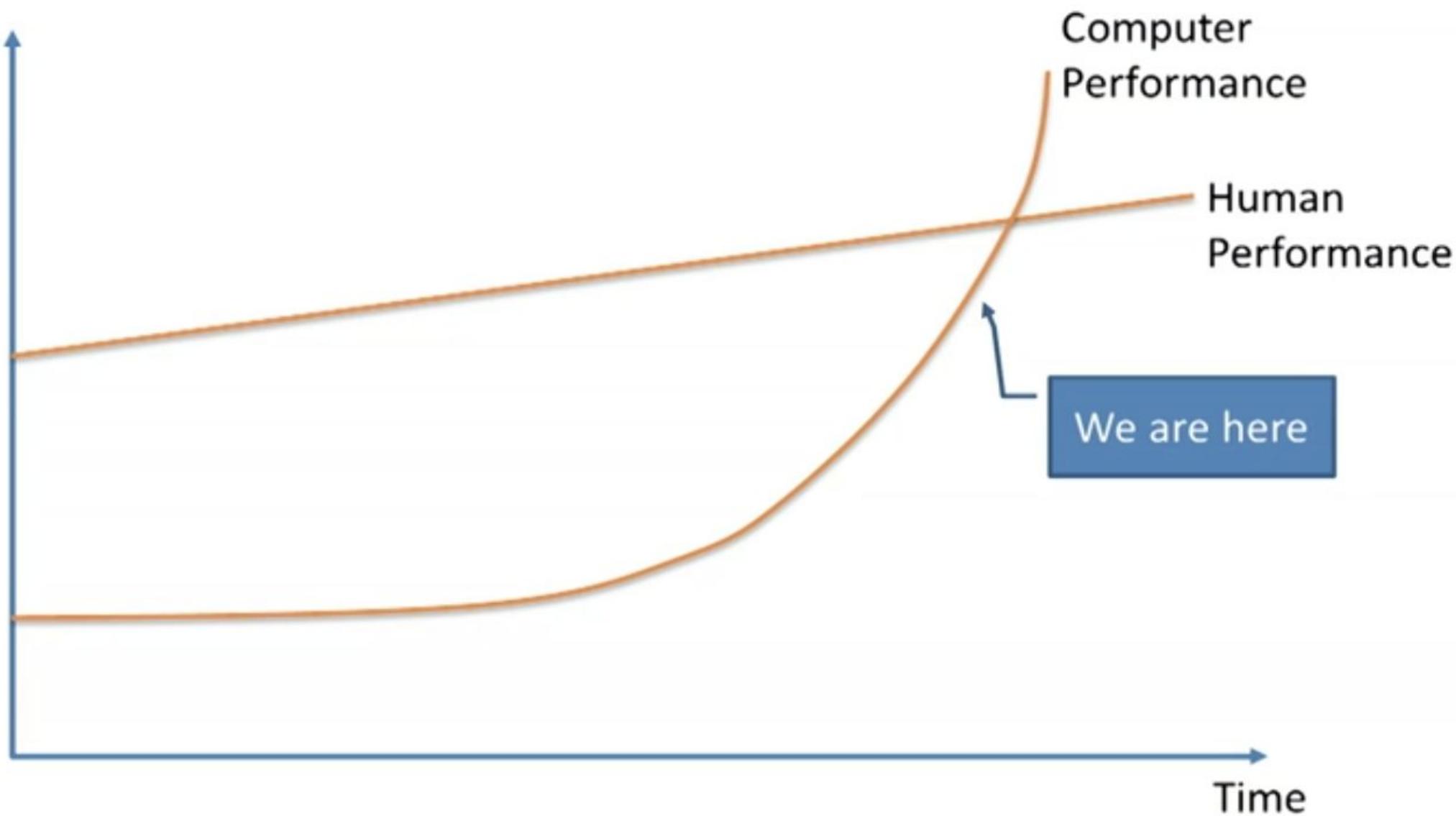
Speaking &
Listening

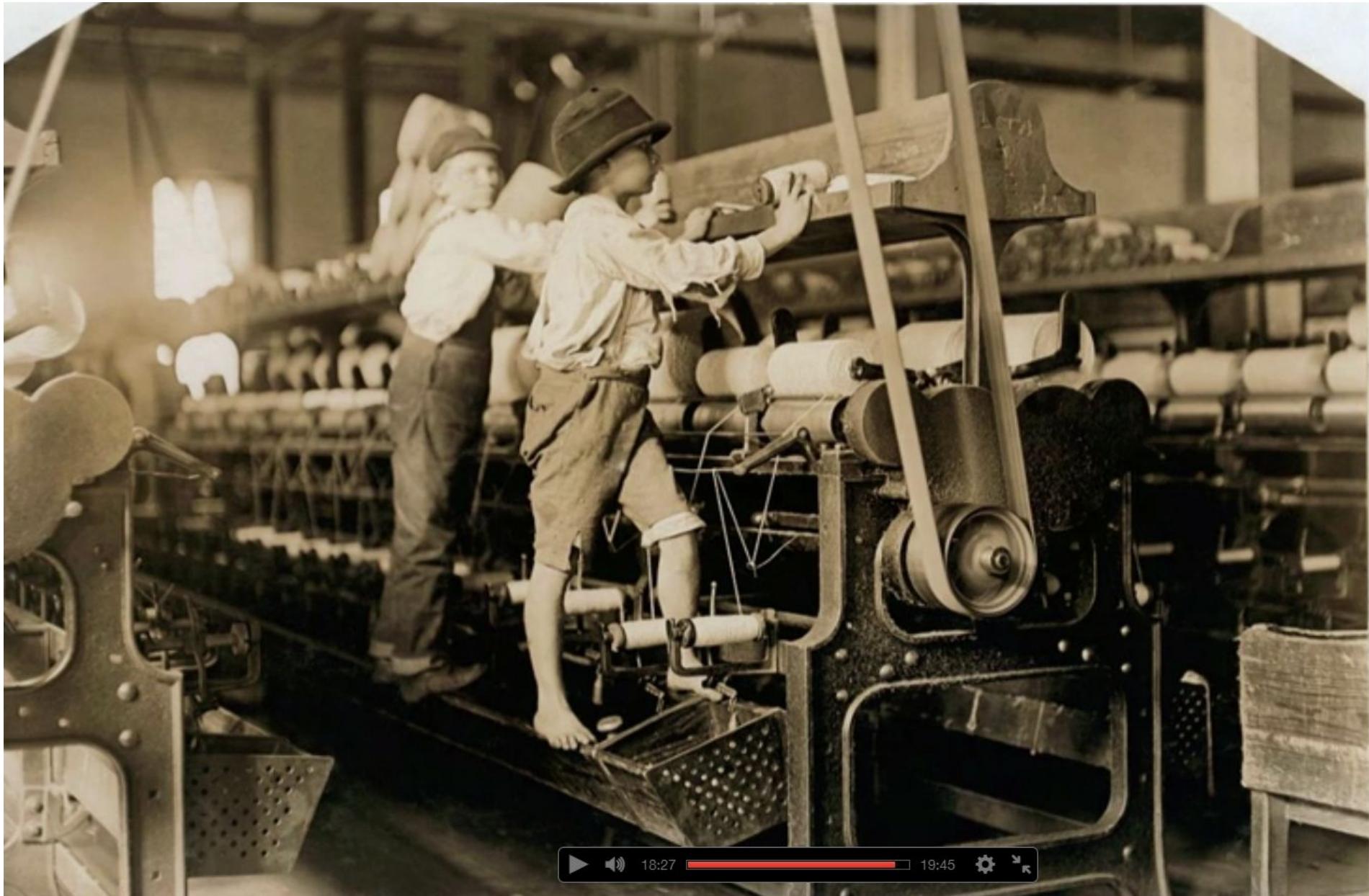
Looking at
things

Integrating
knowledge

- Driving cars
- Preparing food
- Diagnosing disease
- Finding legal precedents
- ...

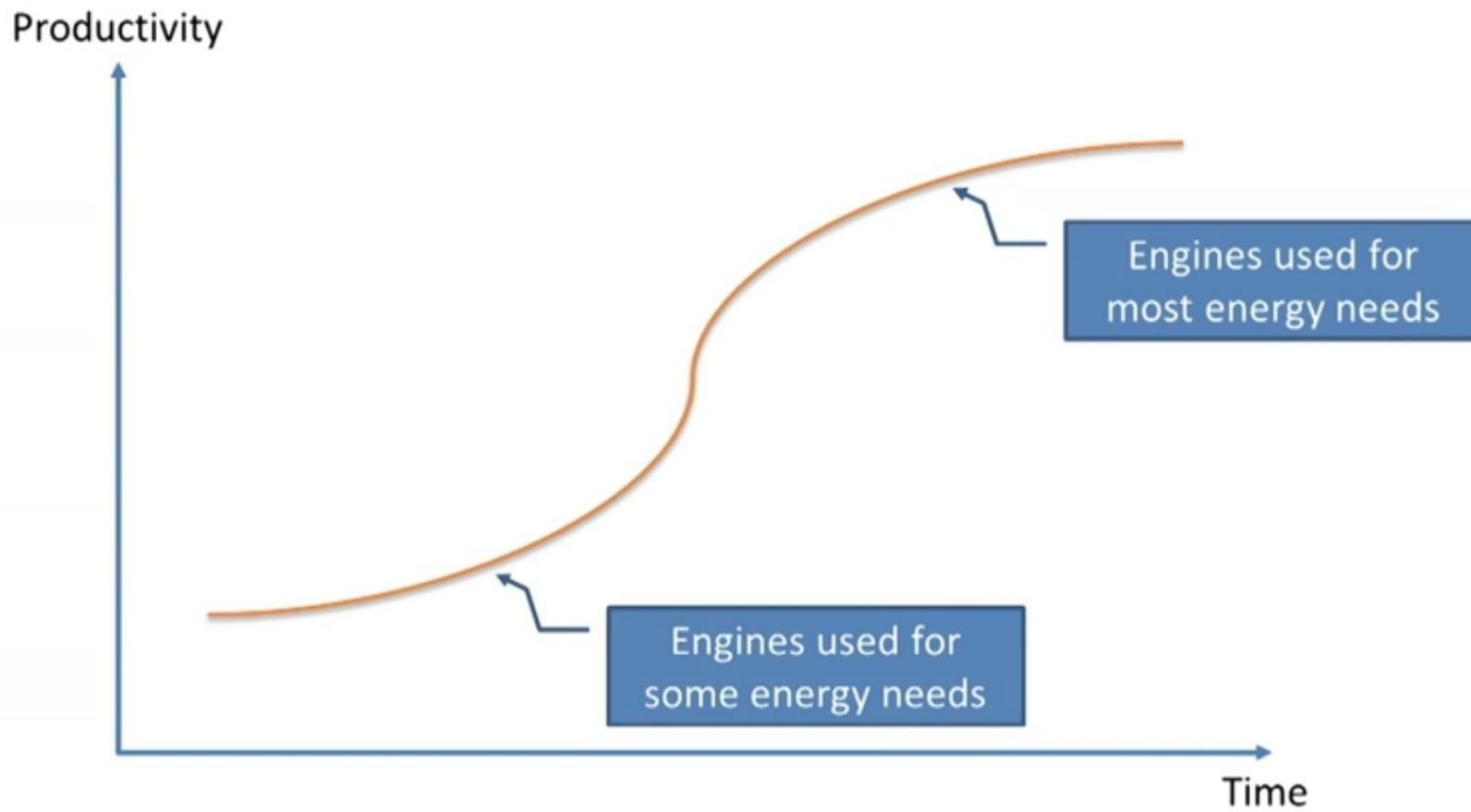


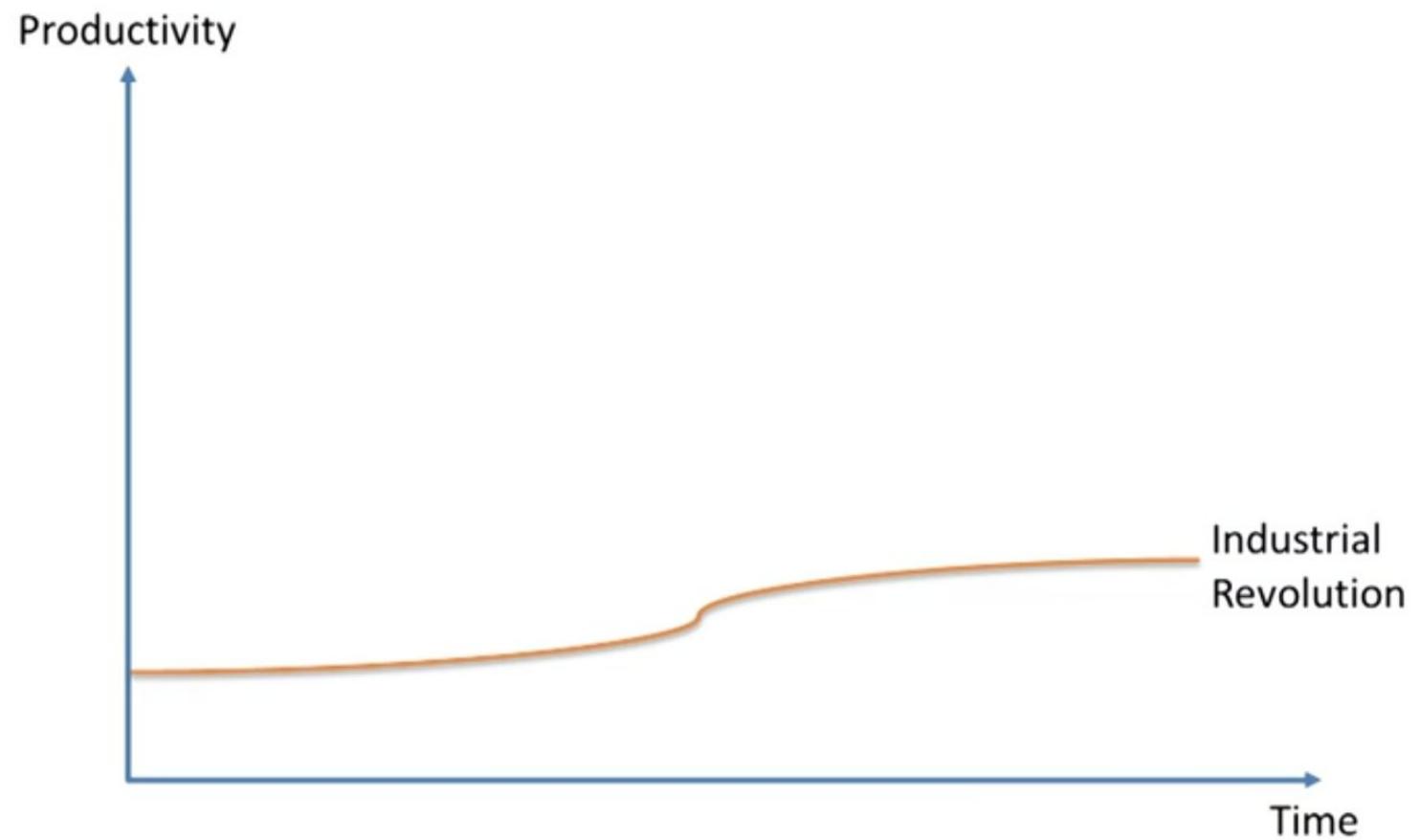


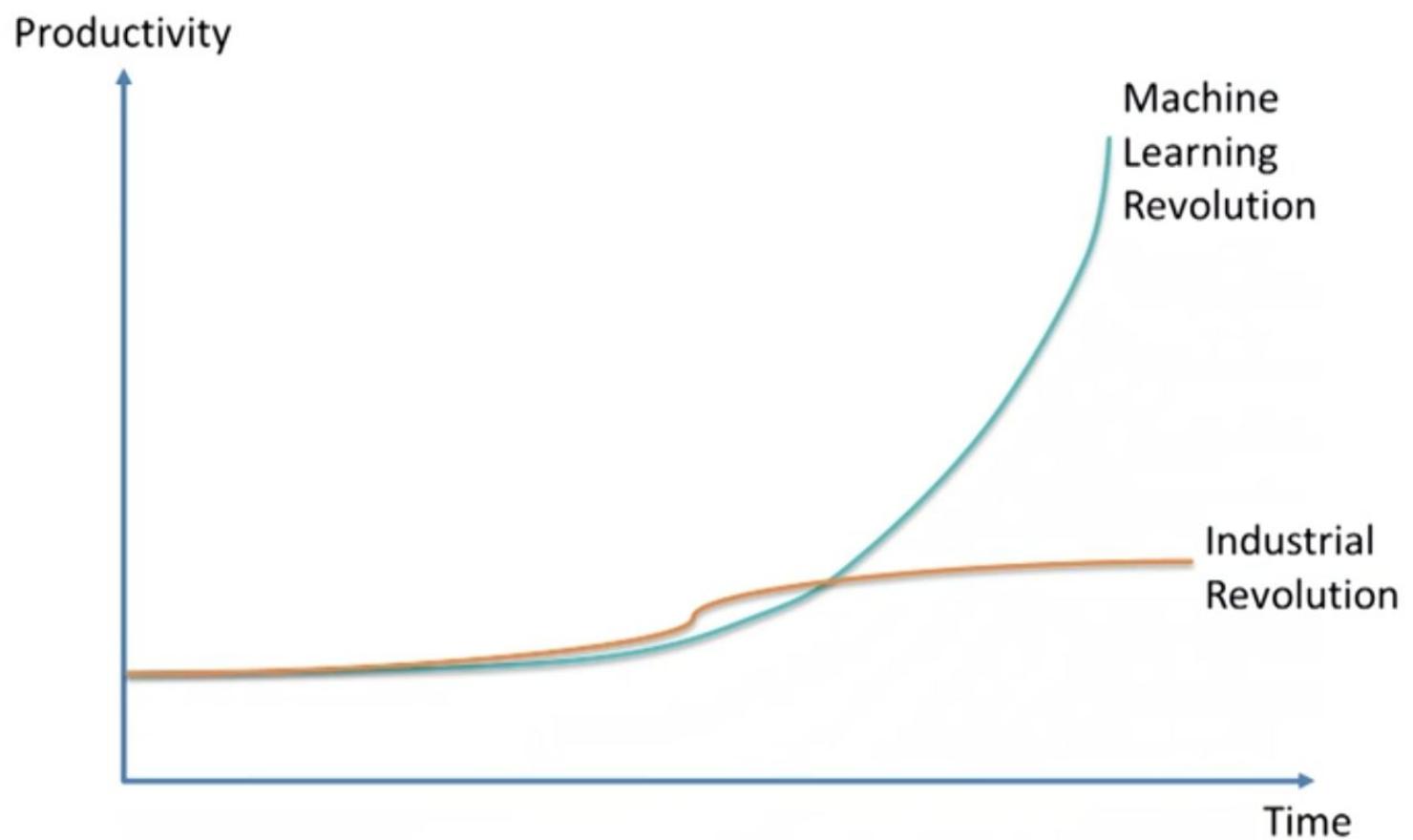


Children
working in a
mill in Macon,
Georgia, 1909

United States Library
of Congress's Prints
and Photographs
division [nclc.01581](#)

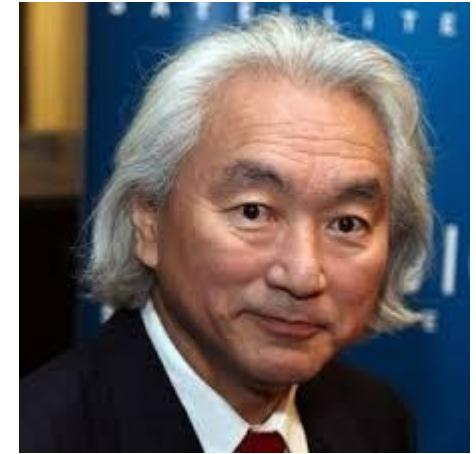






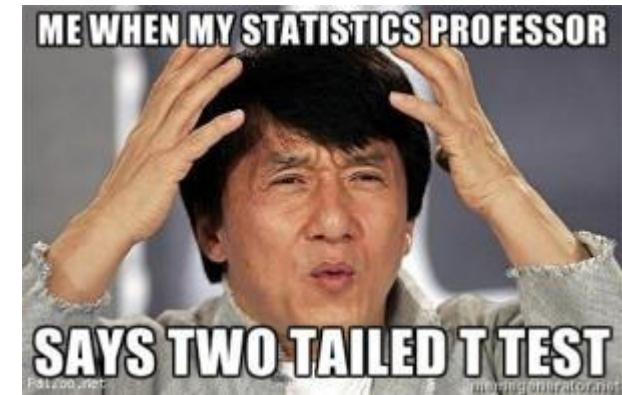
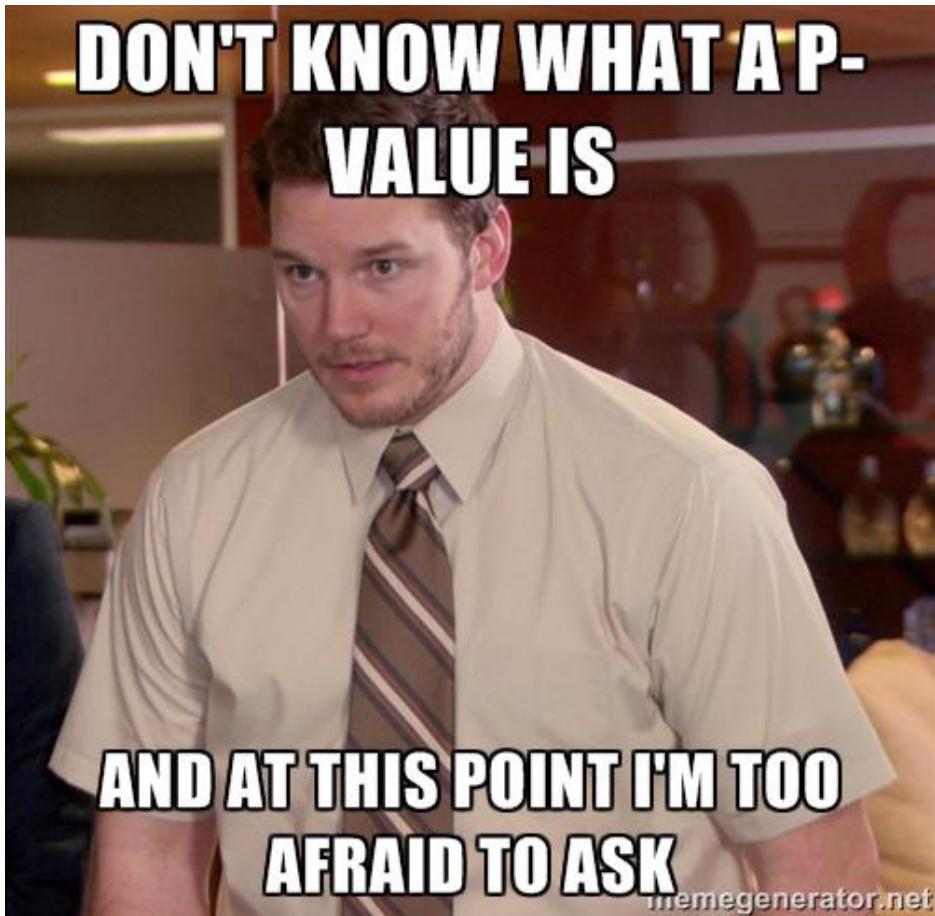
Future Jobs - Michio Kaku - Physicist

- Those of Artificial intelligence can't do
- Pattern recognition and common sense are big problem of AI
- Repetitive jobs will be wiped off
- Jobs involved in intellectual capitalism will shine like
- Leadership
- Creativity
- Analysis
- Imagination
- Telling joke
- Writing a story, script



How to tame it?

Revise Statistics and Probability



Learn algorithm how it works rather
concentrating on output



**HOW IT
WORKS**



Learn and practice a programming language



Big data and Data science are happily married



Practice all algorithm with each use case



Make use of Kaggle and Analytics vidhya



Contribute your work to Opensource



Write a blog



Make your resume attractive

BETHANNE STEVENS

DATA ANALYST

INFO

ADDRESS
180 S 4th Street Apt#15,
Brooklyn, 11211, United States

PHONE
(917) 646-8900

EMAIL
bstevens88@gmail.com

SKILLS

Detail Oriented
• • • •

Programming
• • • •

Leadership Skills
• • • • •

Data Clean-ups
• • • •

Data Authoring
• • • •

LANGUAGES

German
• • • •

PROFILE

Experienced and dedicated Data Analyst with several years of experience identifying efficiencies and problem areas within data streams, while communicating needs for projects. Adept at receiving and monitoring data from multiple data streams, including Access, SQL, and Excel data sources. Bringing forth the ability to synthesize quantitative information and interact effectively with colleagues and clients. Proven track record of generating summary documents for senior management for monthly and quarterly audit and compliance reporting.

EMPLOYMENT HISTORY

Data Analyst, High Stream Inc. New York
Oct 2013 — Aug 2019

- Created data modeling standards and procedures.
- Presented data models to business teams for review.
- Performed detailed data validation spanning across several different international projects.
- Travelled to various countries assisting with training and data management.
- Coordinated with external company to monitor and support data integration to the company's Online Provider Directory Enterprise System.
- Worked with complex datasets and trained new hires to work with them as well.

Data Analyst, Global Solutions New York
Sep 2009 — Sep 2013

- Performed in-depth data validation on data from various suppliers across the world.
- Served as the primary contact for client service teams for several different projects.
- Researched and resolved data discrepancies with troubleshooting teams.
- Maintained data sets, careful to keep old data sets and documentation.
- Provided tutorials on current data management techniques including assisting with analysis and providing technical recommendations on study software.
- Communicated effectively with project management regarding issues and needs for projects.

EDUCATION

Master of Data Science, UCLA Los Angeles
Aug 2008 — Aug 2010

- Graduated in the top of my class.

Bachelor of Computer Sciences, UCLA Los Angeles
Aug 2004 — May 2008

HANNAH PANIZARES

Environmental Science Researcher

SUMMARY

Supporting our ecosystem and reversing the effects of climate change are the reasons I get up in the morning. International cooperation is necessary, but I believe it begins with uncovering new findings and developing exciting technologies through dedication and innovation.

QUALIFICATIONS

Strong academic performance in environmental biology and natural sciences.

Experienced with professional lab settings, experimenting and reporting.

High grasp of biochemistry, ecosystem structures, and energy conservation methods.

CLUBS & ASSOCIATIONS

Dragon Rowing Club
Rower
2021-2022

Writing Help Center
Writing Guide
2022-2023

SKILLS & EXPERTISE

Report Findings	Progress Bar
Lab Research	Progress Bar
Lab Testing	Progress Bar
Presentation	Progress Bar
Analysis	
Test Proposals	
Chemistry	
Experimentation	

YOUR NAME

TITLE

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PERSONAL PROFILE

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WORK EXPERIENCE

LOREM IPSUM DOLOR
1991 - 2004

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DOLOR SIT AMET
2004 - 2017

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EDUCATION

HIGH SCHOOL
1983 - 1987: LOREM IPSUM DOLOR

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UNIVERSITY
1987 - 1991: LOREM IPSUM DOLOR

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HOBIES

MUSIC, FISHING, SKIING, DIVING, READING BOOKS, MOUNTAINEERING

Corona Virus Prediction from X-Ray Image

Data set:

<https://github.com/ieee8023/covid-chestxray-dataset>

<https://www.kaggle.com/paultimothymooney/chest-xray-pneumonia>

Model:

Convolution Neural Network (No Technical)

Application:

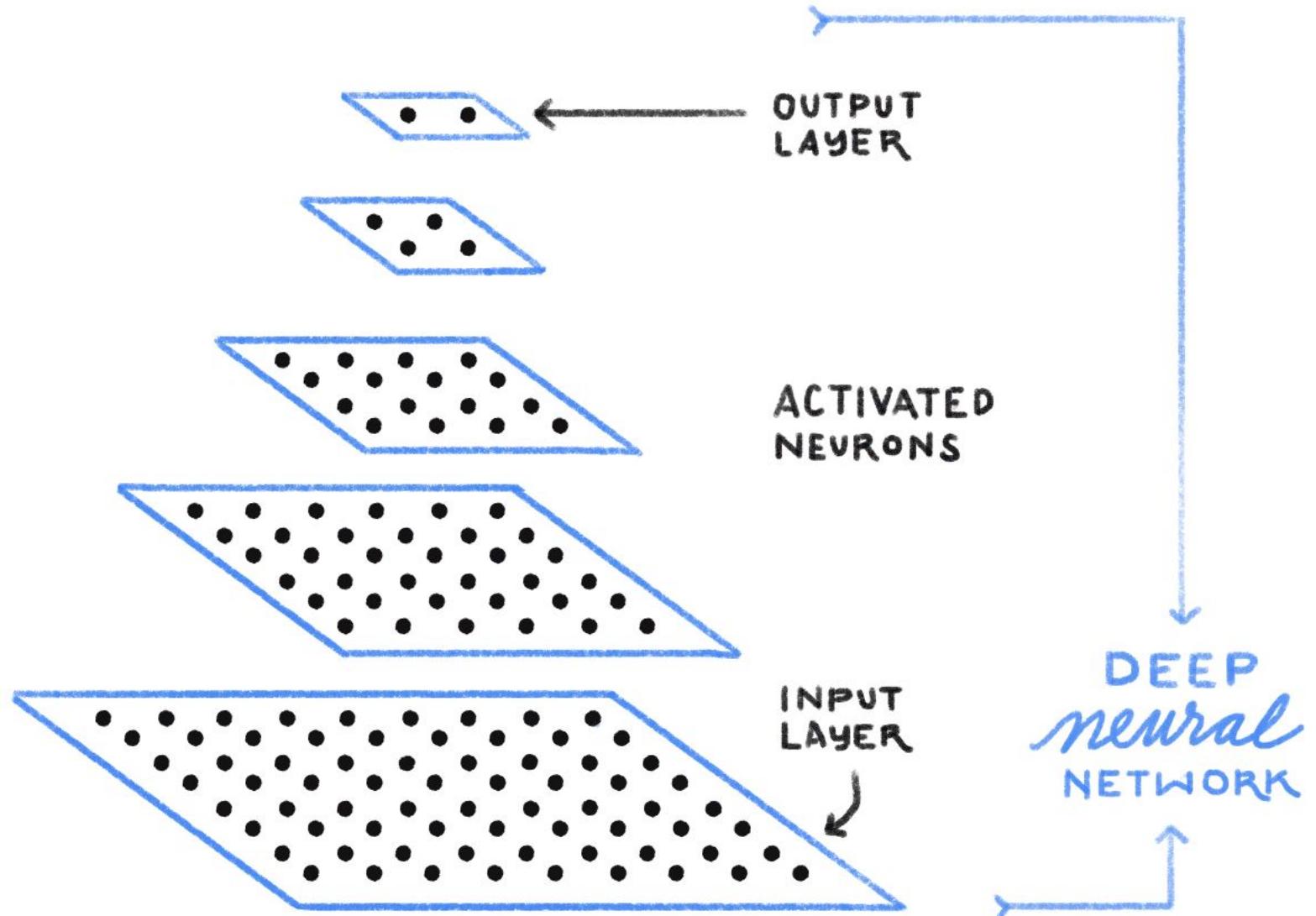
Python Flask

Deploy:

Google Cloud Platform

CAT DOG

IS THIS A
CAT or DOG?



Current Situation in Covid

Best Time to Learn

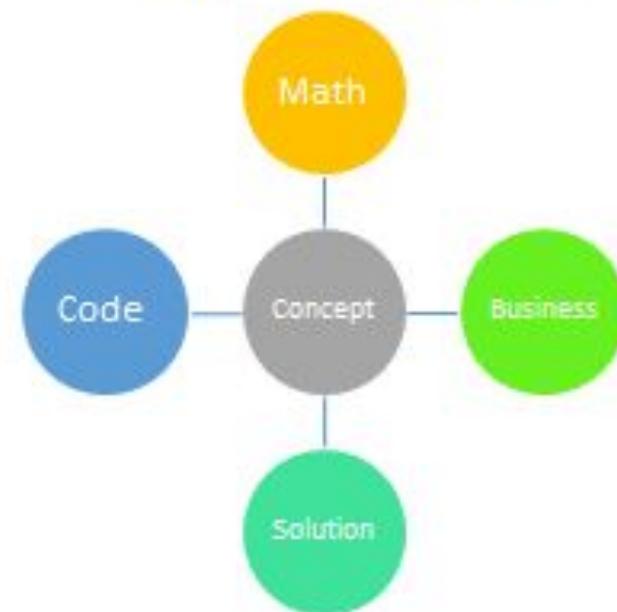
The only time to decide whether you want to stay in control in future, is today

What values does Inceptez
add distinctly?

Professional community/background



Course objective



Model deployment in cloud

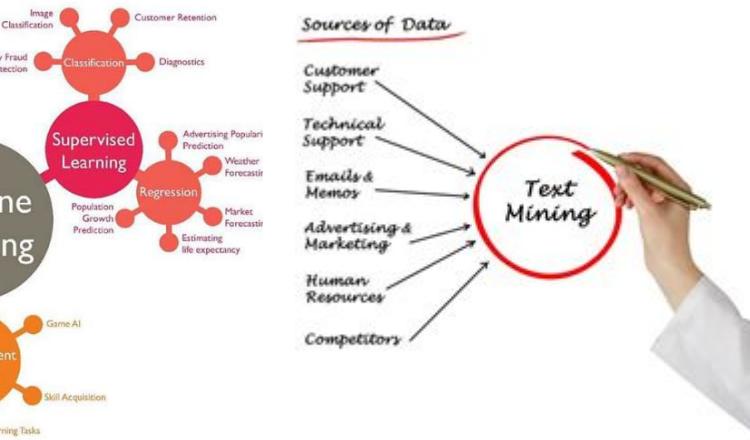
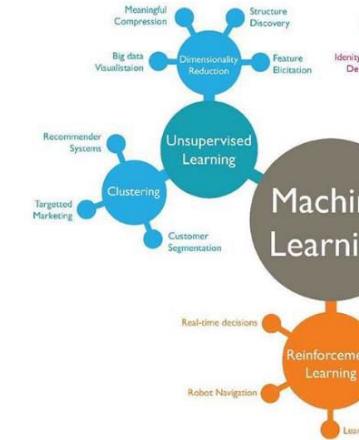
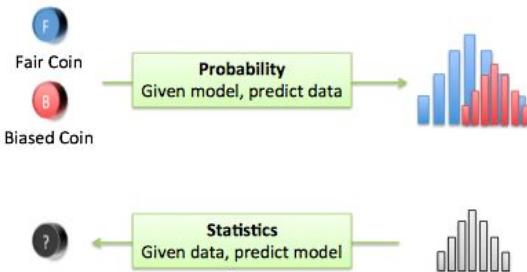


Assessment/Capstone project

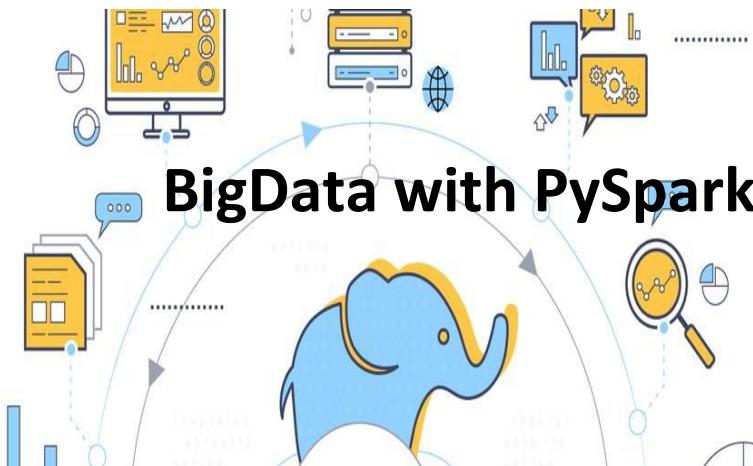
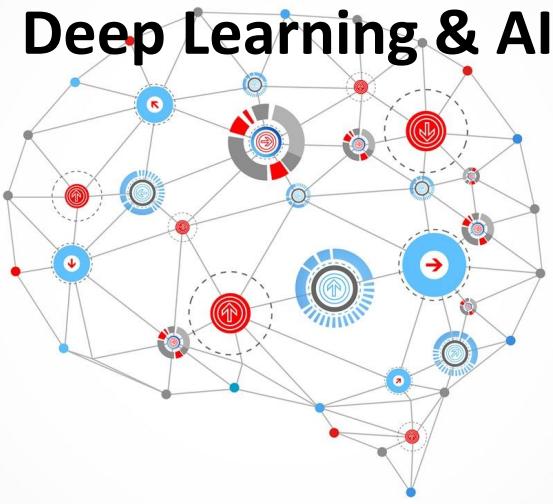


Single Unified Course on AI & ML Deployed in Cloud with Bigdata & Visualization

Probability & Statistics



Deep Learning & AI



Visualization & Dashboards



References

- [https://www.ted.com/playlists/310/talks on artificial intelligence](https://www.ted.com/playlists/310/talks_on_artificial_intelligence)
- <http://www.kdnuggets.com/>
- <https://www.youtube.com>
- <https://www.cubs100.org/GetImage.aspx?IDMF=ea11fbcd-1eb1-4829-9276-41f91b5bd75a&w=900&h=600&src=mc>
- <https://securityledger.com/wp-content/uploads/2016/05/IBM-Watson.jpg>

Thank You