



INTERNSHIPSTUDIO



# INTRODUCTION TO MACHINE LEARNING

# Agenda



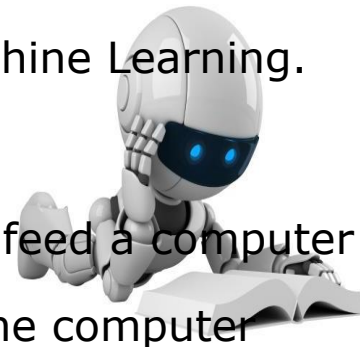
- What is Machine Learning?
- Why Machine Learning is important?
- Application of Machine Learning and its classification
- Supervised Learning
- Unsupervised Learning

# What is Machine Learning?



- The subfield of computer science that “gives computers the ability to learn without being explicitly programmed”- (Arthur Samuel, 1959)
- Machine Learning is the process of teaching a computer system how to make accurate predictions when fed data.
- The capability of Artificial Intelligence systems to learn by extracting patterns from data is known as Machine Learning.

Simply put, **machine learning** allows the user to feed a computer algorithm an immense amount of data and have the computer analyse and make data-driven recommendations and decisions based



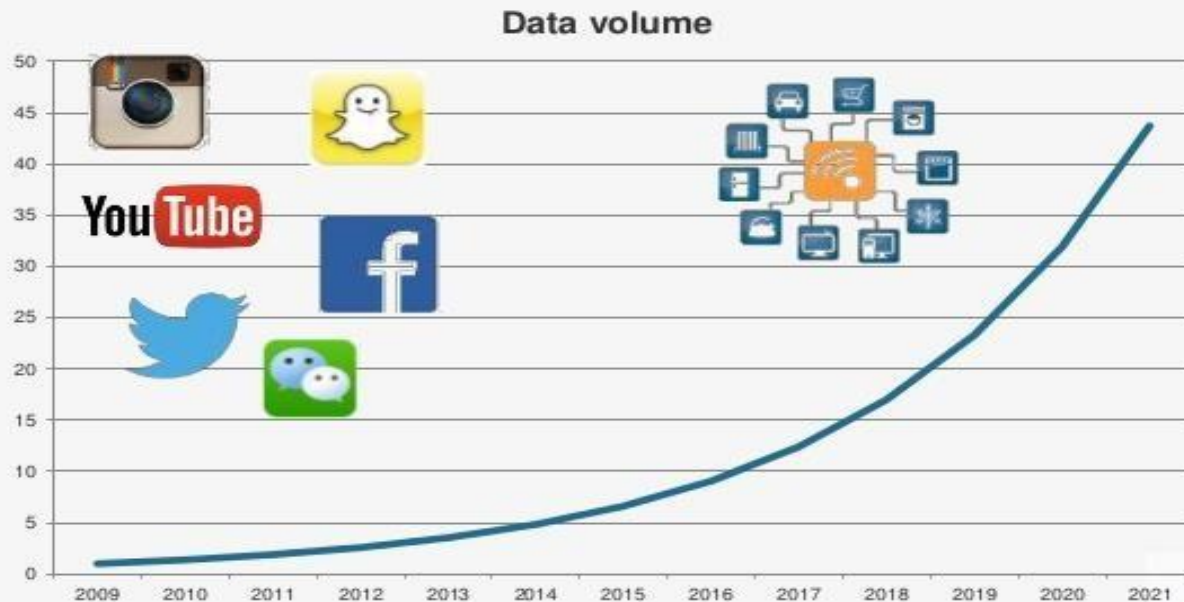
# New Data Economy & ML



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All of these things mean it's possible to quickly and automatically produce models that can analyse bigger, more complex data and deliver faster, more accurate results – even on a very large scale. And by building precise models, an organization has a better chance of identifying profitable opportunities – or avoiding unknown risks.

44Zb of data by 2020 – 44x in 11 years



Sources: IDC, Azeem Azhar analysis



# Features of Machine Learning



01

It uses the data to detect patterns in a dataset and adjust program actions accordingly

It focuses on the devt of programs that can teach themselves to change when exposed to new data

02



03

It enables computers to find hidden insights using iterative algorithms without being explicitly programmed

It automates analytical model building

04

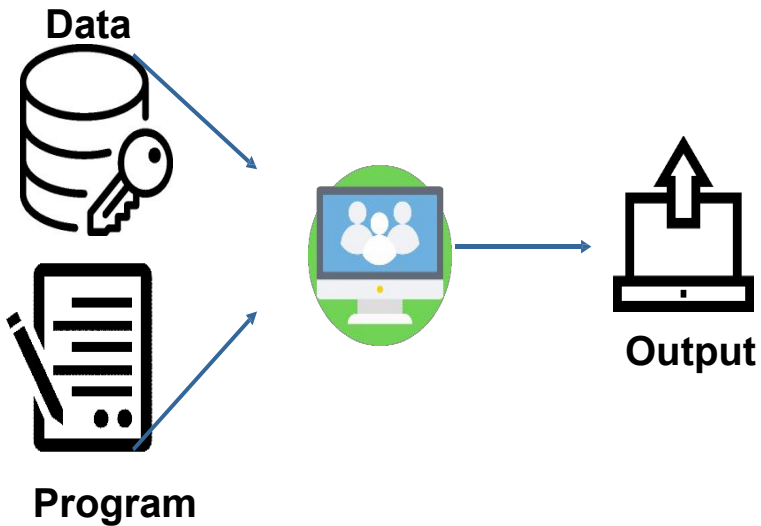


# Traditional Approach vs. ML Approach

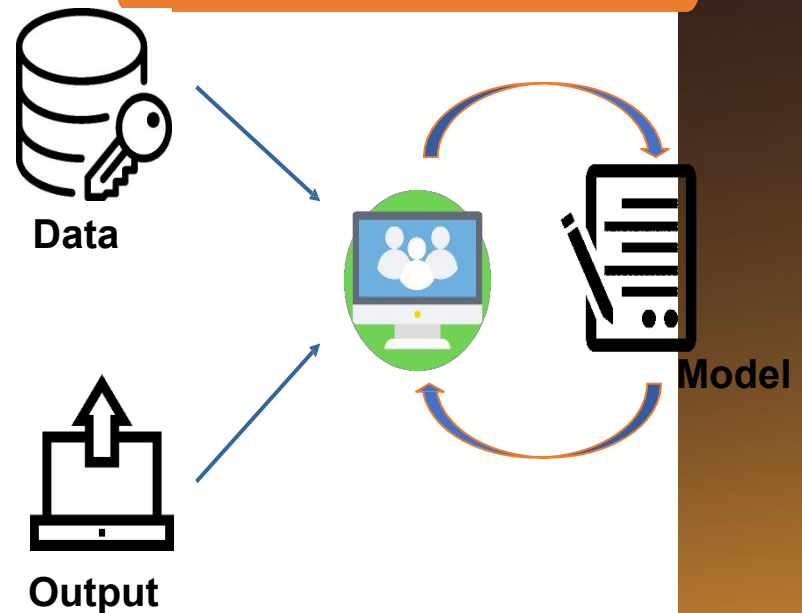


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**Traditional Programming:** Data and program is run on the computer to produce the output

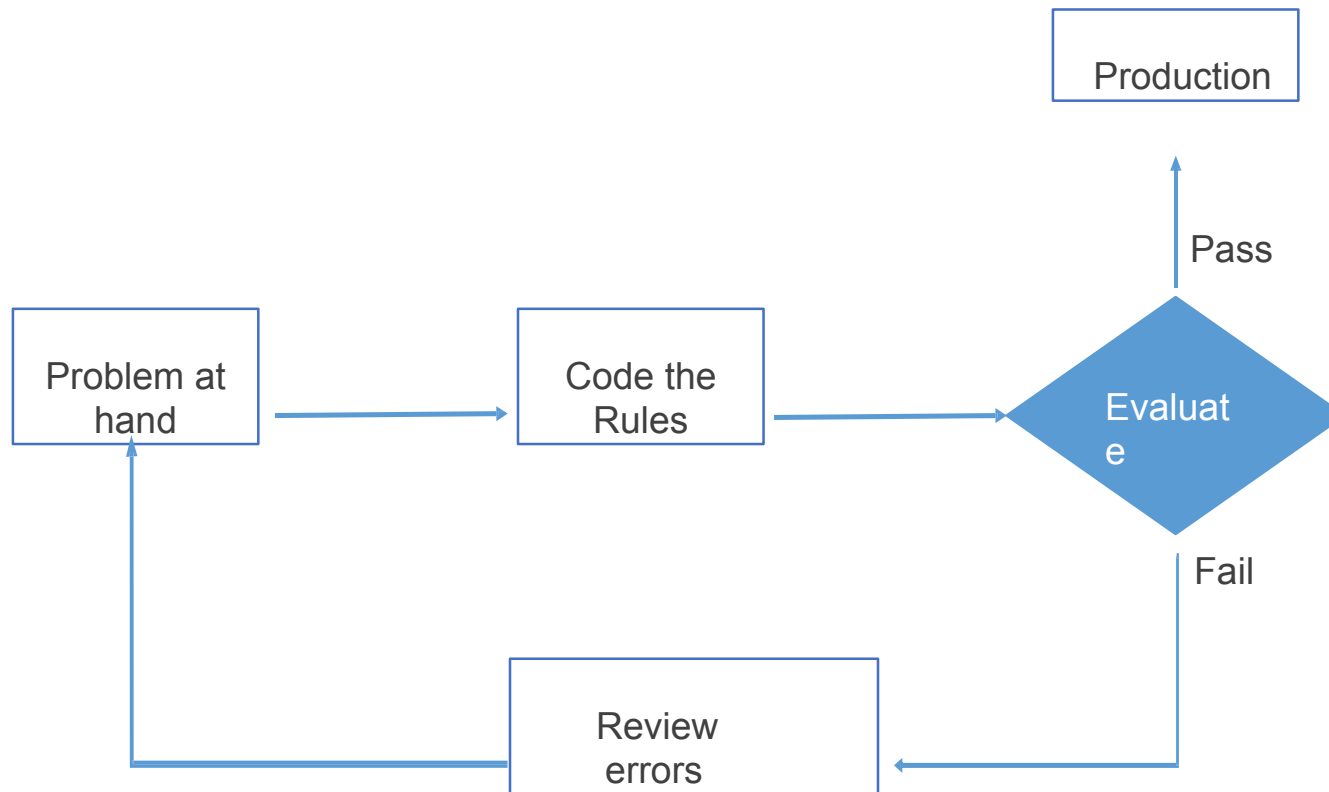


**ML:** Data and output is run on the computer to create a program



# Traditional Approach

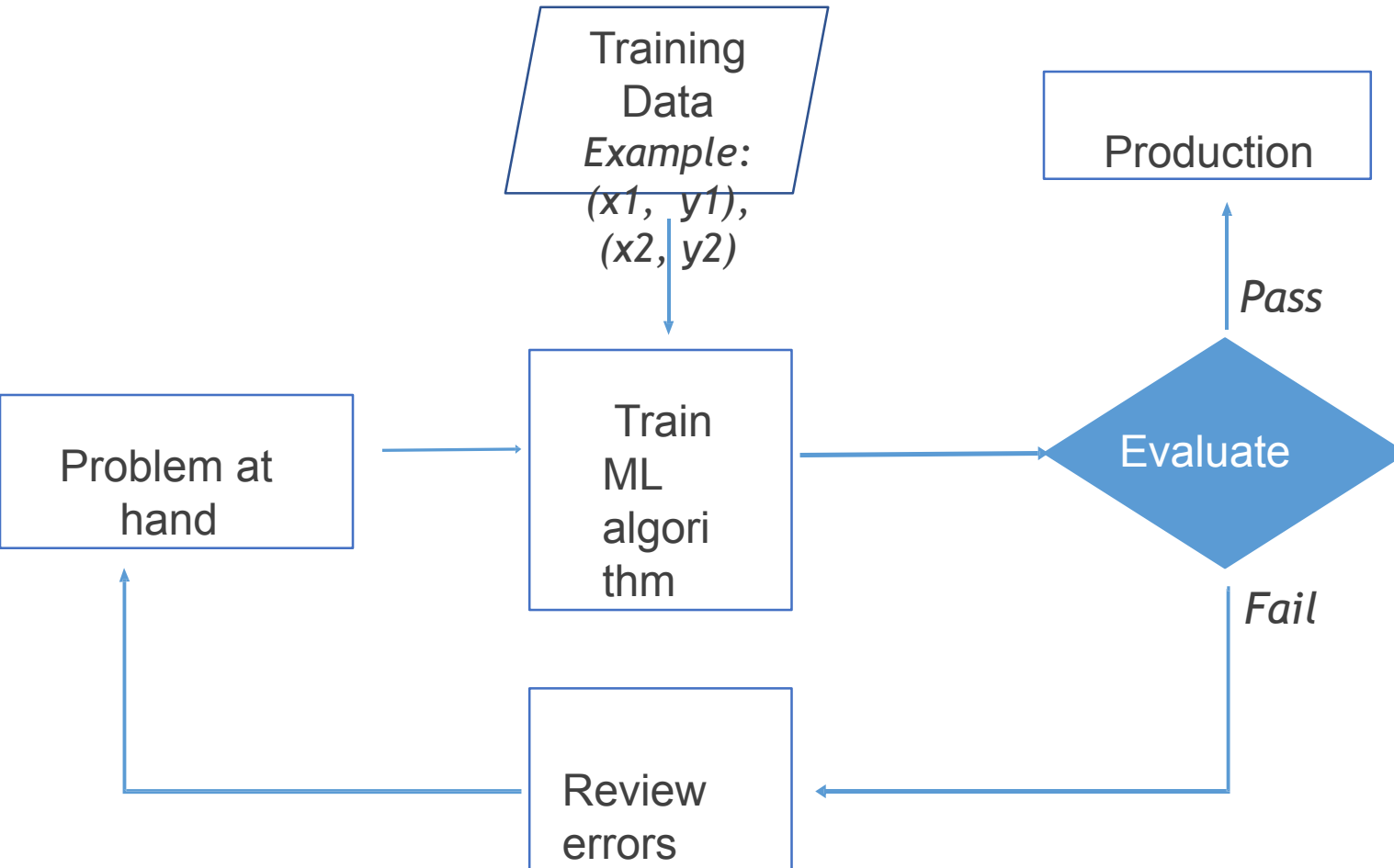
*Traditional programming relies on hard-coded rules.*





# Machine Learning Approach

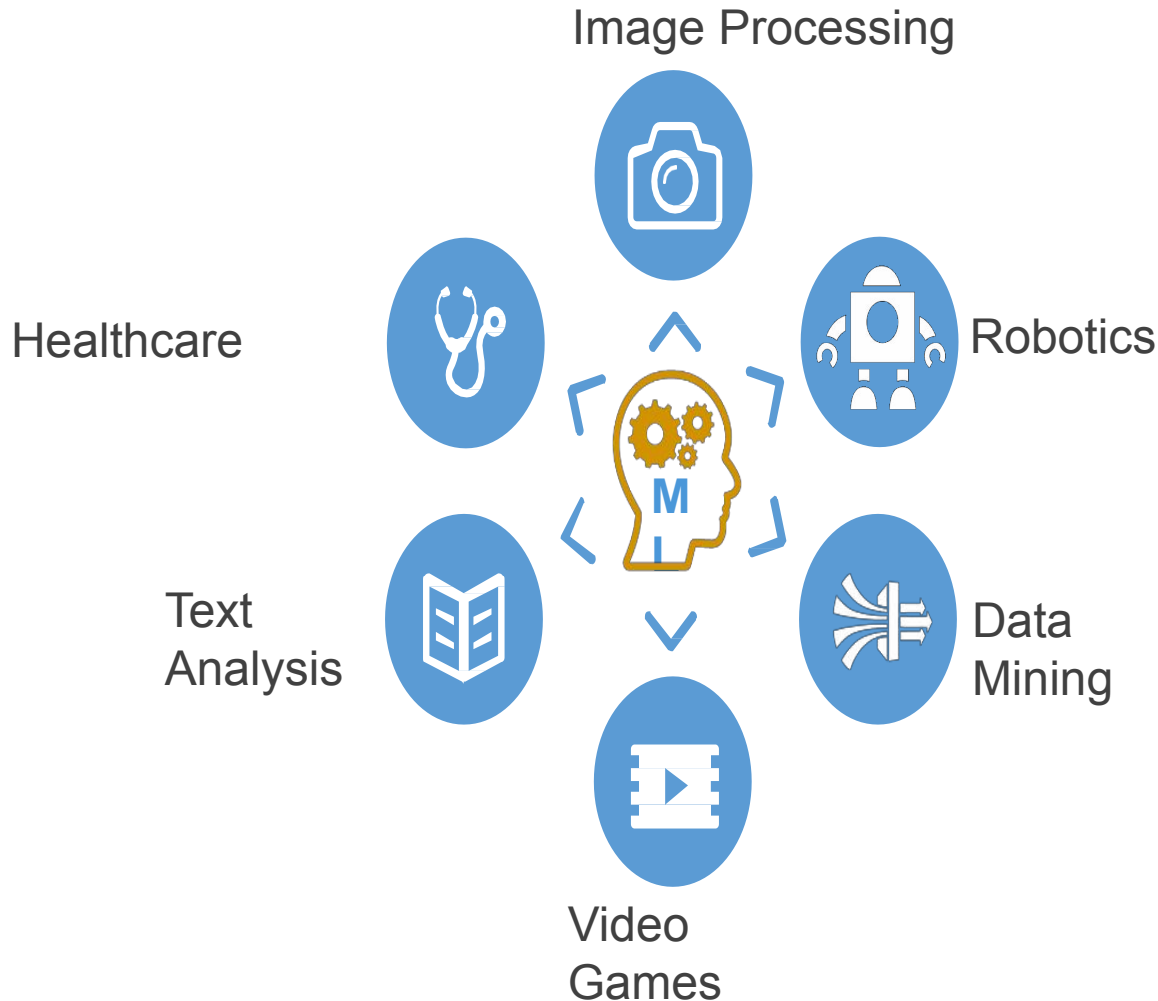
*Machine Learning relies on learning patterns based on sample data.*





# Applications of Machine Learning

Artificial intelligence and Machine learning are being increasingly used in various functions such as:

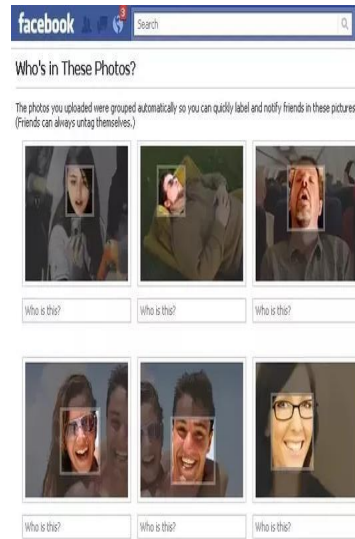
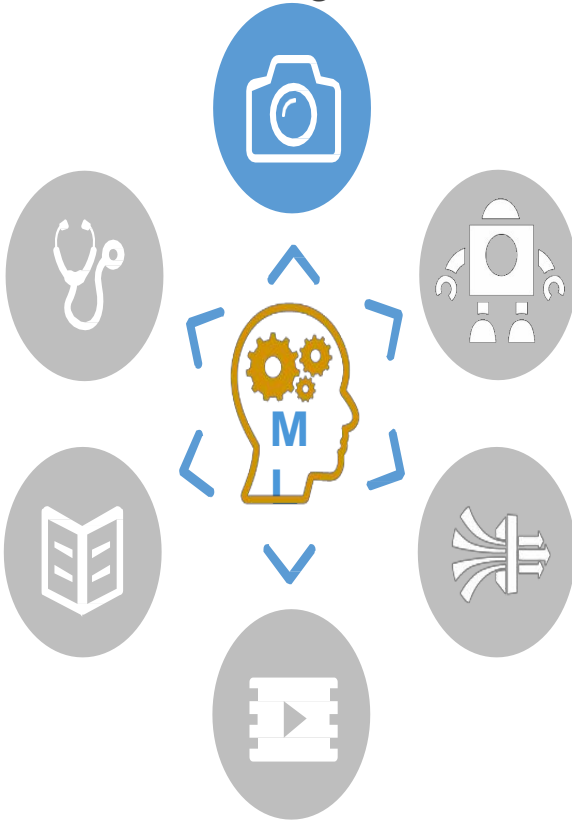


# Applications of Machine Learning



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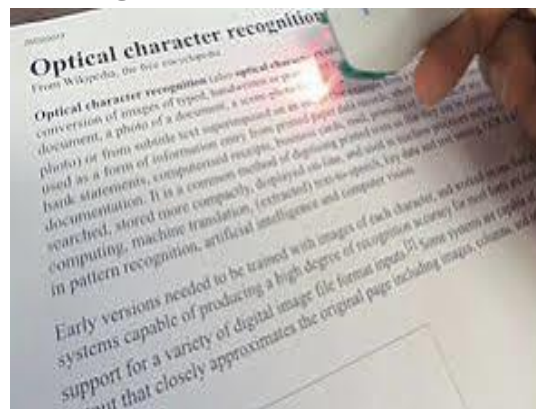
## Image Processing



## Image tagging and recognition



## Self-driving cars



## Optical Character Recognition (OCR)

# Applications of Machine Learning



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Human  
simulation

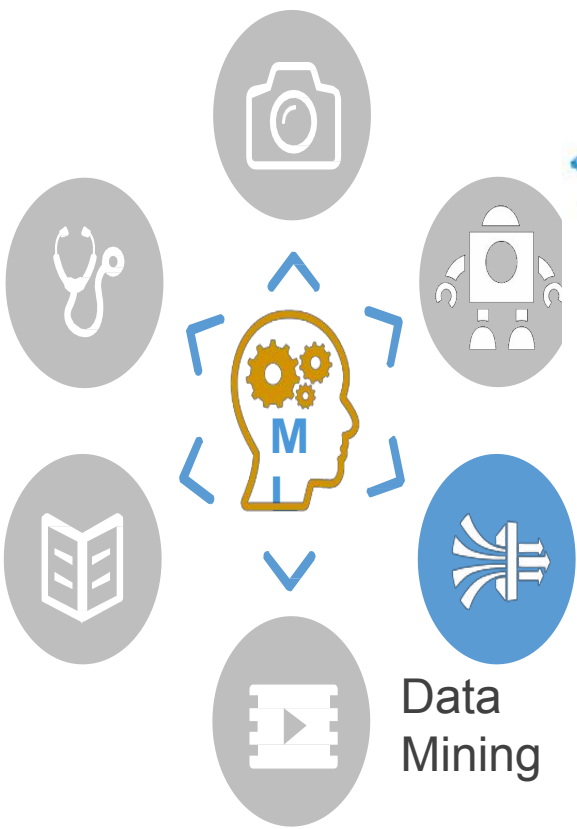


Humanoid  
Robot

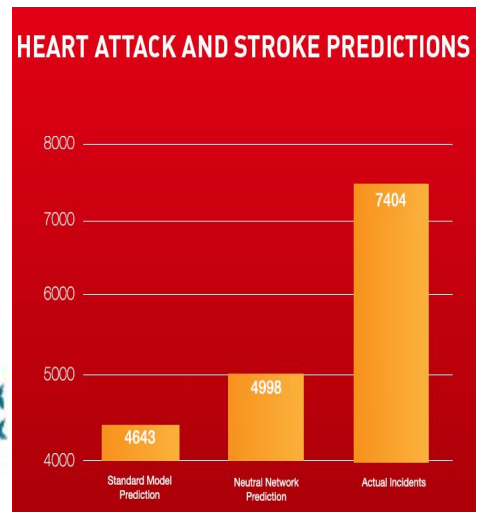


Industrial  
robotics

# Applications of Machine Learning



Anomaly detection



Grouping and Predictions

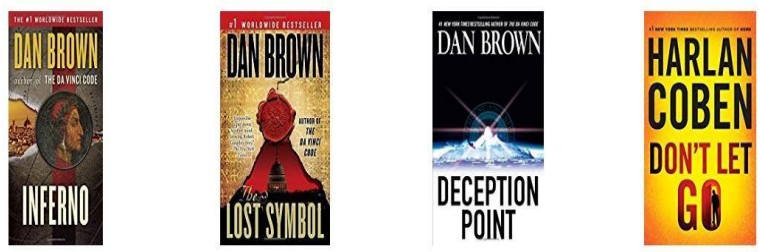
 Added to Cart

Cart subtotal (1 item): **\$17.96**  
To qualify for FREE Shipping, add \$7.04 of eligible items. Details

Cart

Proceed to checkout (1 item)

Customers who bought *Origin: A Novel* also bought

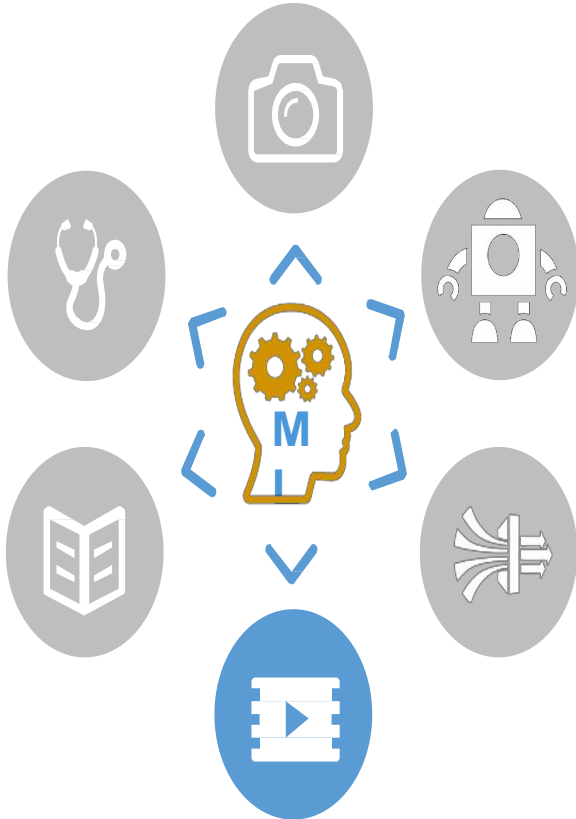


Association rules

# Applications of Machine Learning



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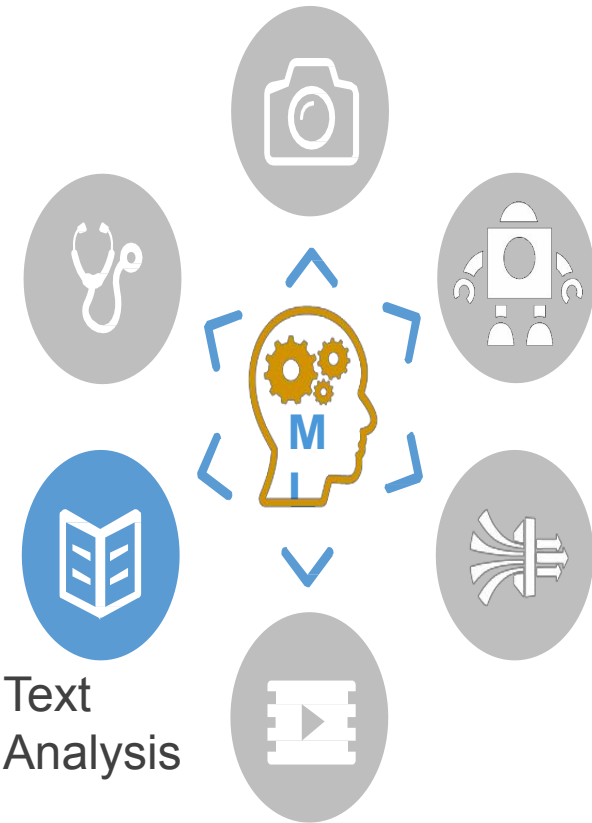
Video  
Games



Some games implement  
reinforcement learning



# Applications of Machine Learning



# Applications of Machine Learning





# Applications of ML- Facebook

Textual  
Analysis

Facial  
Recognition

Target  
ed  
Advertis

Designing  
AI  
Application

Newsfee  
ds

Friend  
Recommendations

Crime  
detection

Offensive  
Video/Image  
e  
detection

# Applications of ML- Google

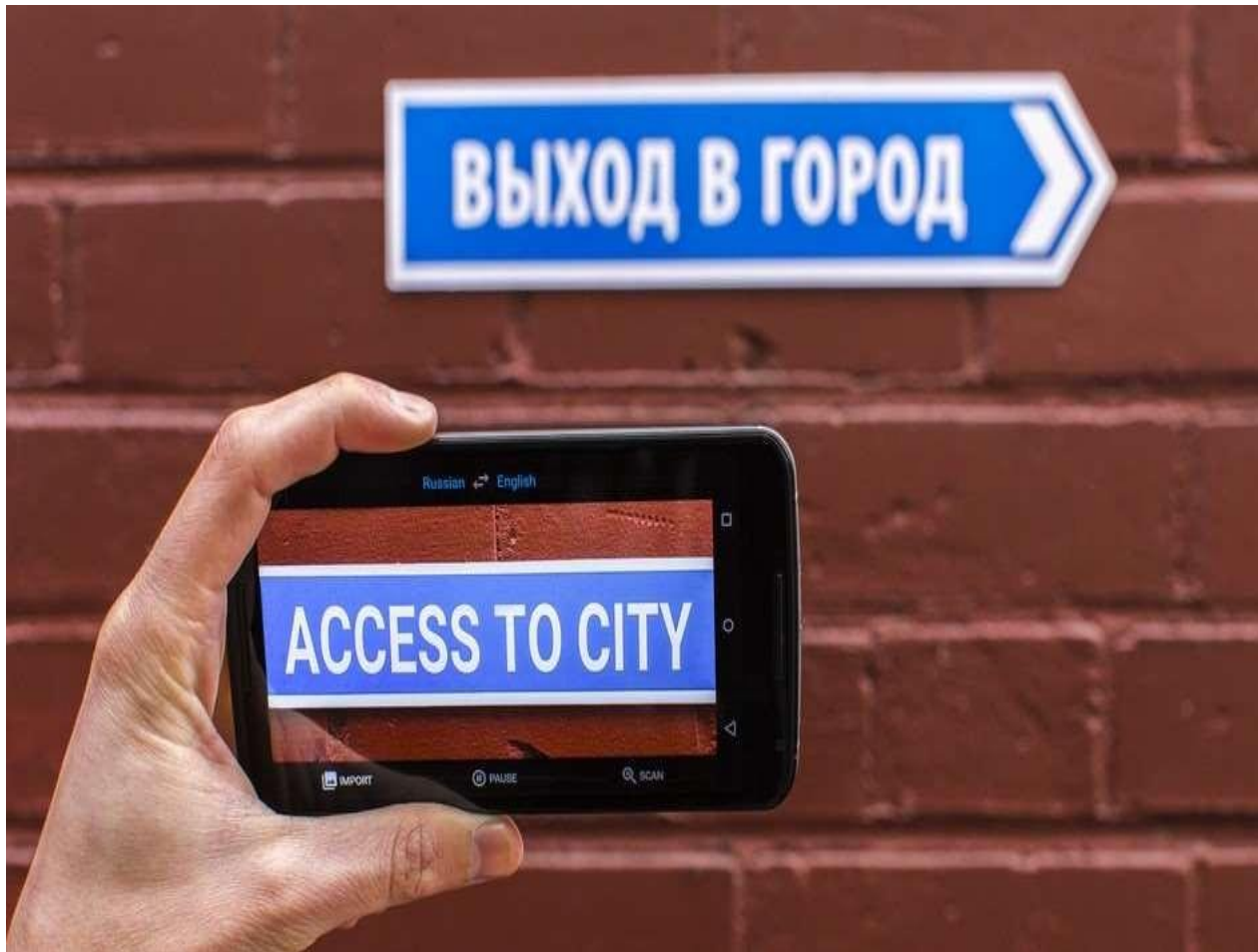


Machine Learning is everywhere at Google



Confidential & Proprietary

# Google Translate



# Google Voice search



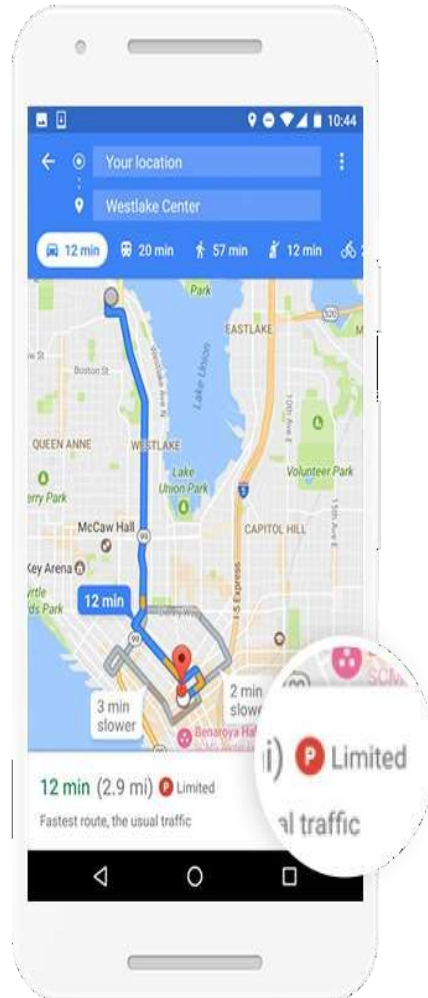
# Google Photos



One home for your photos



# Google Maps







Q.1 Define Machine Learning?

Q.2 Explain Growth of Machine Learning in today's world?

Q.3 Brief difference between traditional and ML programming approach?

Q.4 What are the applications of ML?

Q.5 What are the ML based applications you are using ?