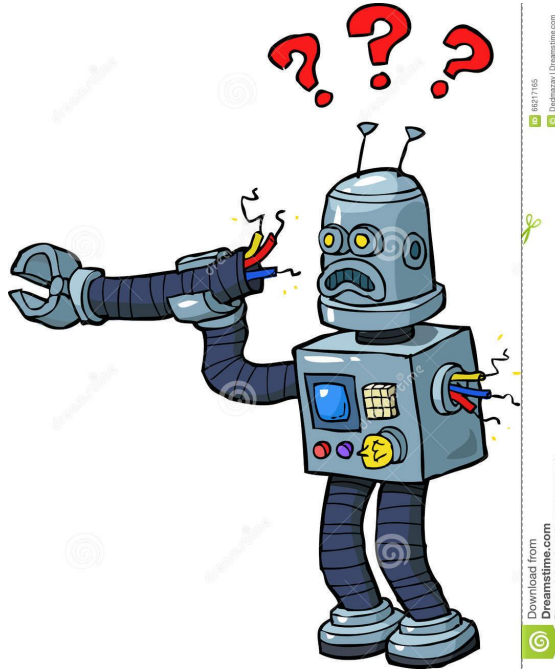# Our Plan for today

- What are the problems we can solve using Machine Learning.

- Why we need Machine Learning.

- Hands-on a simple problem - predicting house prices.

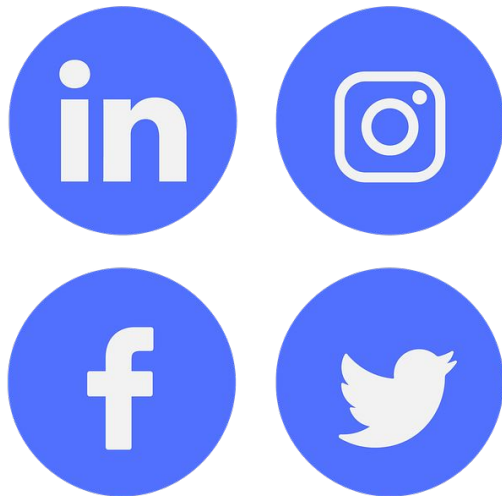# How can we solve the following?

A manufacturer need to know when to replace an equipment before it breakdown.

predictive maintenance

How can we solve the following?

A social media provider wants to suggest a relevant news feed for every user

recommendations

How can we solve the following?

Healthcare: diagnosis & drug discovery

How can we solve the following?

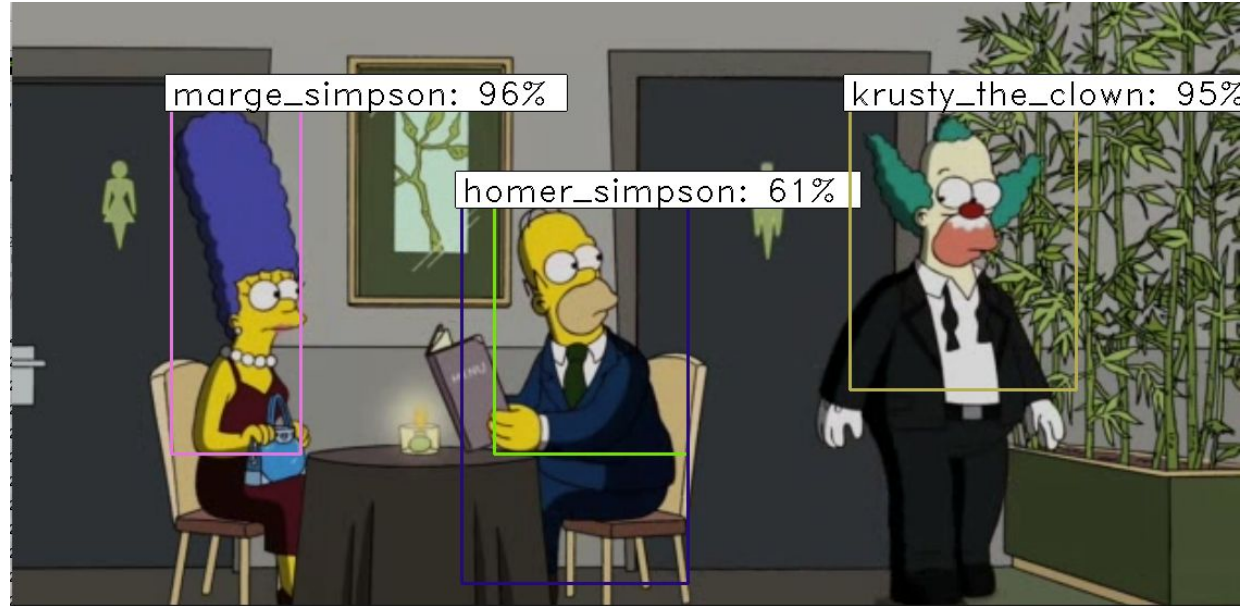Open your phone using faceID / fingerprint

recognition

Special Domains

Computer Vision

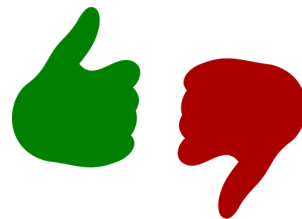- Face recognition

- Object Detection

Natural Language Processing

- Question Answering (Alexa/Siri/Google)

  "Where is the deepest part of the ocean?"

- Sentiment Analysis (product reviews)

  ""It's Tuesday and it's freezing! It's raining! How better can this day be??""

It is impossible to know everything!

Even in a single domain.

Breadth/Depth: broad knowledge in specific domain, but be well-known for a single area within that domain.

Collaborate and share ideas!

You don't need to spend years studying, learn the basics and get started!

Why Machine Learning is important for businesses?

MUSL^MIC.
M^KERS/

Why Machine Learning?

- Because we can!

- We have the data

- We have the processing power

- We have the knowledge

- + benefits : engaged users, speedup your processes, save money, make more money, and others!

Let's solve a toy problem!

Estimate the price of a house.

- Load The data

- Explore the variables

- Build a univariate model

- Build a multivariate model

A Refresher!

PPDAC Cycle

Problem
1. Define the problem/question
2. Determine a potential strategy for answering the problem

Plan
1. Determine what to measure
2. Develop your study design

Data
1. Collect data
2. Clean data
3. Address any data issues

Analysis
1. Produce tables and graphs
2. Produce summary statistics
3. Analyze data specific to the question and study design

Conclusion
1. Interpret results
2. Communicate findings
3. Generate new ideas for future analysis

Understand the problem

- Asking the right questions

- Knowing your data sources

- Identifying the target and agree on it

- Understand the constraints