

Understanding AI can be child's play...

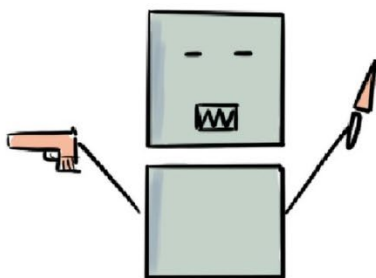
We will guide you through this adventure



Artificial Intelligence is the ability of computers to solve problems.

AI is a set of technologies, computer programmes as well as a scientific field

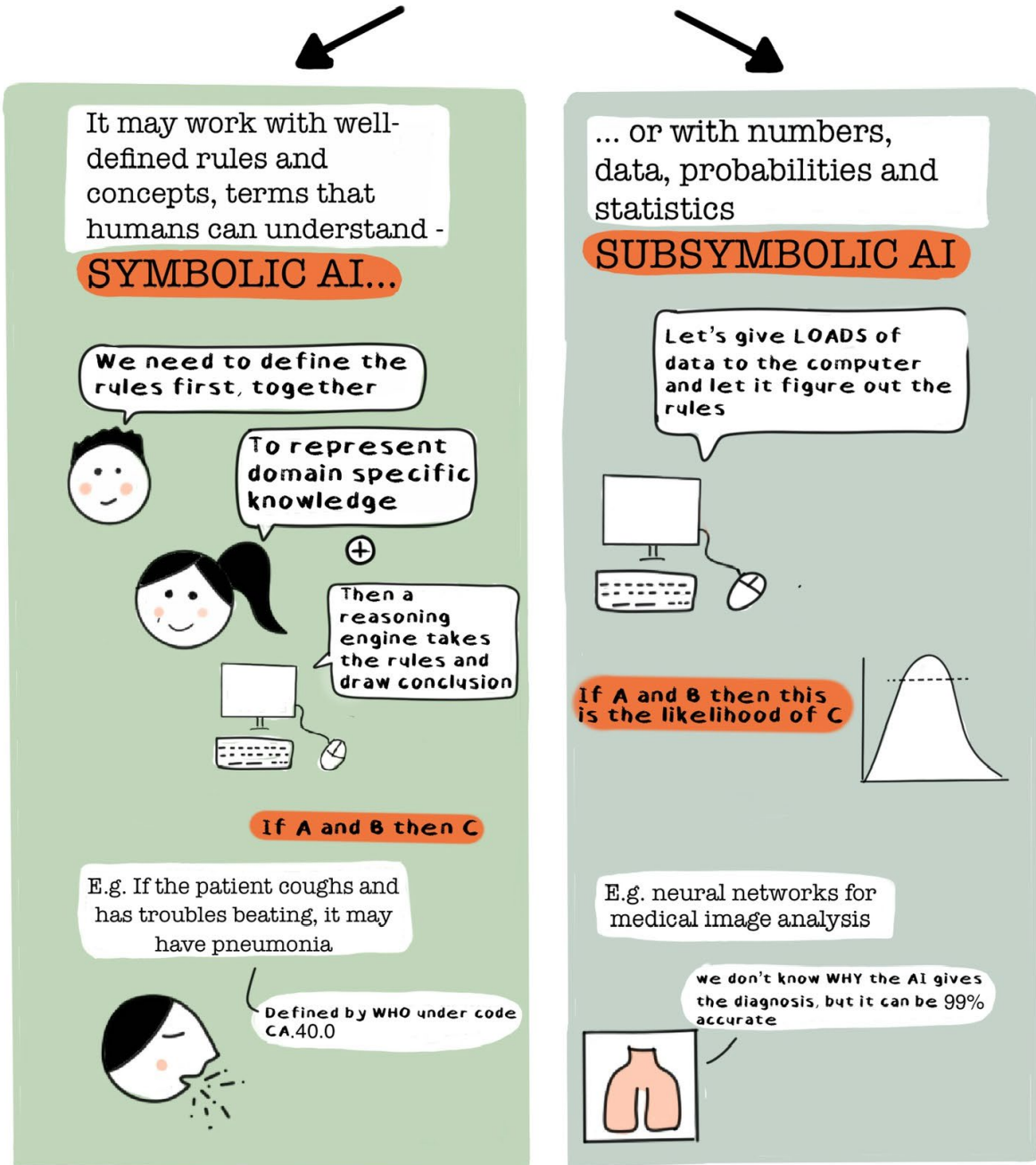
It can do many things that the human mind does, but it works very differently!



It's not about killer robots taking over the world!

The AIs we use today are very good in one specific task - but only that task. This is why it's called

NARROW AI



In the future, we may have different, **GENERAL AI** that will know everything that humans know and more,

We do not know **IF** or **WHEN** it could happen.

We also don't know if this superhuman AI would be friendly and helping us



Super intelligent -
surpassing the
brightest of human
minds



Superaligned -
sharing human
values and
intentions

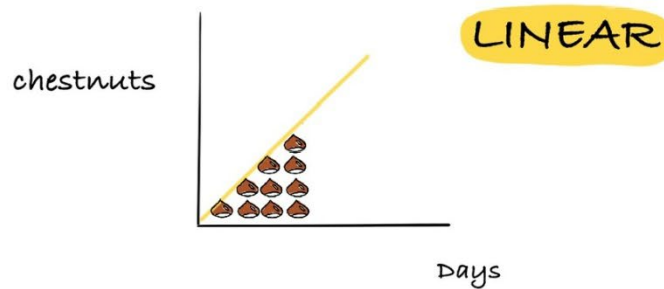


But since it is a possibility, we should think about this **BEFORE** it happens

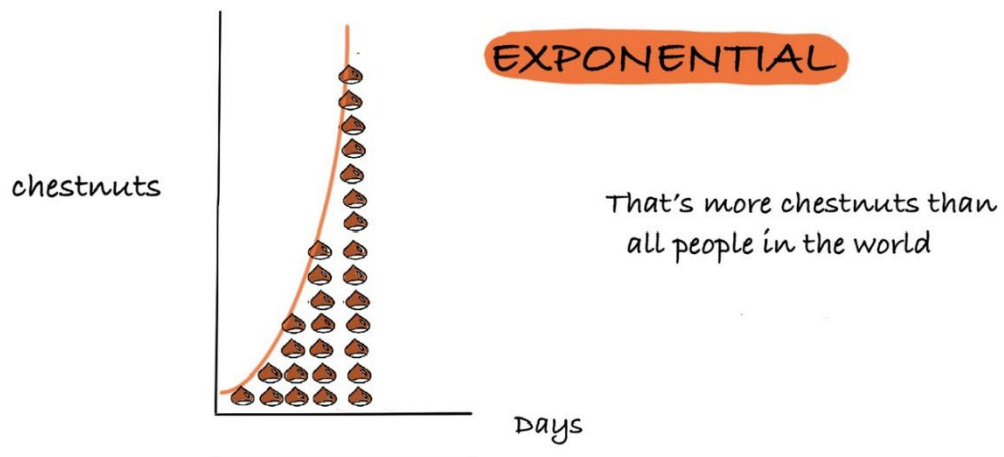
We know that AI is developing at an **exponential pace** - so we should be ready for quick changes.

But what is exponential pace?

- If I give you one chestnut every day,
in 33 days, you will have 33 chestnuts



- If I double your chestnuts every day,
in 33 days you will have 8,589,934,592 chestnuts



But how does AI work exactly?

eg. How can it play chess?



AI needs to know the **RULES**
be **TRAINED** and have a **GOAL**



- Your turn: you move knight to E4

INPUT



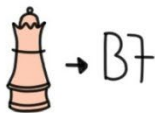
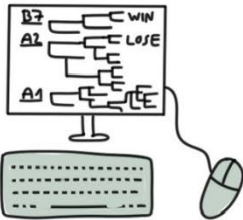
- AI's turn: considers your move (input) and the rules

DECISION



- Plays the move that's most likely to win (goal)

OUTPUT



AI can beat even the best player
But it never gets excited or stressed



There are different ways to train an AI.

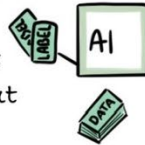
I. Give specific rules

E.g. in chess, the two sides take turns.

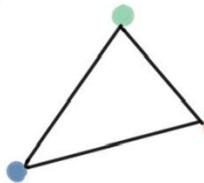
II. Let it come up with the rules by itself - this is called Machine Learning

SUPERVISED

Give it exercises and correct solutions and let it figure out the rules.



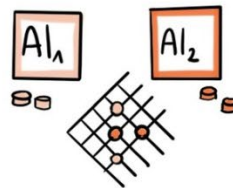
We can use this to predict future events, even generate text



REINFORCEMENT

Give it rewards if it solves the task correctly

if I win, my strategy is better

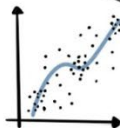


We can use this for robotic surgeries or traffic control

UNSUPERVISED

Just give it all the data and let it figure out the rule

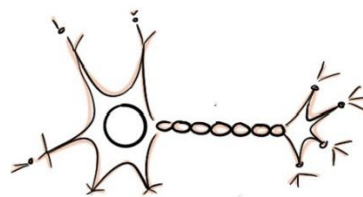
We can use this for consumer segmentation or work in genetics



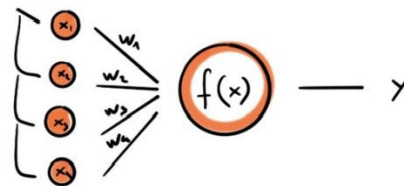
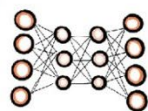
As the computers have become more powerful and cheaper, the field of machine learning has developed quickly.

The structure of these programmes that can learn are similar to our brains and the neurons in it. This is why they are called neural networks

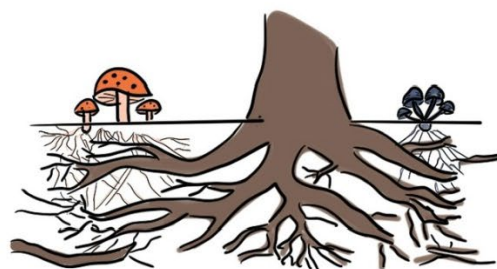
Neuron in the brain



Neural network

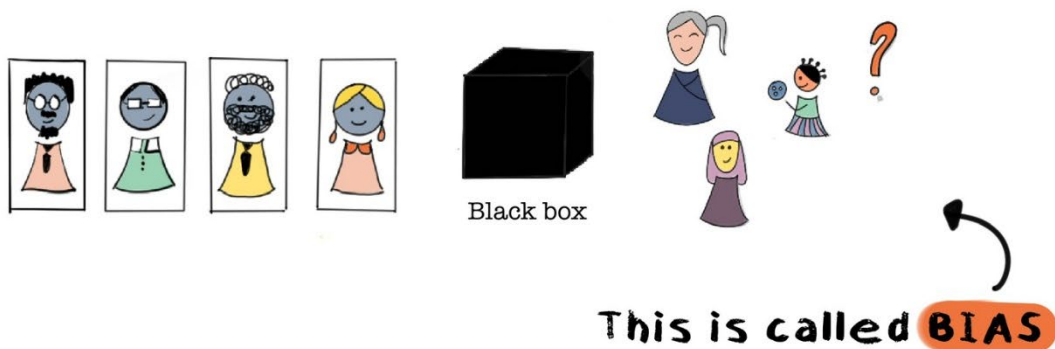


There are also AI systems modelled after the swarm intelligence of ant colonies, natural networks funghi and forests, or the genetic evolution



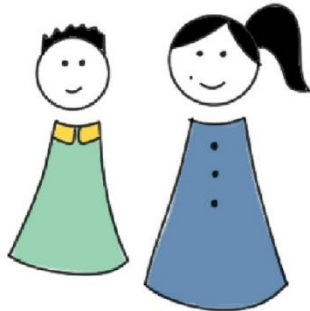
We have to be careful though if computers learn by themselves. With neural networks, we do not know the rules. When we train them, we may give them data that is not complete or good quality.

If we train AI to recognise faces, but most of the pictures are of old white men; the AI will do a poor job of recognising children, people of colour and women.



The greatest risk of AI now is to think that the algorithm is objective. In fact, it often hard codes and perpetuates existing discrimination and social injustice.

The source of the problem is often the training data or misuse. The calculations are never wrong though!



One last question:



How should I imagine an AI?

It means the same.

Many depictions today show AIs in a **human-like form** - if you ask a chatbot, it will generate an **anthropomorphic AI** image.

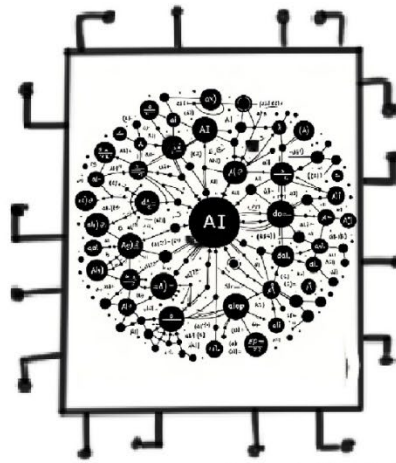
This is because in many sci-fi books and movies, robots have been imagined as human shaped, and AI replicates this.



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That's a preconception reinforced by AI!

But the AI we use today is very different. It's programmes and codes (LOT of CALCULATIONS) running on microchips.



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