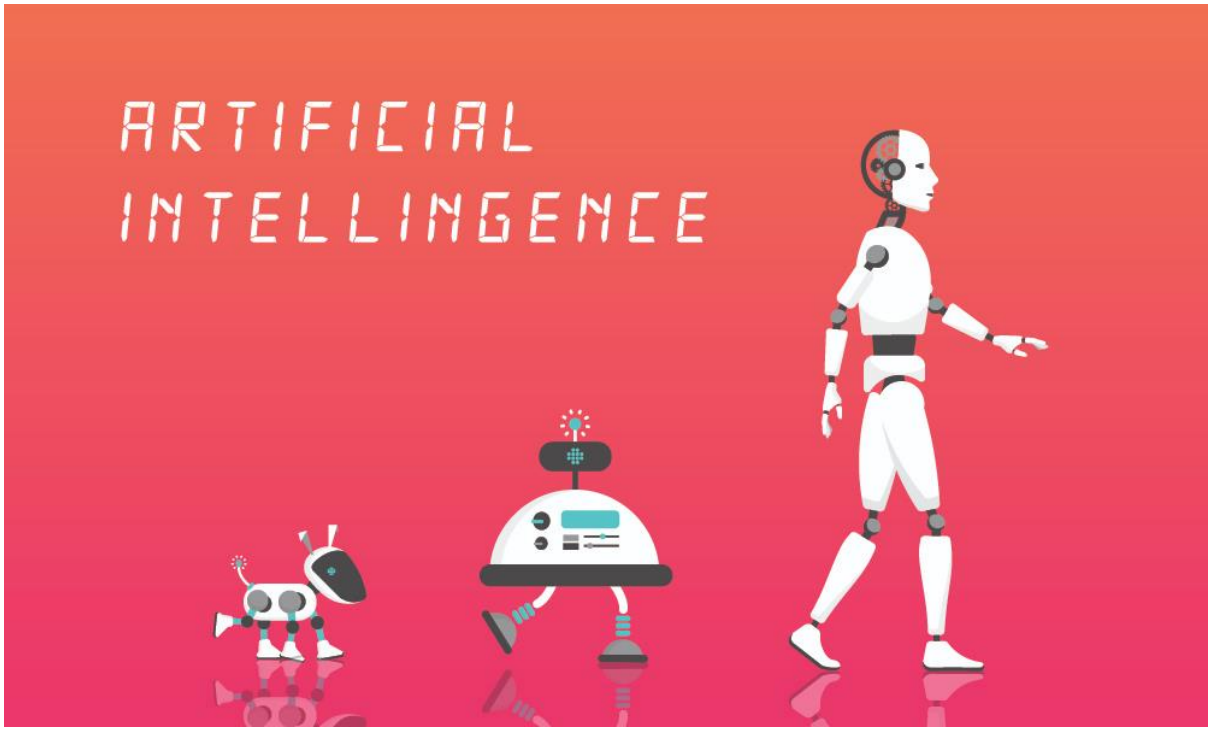
Artificial Intelligence

Content



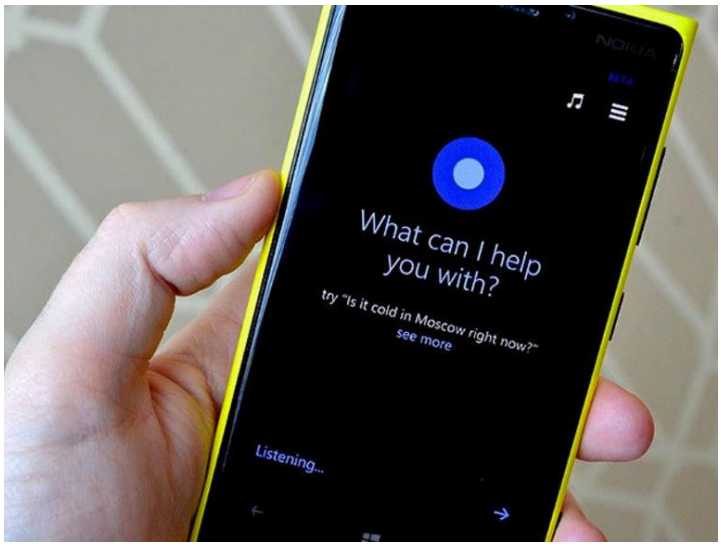
What is AI?

AI is the simulated intelligence in machines. Simply it is the study computer systems that attempt to model and apply the intelligence of the human mind. These machines are programmed to "think" like a human and mimic the way a person act.

The ideal characteristic of artificial intelligence is its ability to rationalize and take actions that have the best chance of achieving a specific goal, although the term can be applied to any machine that exhibits traits associated with a human mind, such as learning and solving problems.

EXAMPLES

1. Google Now (Android)
2. Siri (IOS)
3. Cortana (Windows Mobile)



Early History of AI

1952- Dartmouth Conference 1956. This is the birth of AI. At this point, scientists brought the argument that "every aspect of learning or any other feature of intelligence can be so precisely described that a machine can be made to simulate it.

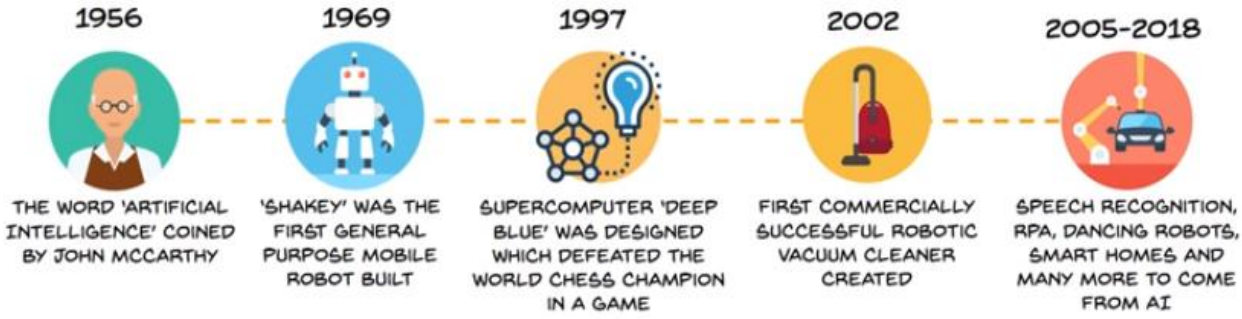
1956-1974- the golden years where there were many successful groups and new directions on AI such as natural language understanding, micro worlds and neutral networks etc.

1974-1980 – the first AI winter where AI was subjected to critiques and financial setbacks. AI researchers couldn't meet their expectations. Their tremendous optimism had raised expectations impossibly high and their failure made funding for AI disappeared.

1980-1987 – a form of AI program called "expert systems" was adopted by corporations around the world and knowledge because the focus of mainstream AI research.

1987- 1993 – the business community's fascination with AI rose and fell in the 80's in the classic pattern of an economic bubble.

2000 and after- Interactive robopets ("smart toys") become commercially available, realizing the vision of the 18th century novelty toy makers. **Blue Brain** is born, a project to simulate the brain at molecular detail. Microsoft launched **Kinect for Xbox 360**, the first gaming device to track human body movement, using just a 3D camera and infra-red detection, enabling users to play their Xbox 360 wirelessly. **Apple's Siri** (2011), Google's Google Now (2012) and Microsoft's Cortana(2014) are smartphone apps that use natural language to answer questions, make recommendations and perform actions



Current Status of AI.

AI have taken many shapes and forms over recent years

- Mobile Phones (Siri/Cortana)
- Video Games Characters
- GPS/ Voice Recognition
- Robotics

Google has been a major play on AI transcendence and Deep Learning. This is a machine learning based on algorithms.

Challenges of AI

- **Lack of Computer Power**

  This is likely to be solved over time, although until it is, it shouldn't be taken for granted that it will be. AI – specifically the machine learning and deep learning techniques which show the most promise, require a huge number of calculations to be made very quickly. This means they use a lot of processing power. Therefore, need to figure out the programming models, because the programming models for quantum are completely different from those are in use.

- **Lack of people power**

  There have been comparatively few organizations willing to put money into development of these skills, and the subject was not well-represented in industry-focused education and training curricula. With the explosion of interest in the last few years, all this has changed. Data science courses focusing on the core skills needed for AI development – mathematics, computer science and statistics – have become prevalent and are generally over-subscribed. But there are still not enough people to enable every business or organization to unleash their vision of machine-powered progress on the world. Just as in other areas of science and technology there is a skills shortage – simply not enough people who know how to operate machines which think and learn for themselves.

- **Building trust**

  Scientists have predicted that by 2020 there will be a revolt by a "noisy 10 per cent" against the hold AI has taken over our lives. "The problem is that AI is a black box – people don't feel comfortable when they don't understand how the decision was made. "For an example algorithm used by banks are mainly linear math and it's pretty easy to explain the path from the input to the output – 'I denied your mortgage application because, you don't have a job, or whatever…". But with multi-layer neural networks, the average human doesn't understand, so now we're making predictions based on things that people don't understand and that's going to make people uncomfortable.

- **One-track minds**

  The problem here is that "naturally" intelligent organisms like humans are capable of taking into consideration learning and data from tasks other than the one we are currently working on. This ability to draw on resources other than those which are immediately apparent, in order to tackle a problem, is known by clichés such as "out-

of-the-box" or "blue-sky" thinking and is an element of human problem-solving and ingenuity that today's focused, single-minded and often obsessive AIs are unlikely to emulate in the near future.

Pros &Cons of AI

PROS	CONS
Precision & accuracy	Not able to act any different
Used for mining process	Lack of human touch
Can do laborious tasks	Lack creative mind
Fraud detection, manage records	Lack of common sense
Lacking the emotional side	Abilities if humans may diminish
Can do repetitive and time-consuming tasks	Wrong hands cause destruction
Diagnosis and treatment	Human become dependent on machines

FUTURE OF AI