CERTiFAI
powered by Skymind

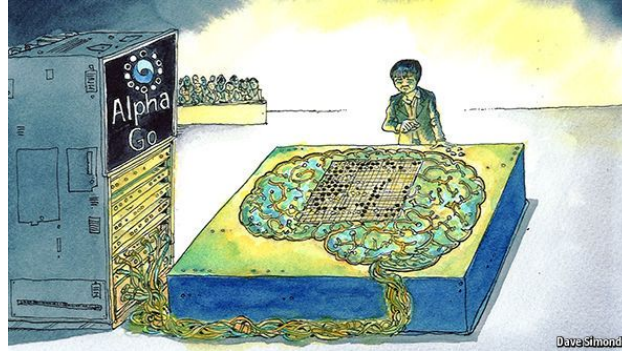# Introduction to Artificial Intelligence (AI)

History, Concepts & Terminologies

Introduction to AI

What is Artificial Intelligence?

What is AI?

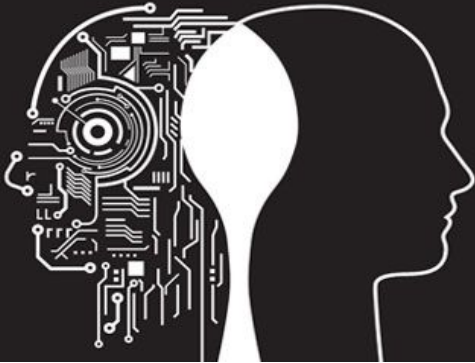"The science and engineering of making **intelligent machines**"

(John McCarthy, 1956)

"The act of creating machines that perform functions that require **intelligence** when performed by people." (Kurzweil, 1990)

Artificial Intelligence, Machine Learning and Deep Learning
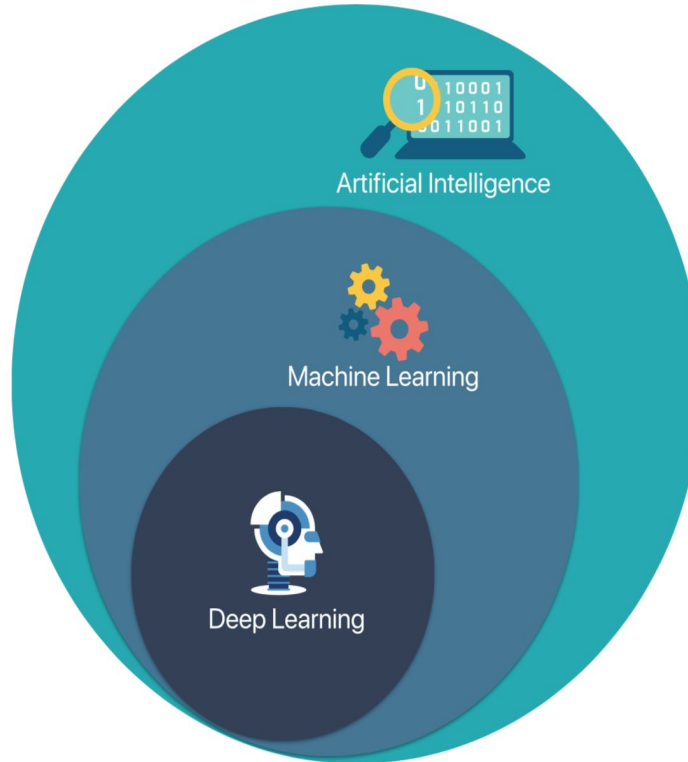
Artificial Intelligence, Machine Learning and Deep Learning

How did AI Started?

Artificial Intelligence 1950s - 1980s
Any technique which enables computers to mimic human behaviour.

Machine Learning 1980s - 2010
Subset of AI techniques which use statistical methods to enable machines to improve with experiences.
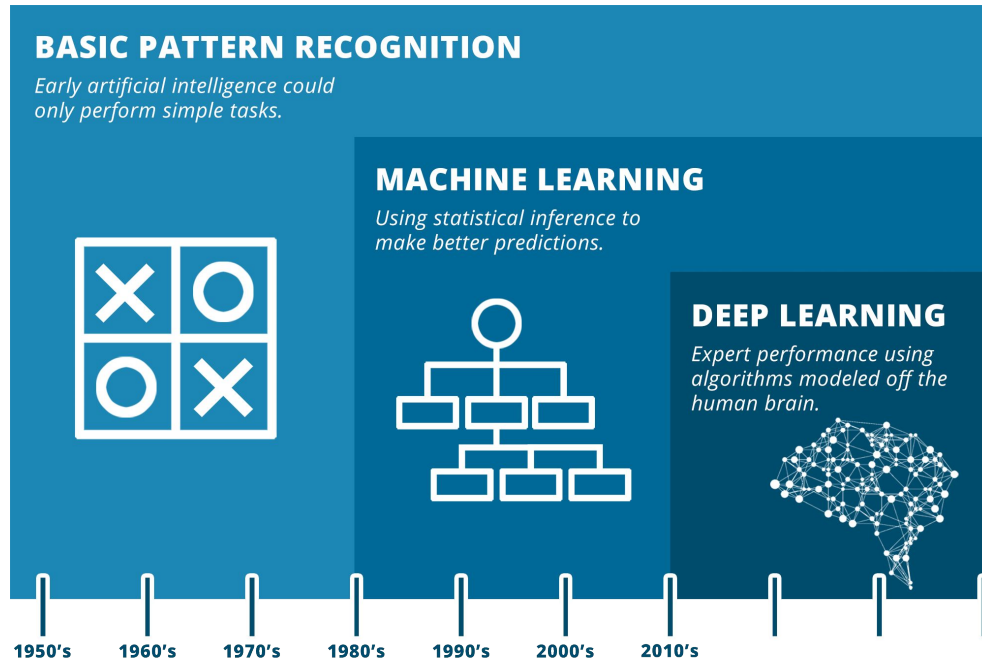
Deep Learning 2010 - Now
Subset of ML which make the computation of multi-layer neural networks feasible.

Early Days of AI

In early days, AI research was slowed down by

- **computer limitations**
- **lack of mathematical understanding**

BASIC PATTERN RECOGNITION
Early artificial intelligence could only perform simple tasks.

MACHINE LEARNING
Using statistical inference to make better predictions.

DEEP LEARNING
Expert performance using algorithms modeled off the human brain.

1950's 1960's 1970's 1980's 1990's 2000's 2010's

Why Now?

Big Data
The growth of the internet has generated massive amounts of data.

Moore's Law, GPUs
The level of compute has increased to the point in which computers can now process large datasets at reasonable speeds.

Proliferation (rapid increase) of Applications
IoT, Smartphones, Computers, Cloud Computing

Different Types of AI

Artificial Narrow Intelligence (ANI)		• Able to **perform specific task** autonomously with human-like capabilities • Can do nothing more than what they are programmed to do.
Artificial General Intelligence (AGI)		• Able to learn, perceive, understand and function completely **like a human** being.
Artificial Super Intelligence (ASI)		• **Exceed** human level intelligence with greater memory, faster data processing and analytics, and decision making capabilities.

Introduction to AI

What can AI do?

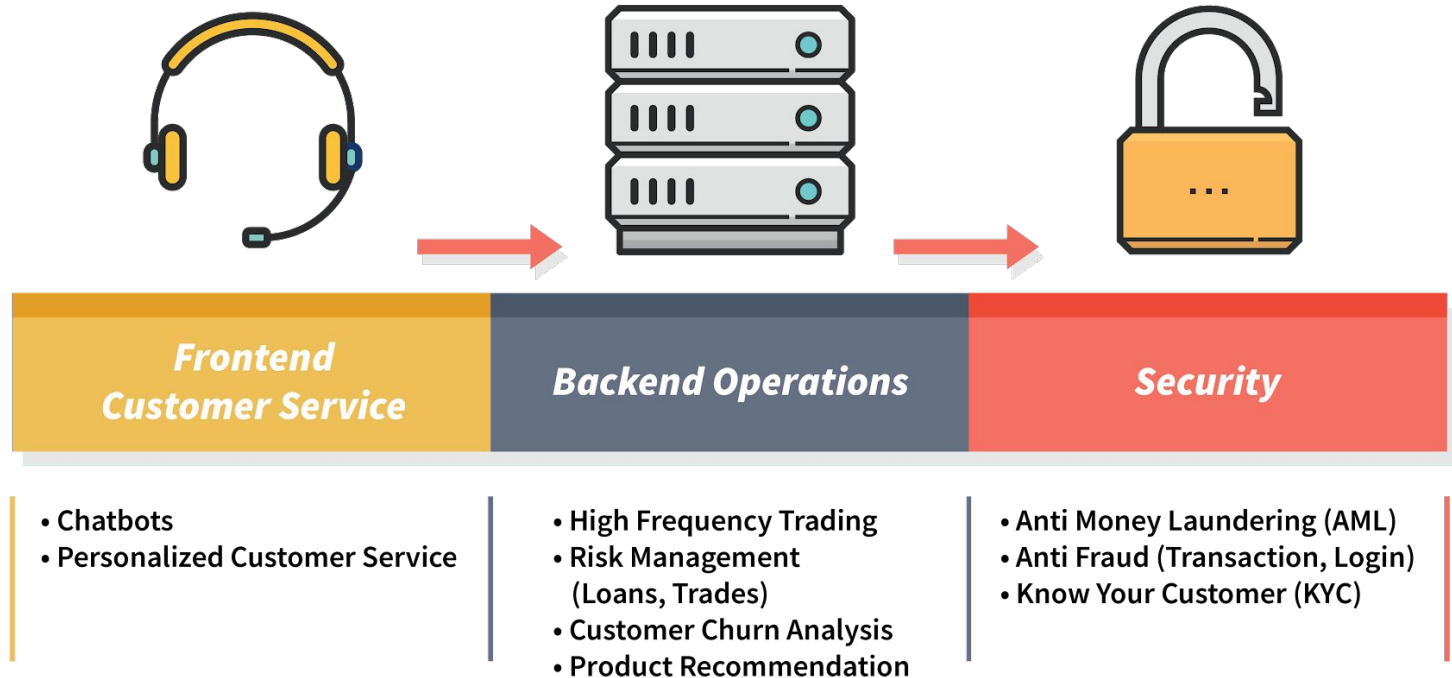# Reasons industries start adopting AI

To curb pain points

To provide unique offerings

To retain increasing crowd of customers

AI reach deep into organisations to affect end-to-end workflow

Frontend Customer Service	Backend Operations	Security
• Chatbots • Personalized Customer Service	• High Frequency Trading • Risk Management (Loans, Trades) • Customer Churn Analysis • Product Recommendation	• Anti Money Laundering (AML) • Anti Fraud (Transaction, Login) • Know Your Customer (KYC)

Examples of AI: AI in Farming

Introduction to AI

More Examples of AI in Action

Examples of AI: Smart Paintbrush to Draw Photorealistic Sceneries

Examples of AI: Google AI Assistant Making Calls to Book Appointments

Source: https://youtu.be/D5VN56jQMWM

Introduction to AI

Advantages and Disadvantages of AI

Advantages and Disadvantages of AI

Advantages

1. Reduction in Human Error
2. Helps in repetitive jobs
3. Can perform laborious task
4. Can work continuously and efficient
5. Can make rational and accurate decisions
6. Helps human in risky situation

Disadvantages

1. High cost
2. Leads to unemployment
3. Issue of AI-Bias
4. Lack of human emotions
5. Lack of understanding of ethics and legal

Issues and Concerns Surrounding AI: Deep Fakes

Issues and Concerns Surrounding AI: Mass Surveillance