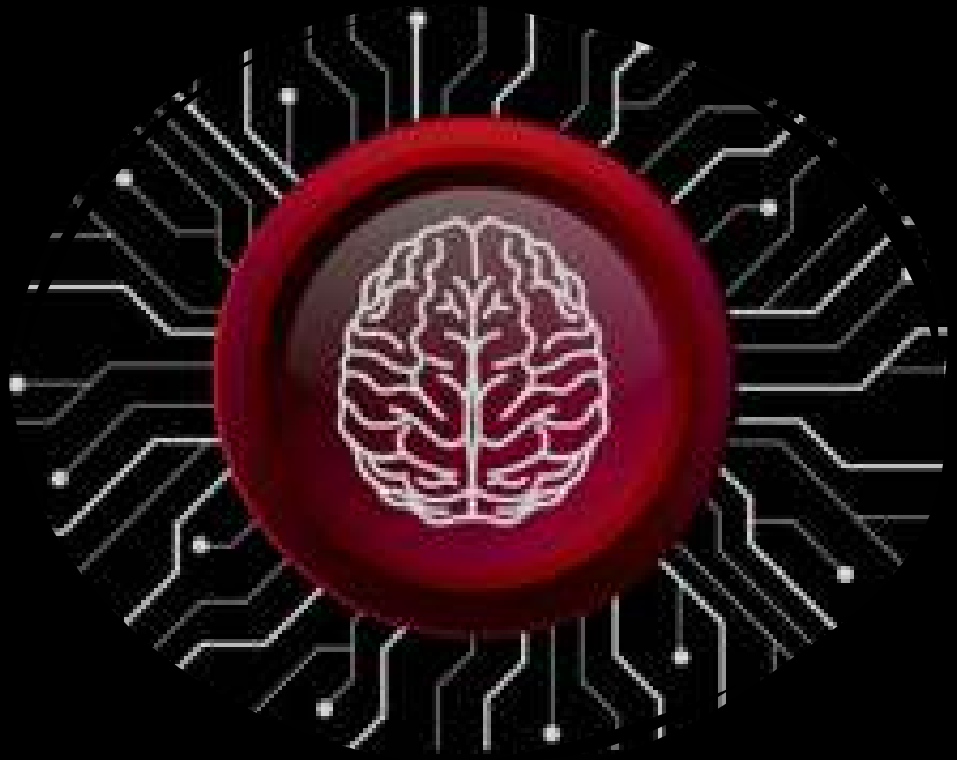

Course Introduction

Week 1 - Artificial Intelligence -
Yufis Azhar

UMM
Est. 1964

Dosen Pengampu

Nama : Yufis Azhar, S.Kom., M.Kom.

NIP/NIDN : 108.1410.0544/0728088701

Email : yufis@umm.ac.id

HP/WA : +6285790809961

GS Profile : https://s.id/GSYufis

Field of Interest

Artificial Intelligence, Data Mining, Machine Learning, Computer Vision, Information Retrieval

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Mekanisme Perkuliahan

- Materi dan penugasan akan dishare menggunakan LMS (https://lms.umm.ac.id)
- Pada setiap pertemuan, mahasiswa diminta untuk mengisi daftar hadir (presensi) sesuai dengan jadwal yang telah disusun oleh prodi. Presensi dapat dilakukan melalui aplikasi MyUMM for Student atau https://infokhs.umm.ac.id
- Group WA bisa digunakan untuk bertanya atau berdiskusi terkait hal-hal yang berhubungan dengan perkuliahan

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Penilaian : Project Based Learning

- Presensi : 5%
- Tugas
  - Mini Quiz : 10%
  - Collecting Dataset : 15%
- UTS/Model Evaluation : 20%
- UAS/Final Project
  - Paper : 20%
  - Deploy Model : 30%

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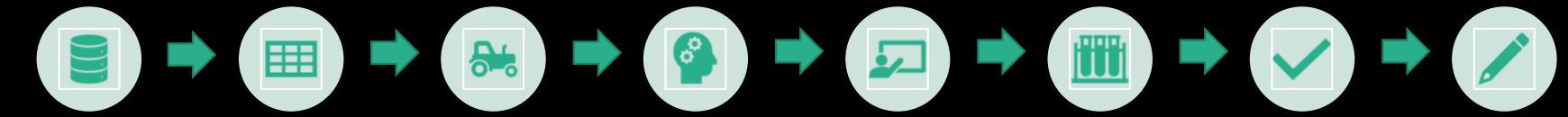
Road To Final Project



COLLECT DATASET

CREATE METADATA (DATASET INFORMATION)

PREPROCESSING DATA (RESIZE, CROP, COLOR ADJUSTMENT, ETC)

BUILD MACHINE LEARNING/DEEP LEARNING MODEL

TRAINING MODEL

TESTING & EVALUATION

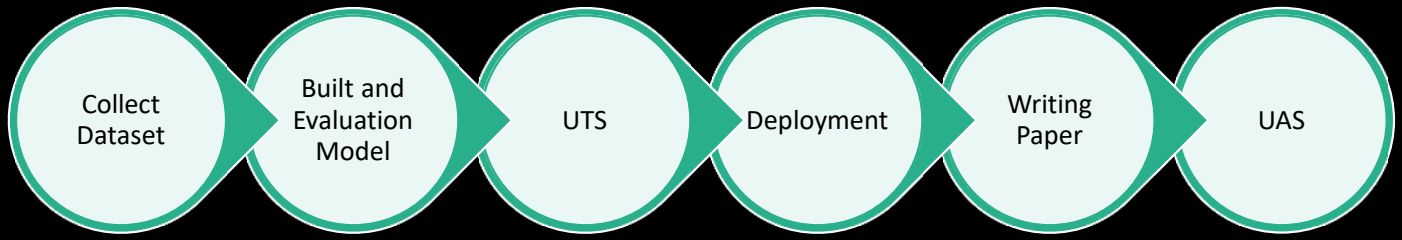
DEPLOYMENT

WRITING PAPER

Output :

- ✓ Image Classification System (Web App)
- ✓ Paper

Silabus Matakuliah



1	•Kontrak Kuliah •Pengantar •Project: Create Group
2	•Graph, Search •Project: Collect Dataset
3	•Heuristik •Project: •Filename •Metadata description
4	•Image Fundamental •Project: Preprocessing
5	• Artificial Neural network • Project: Built Model
6	• Convolutional Neural Network • Project: Training model
7	• Confusion matrix • Project: Testing and Evaluation
8	• UTS
9	•Workshop Deployment •Heroku •Flask •Github •Project: Deployment Heroku
10	•Writing paper •Project: •Abstract •Introduction
11	•Sistem Pakar •Project: Method and Result
12	•Fuzzy •Project: •Conclusion •References Mendeley •Templating
13	• Progress Heroku
14	•Progress Paper
15	• Final Progress • Heroku • Paper
16	• UAS

What will you get each week at LMS?

- Slide/Module
- Recorded Video
- Mini Quiz
  - Multiple Choices
  - 3 - 10 Questions about current module
  - You can do it repeatedly until you pass the minimum score
- Link to submit your final project progress

Collecting Data : Herb Leaf Dataset

Panduan pembuatan dataset

- Image daun diambil menggunakan kamera smartphone
- Background putih
- Format .jpg
- Dimensi 1600 x1200 pixel
- Jumlah per label = 50 image
- Masing-masing kelompok diberikan 2 label untuk dicollect datanya (misal daun jeruk nipis dan daun sirih)
- Setiap image daun dimasukkan sesuai foldernya. Misal:
  - Folder : jeruk nipis
    - 001.jpg
    - 002.jpg
  - Folder : sirih
    - 001.jpg
    - 002.jpg

Pilihan Label:

A. Daun jeruk nipis
B. Daun jambu biji
C. Daun lidah buaya
D. Daun sirih
E. Daun pandan
F. Daun kemangi
G. Daun nangka
H. Daun seledri
I. Daun pepaya
J. Daun belimbing wuluh

Final Project

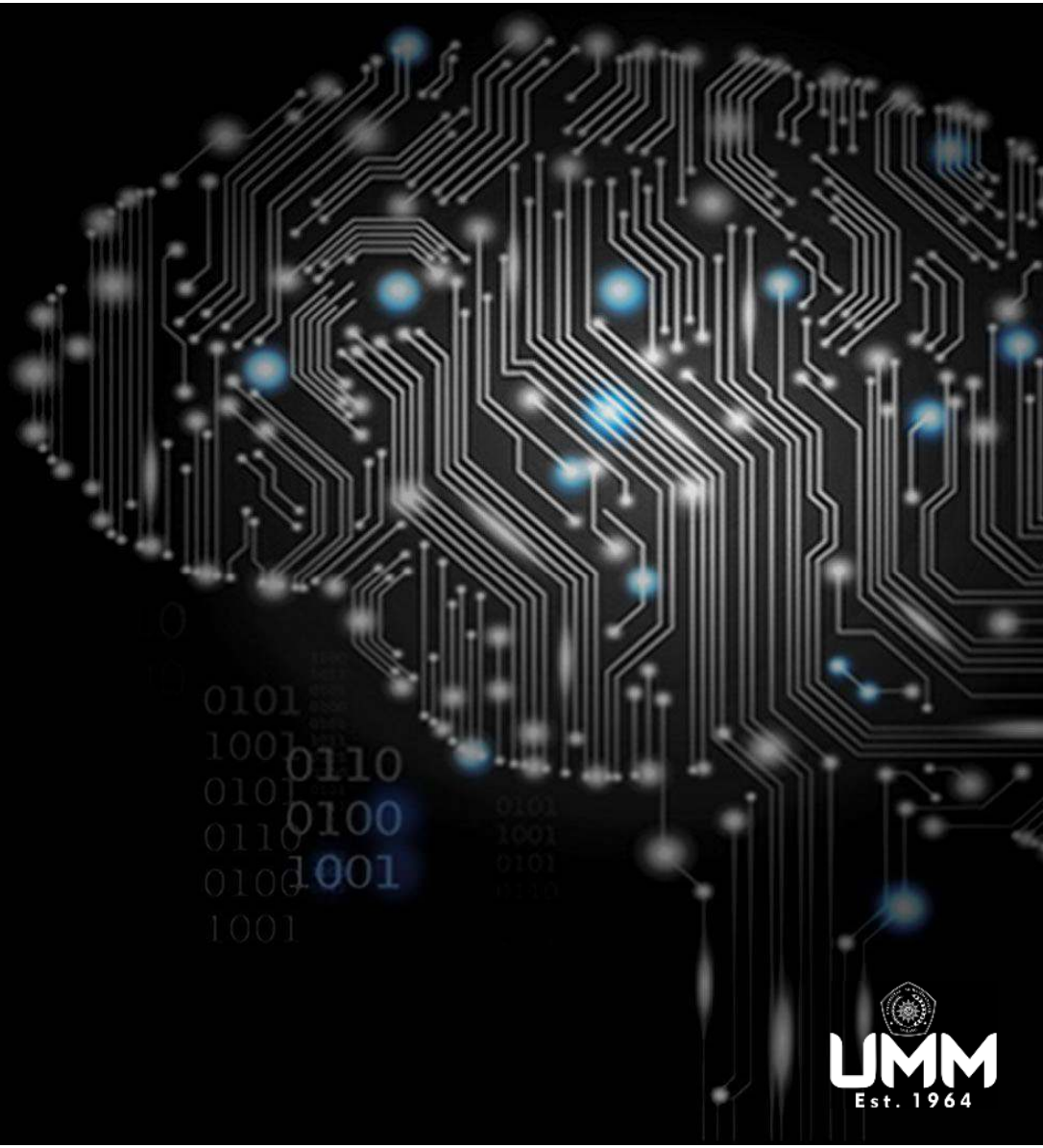
- Progres tiap minggu di LMS
- Dataset bebas (disarankan menggunakan Herb Leaf Dataset yang sudah dikumpulkan sebelumnya)
- Simpan di Github
- Kerjakan menggunakan Google Colaboratory atau IDE lain yang bisa digunakan untuk pengerjaan secara team
- Deployment menggunakan Heroku
- Buat draft paper

Pendataan Kelompok

- https://bit.ly/groupAI

ARTIFICIAL INTELLIGENCE

Introduction



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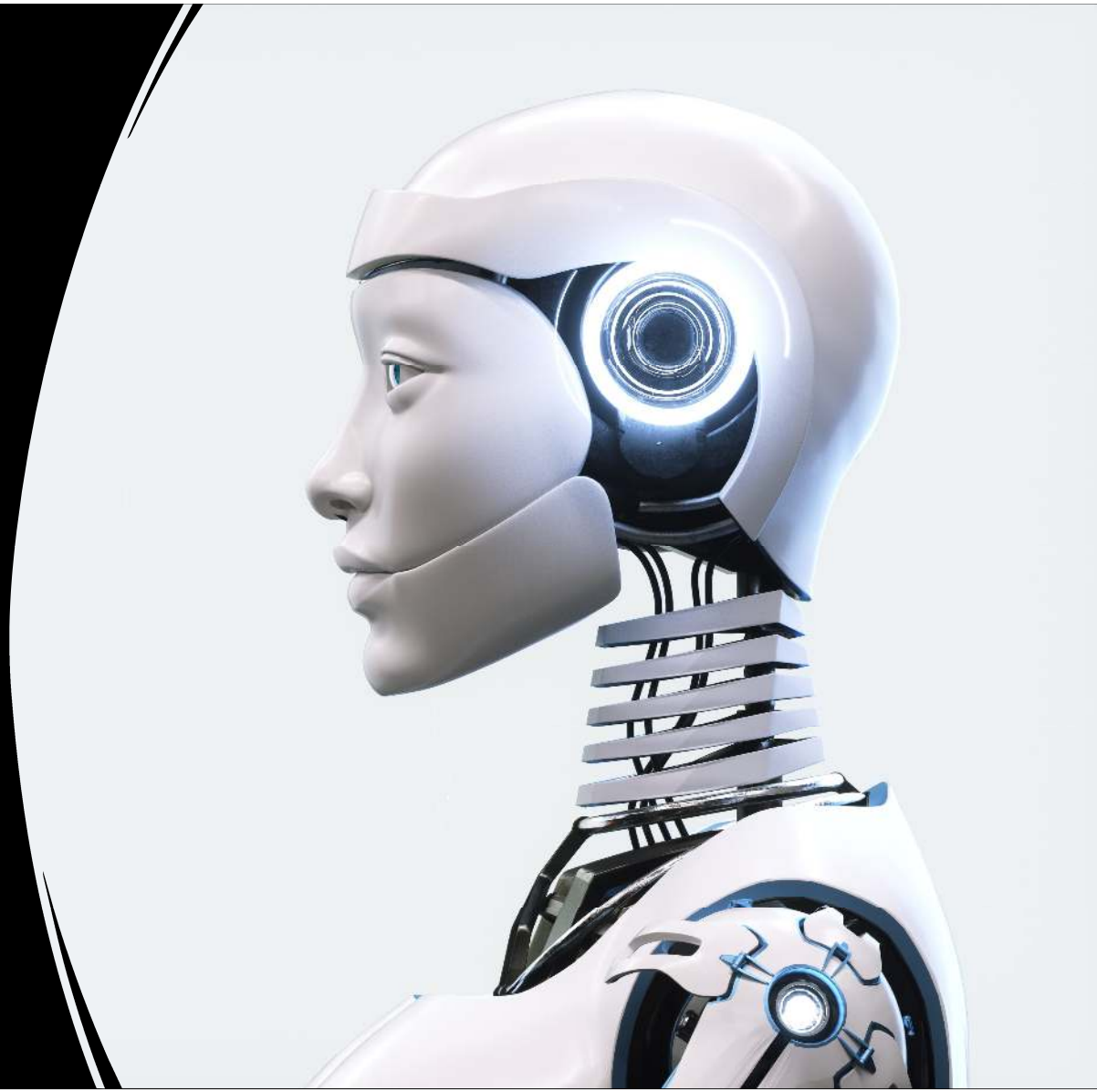
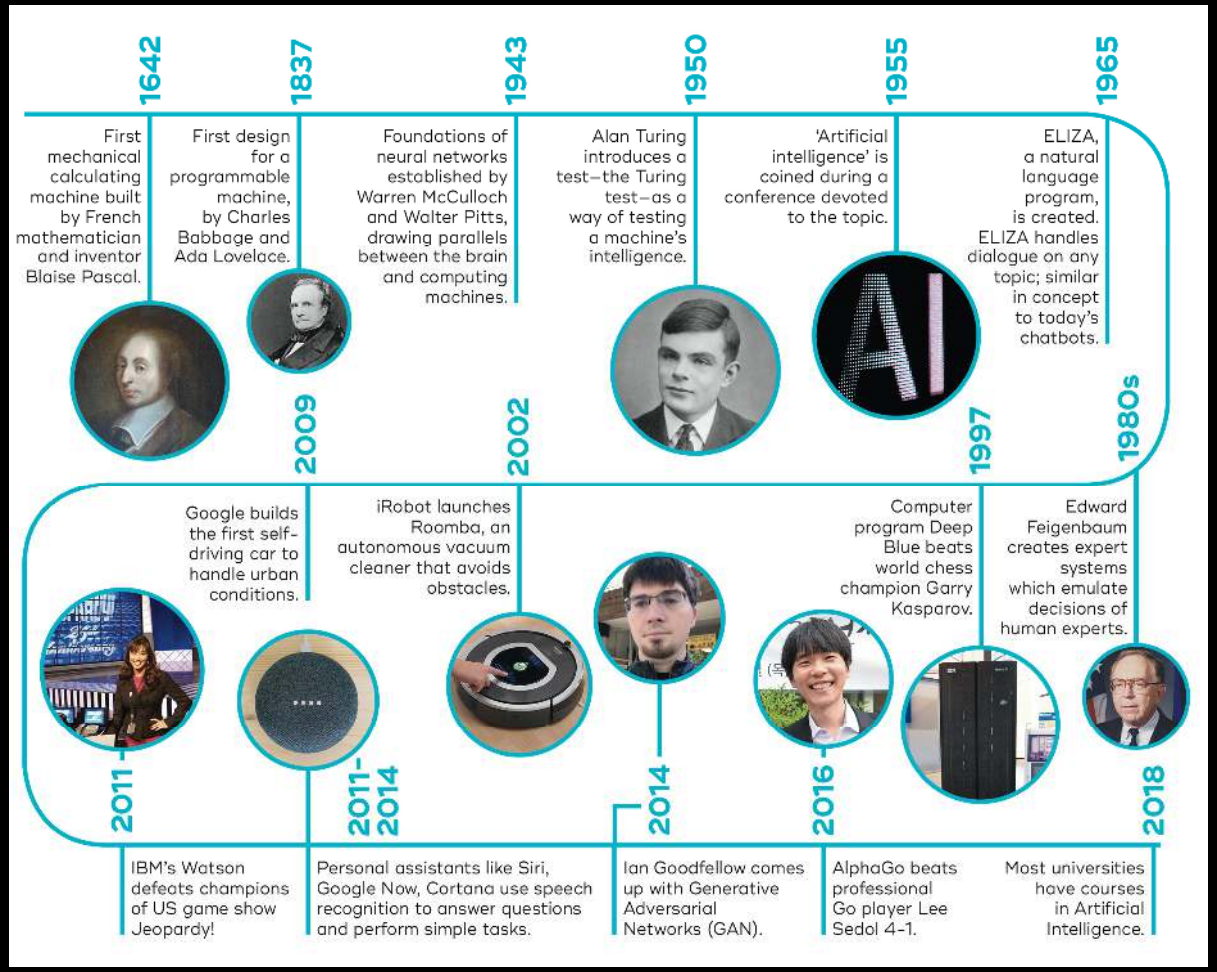
Definition of AI

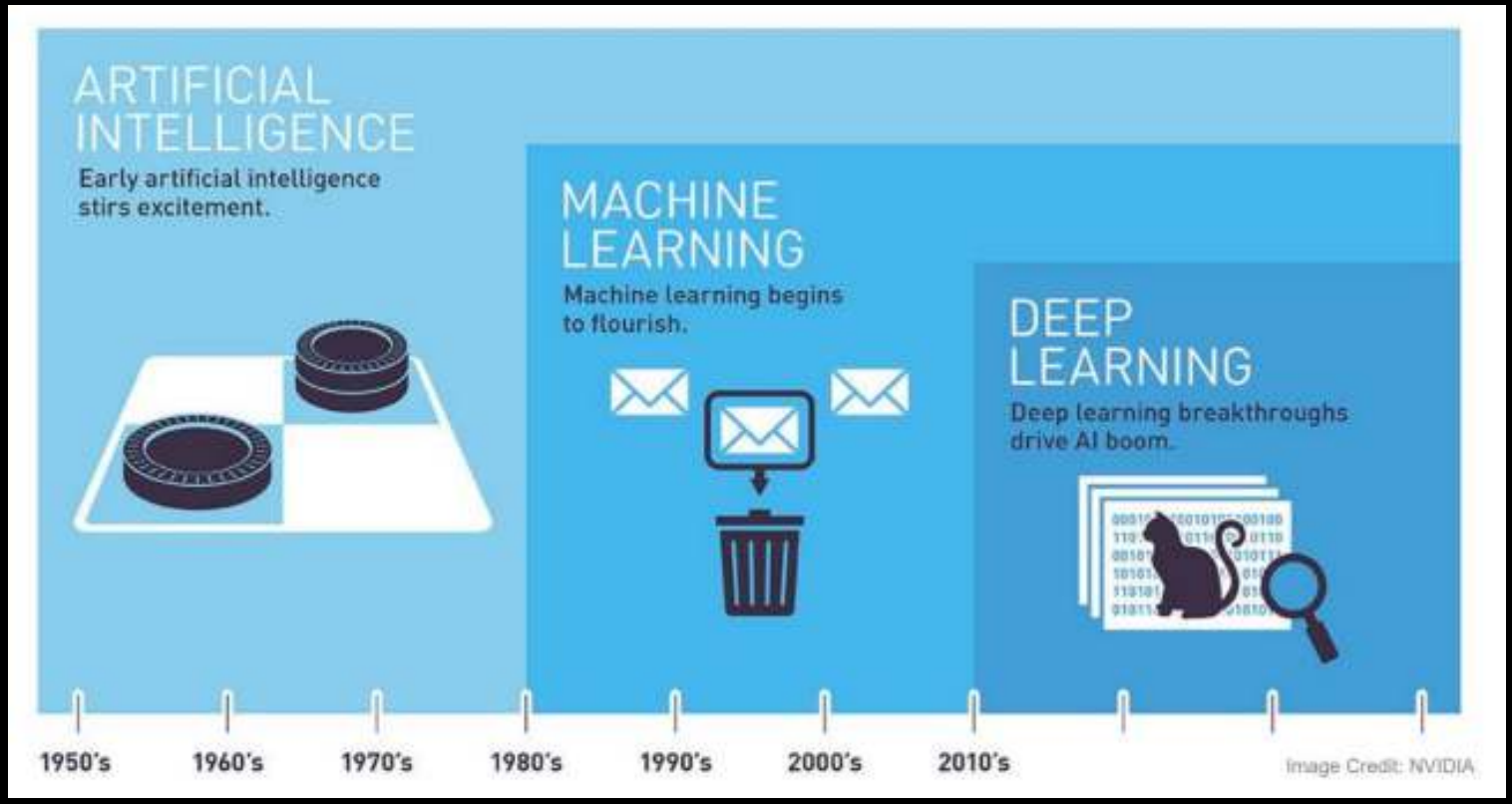
- **Artificial intelligence** is the simulation of human intelligence processes by machines, especially computer systems



A brief history of AI



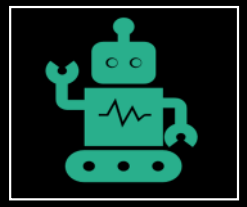
The development of AI



AI VS Automation

AI

1. AI makes decision based on the learning from past experience & information it receives
2. AI is system that helps experts to analyze situations and arrive at certain conclusion
3. AI “usually” is for non-repetitive tasks
4. AI involves learning and evolving.
5. AI have interaction with humans and it learns from past experience and compare the situations and then work according to it



Automation

1. Automation is like pre set and self running to perform specific tasks
2. Automation is kind of machine programmed to carried out a routine job
3. While Automation is for repetitive tasks based on the commands and rules
4. Automation does not involves learning and evolving
5. While Automation have no interaction with humans and it works on instructions

AI in our everyday lives

Open your phone with face ID

One of the first things many people do each morning is to reach for their smartphones. And, when your device gets unlocked using biometrics such as with face ID, it's using artificial intelligence to enable that functionality. Apple's FaceID can see in 3D. It lights up your face and places 30,000 invisible infrared dots on it and captures an image. It then uses machine learning algorithms to compare the scan of your face with what it has stored about your face to determine if the person trying to unlock the phone is you or not. Apple states the chance of fooling FaceID is one in a million

AI in our everyday lives

Social Media

Artificial intelligence working behind the scenes to personalize what you see on your feeds, it's figuring out friend suggestions, identifying and filtering out fake news, and machine learning is working to prevent cyberbullying

AI in our everyday lives

Send email or messages

Tools such as Grammarly and spell check activate when you compose your email to help you draft messages free from errors. These tools use artificial intelligence and natural language processing. On the receiving end of your messages, spam filters use artificial intelligence to either block emails that are suspected as spam or identify an email as something your recipient would like to receive in their inbox. Anti-virus software uses machine learning as well to protect your email account

AI in our everyday lives

Google Search

Tools such as Grammarly and spell check activate when you compose your email to help you draft messages free from errors. These tools use artificial intelligence and natural language processing. On the receiving end of your messages, spam filters use artificial intelligence to either block emails that are suspected as spam or identify an email as something your recipient would like to receive in their inbox. Anti-virus software uses machine learning as well to protect your email account

AI in our everyday lives

Digital Voice Assistants

From getting directions to your lunch spot to inquiring about the weather for your weekend getaway, digital voice assistants are quickly becoming our can't-live-without co-pilots through life. These tools from Siri and Alexa to Google Home and Cortana, use natural language processing and generators driven by AI to return answers to you.

AI in our everyday lives

Smart Home Devices

Our homes are increasingly becoming "smart." Many of us now have "smart" thermostats such as the Nest that learn about our heating/cooling preferences and daily habits to adjust the temperature to our liking in time for our return home. There are smart refrigerators that create lists for what you need based on what's no longer in your fridge, as well as offer wine recommendations that would go with your dinner. Of course, smart appliances will continue to be more common.