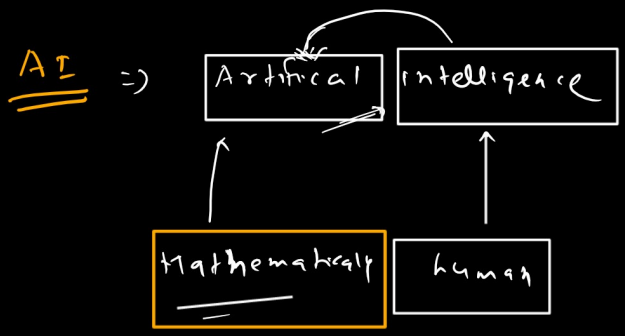
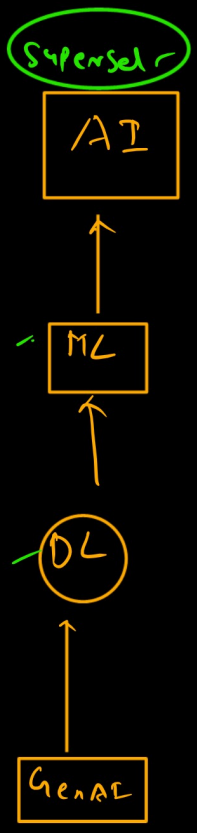
GEN AI

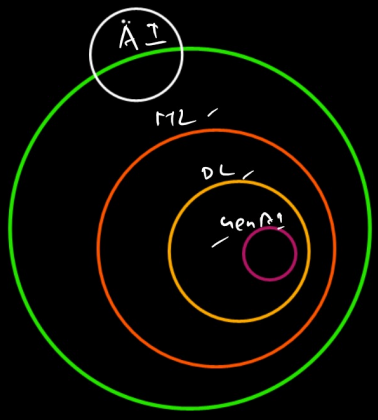


Domain =>
1. Ecommerce
2. education
3. transportation, logistic, supply chain
4. Medical

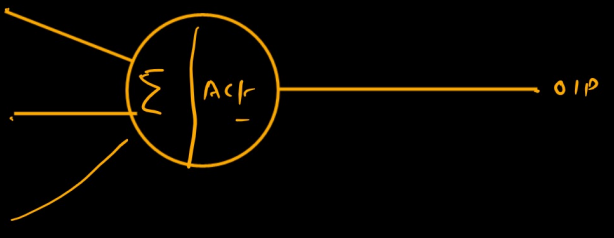


1950-1960 1960-1970 1980-1990 1997-2000

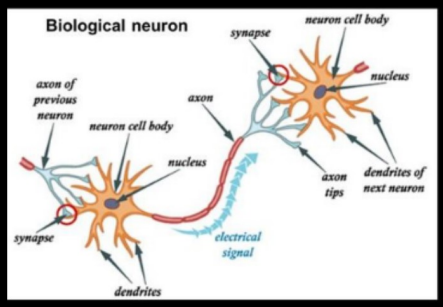
2000- Present

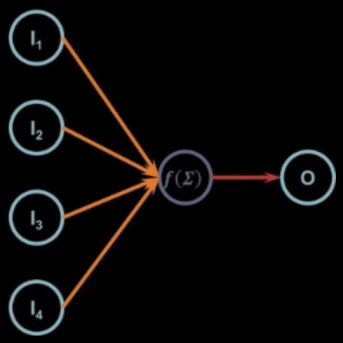


1. 1950-1960 (Alan turing, John mccarthy, Marvin minskey)
   1. Rule based system => Manually condition
   2. Perceptron



Human neuron

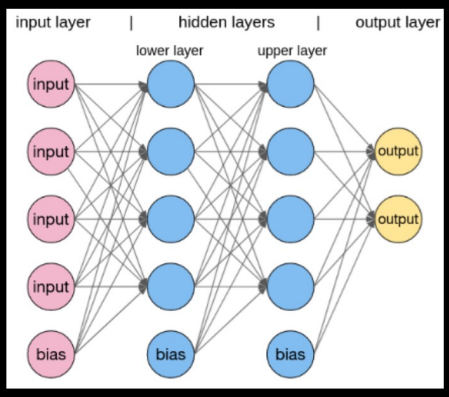




Neural Network

Or

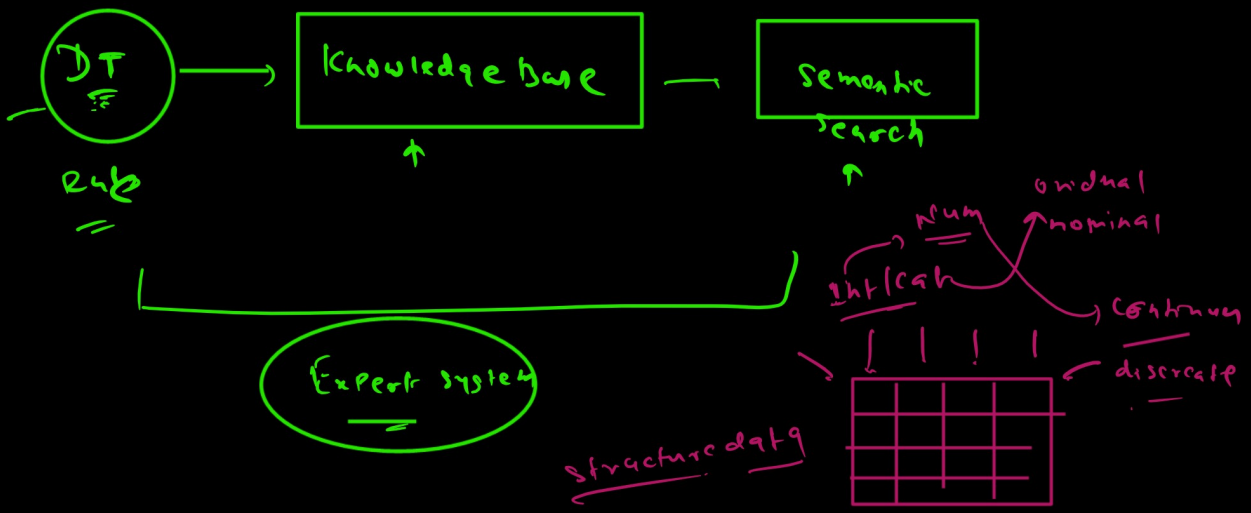
ANN



Optimization

1960-1980 Expert system

Rule based system ⇒ Advanced



1970-1980 ⇒ Few ML ⇒ ML ⇒ AI

Machine + Learning

Mathematical

Learning → Supervised Learning → Regression → Target → Num
→ unsupervised → Classification → target → cat

~~target~~ ⇒ Data ⇒ Group & Cluster

Mathematics
(Applied mathematics)

1. Linear Algebra
2. Calculus
3. Probability
4. Stats

DL, ML, DS

old technique (1900-1950)

Lin reg
Log reg
KNN
Naive bayes

⇒ Gradient decendent

1950-1970

1980 ⇒ Rebirth of the AI

1. ANN ← (1950-1960)
2. BP ⇒ Jeffery Hinton
Godfather of Modern AI

3. RNN ⇒ ANN + Feed loop

→ Sequence (text, Audio)

my name is sunny

ANN ⇒ tabular
Seq, Image

1990 ⇒ ML ⇒
1. AdaBoost
2. GB
3. SVM
4. LSTM
5. CNN

→ Image video

Yann Lucan ⇒ LENET
↑
MNIST

CNN ⇒ Convolution + Pooling + ANN

ANN ⇒ Artifical Neural network

Classical AI

1. Rules.
2. human

Moder AI

ML, DL

1. Algorithm
2. Mathematics

(Lin Aleg, Prob, stats, Cal)

Deep Learning (2000 - Present) it is erg DL

2006 ⇒ Deep Belief Network

⇒ 2012 ⇒ Imagnet ⇒ CNN, GPU

2014, 2014

image → GANs → ANN

seq (text) (encoder - decoder)

1. Discriminator
2. Generator

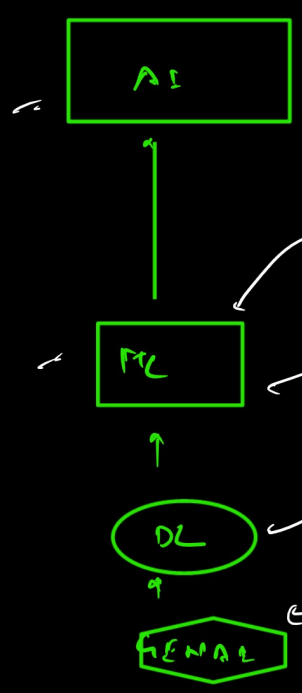
2016 ⇒ AlphaGo Deep Learning

2018 ⇒ UCMFit

2018 ⇒ {transformer}

2019 ⇒ GPT

2019 ⇒ BERT



1. 1950 - 1960
2. 1960 - 70
3. 1970 - 80
4. 80 - 90
5. 90 - 2000
6. 2000 - Present

GENAI ⇒ { ① Descriminative AI ② Genrative AI }

Des model

① Lin reg ② LSTM ③ CNN

① Specific task
② Limited data

(Twitter)

Gen model

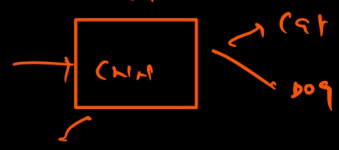
① huge Data
② genral model
③ training
(Supervised
Unsupervised)

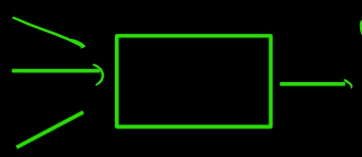
Lin reg ⇒ house price prediction

IMDB

You & me

Supervise learning

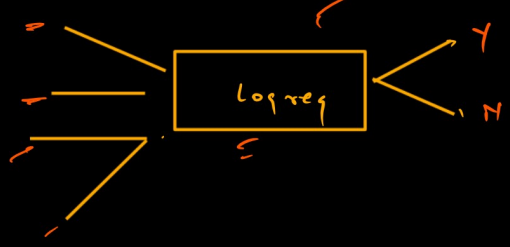




Regression

Dimond?

Bike ? Discrimination



Genrative Model

① Img to img genration
② text to text genration } homongeous

③ img to text gen
④ text to img gen } hetrogenous task

Markove model → Probability

Generative AI → 1 GAN, 2 Autoencoder } ANN

↳ variational AENC

ANN — tabular

CNN — image

RNN — seq

Image model, video

DC ⇒ Unstructure

image, text

1 VGG, 2 Resnet, 3 Inception } img classification

4 Yolo, SSD, RCNN, faster → object detect

5 Detection, maskrcnn, U-Unet — seq.

vision, visual

huge → visual, vision based

text, audio

NLP ⇒ 1 text classification, 2 text generation, 3 chatbot (conversational), 4 text summarizor, 5 question - answering

RNN ⇒ seq

↓

memory unit

LSTM, GRU

Transformer

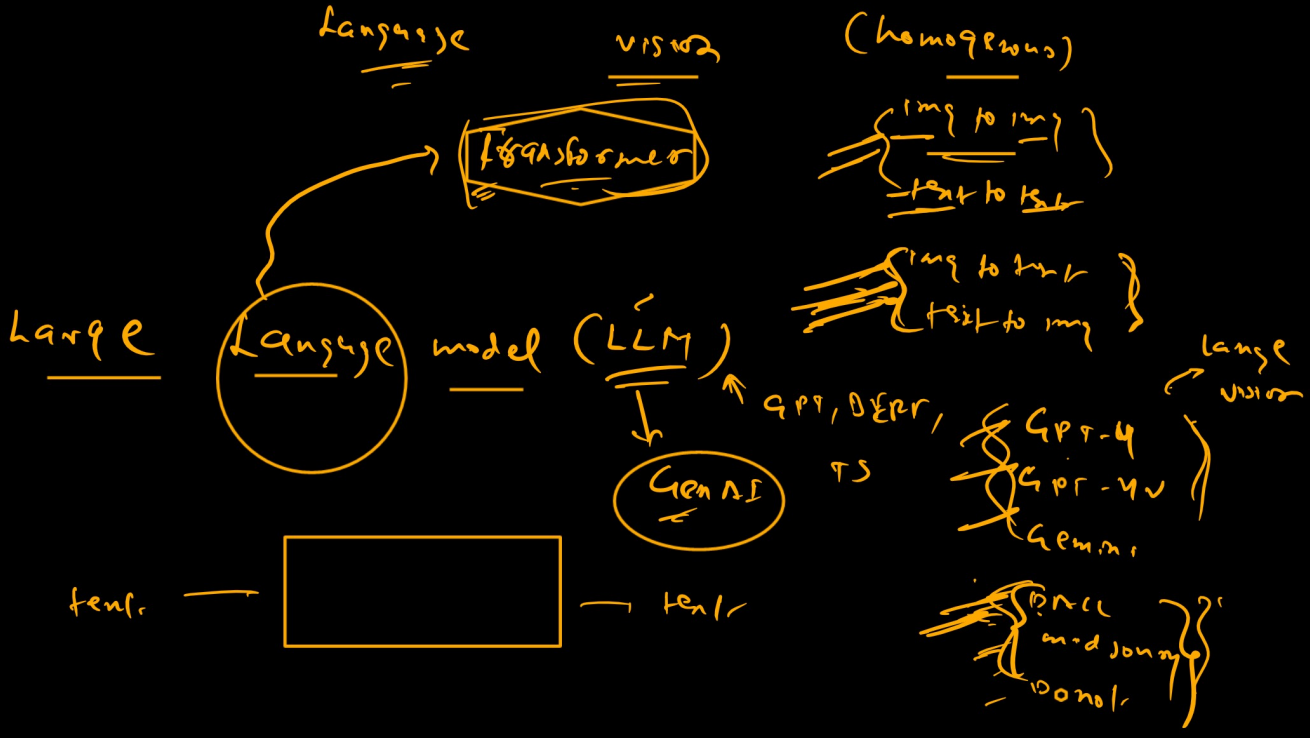
RNN, LSTM, GRU

CNN

vision ++ text (seq)

image caption, video analysis

GENAI => Transformer

Early

RNN → LSTM → Encoder-Decoder → Attention → Transformer