

Godfather of AI → Geoffrey Hinton

Generative AI

Generative AI generates new data based on Training Sample

Chat GPT
Google Bard
Meta LLaMA2

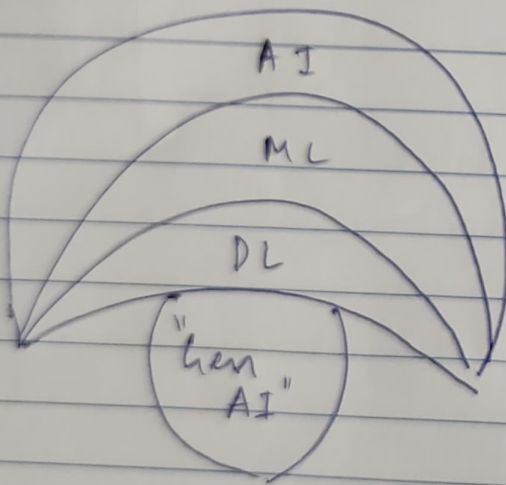
↓
Text, Audio, Video.

→ {Text to Image}

GIM → Generative Image Model

GLM → Generative Language Model

TRAIN | TEST



Gen AI is Subset of Deep Learning

ML
 (Supervised Learning)
 → Regression
 → Classification

Deep Learning

ANN → Regression, Classification
 CNN → Image classification, object detection,

Discriminative Model VS Generative Model

Training Model
 Has Supervisor.

NLP → Text } Sequence Data
 → Audio }

* Machine Learning (S.L)
 ↓

Linear Regression

Deep Learning
 ↓

Image classifier (Supervised)

① Model + Train.
 $y = mx + c$

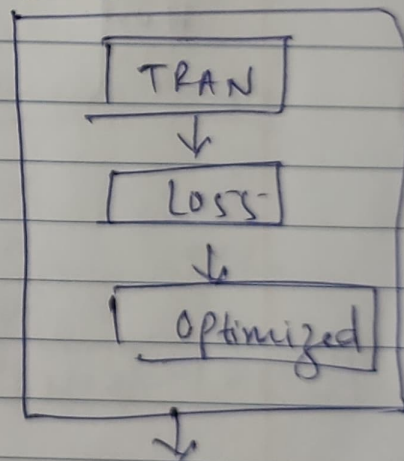
② Loss function →
 → MSE
 → MAE
 → RMSE

③ Gradient Descent
 Optimizer for ξ_m, c_3

$$M_{\text{new}} = M_{\text{old}} - \alpha \frac{\partial L}{\partial m}$$

Best Fit line
 ↓
 Prediction

DO
 QAT



Best Model.

Generative Model → large language model

→ It generates something

PROMPT → Generative Model → Generate

Language Model → Power to Model → It can understand the language

↓
Predict
Next
Word.

Phases of Model

1. Unsupervised learning (Language Modeling)
2. Supervised Fine tuning



Research Paper ① ULM Fit for Text classification

② BERT

③ GPT 2 Paper

Language Models are unsupervised

Discriminial

Unsupervised

↓

Clustering

→ K-Means

→ DBSCAN

Supervised

↓

Classification

Regression

(T5) → Text to Text Transfer Transformers → Google AI

Text Classification

TRANSFORMER Tree

Encoder - Decoder

Generation

Encoder Family

BERT
Roberta
XLNet
Albert
Electra
DeBERTa

T5

BART

M2M100

Bigbird

Decoder Family

GPT
GPT2 CTRL
GPT3
GPT Neo → GPTJ

* Encoder - Decoder → Translation

DATA
CAMP → LLAMA
CPP - ENV

Open Source

MPT-30B

Claude

Bloom

PALM

Falcon

How ChatGPT Was Trained 2

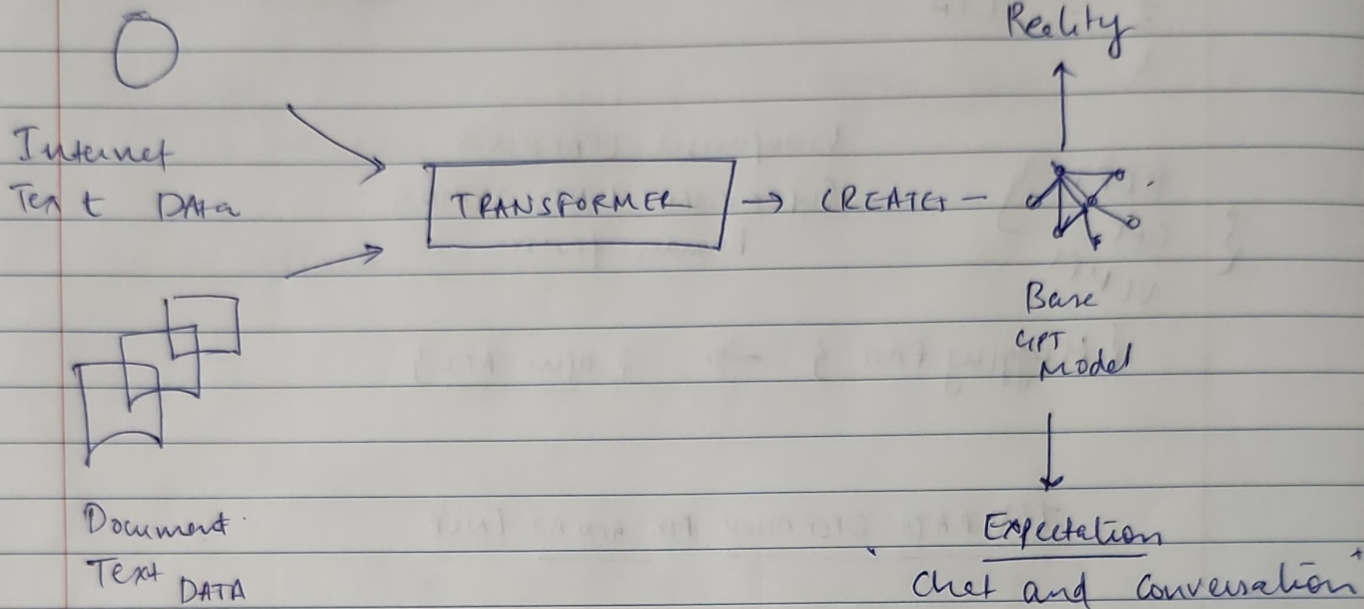
LLM - {3.5, 4 Model}

Data Size 45 TB

1. Generative Pre-training
2. Supervised Fine tuning
3. Reinforcement learning

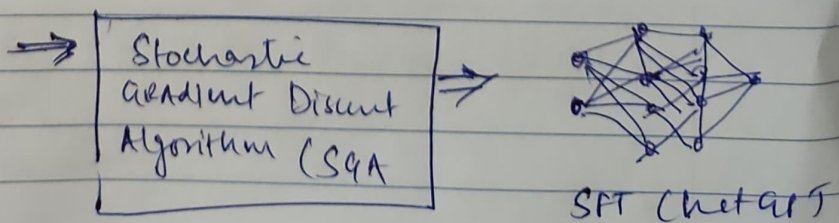
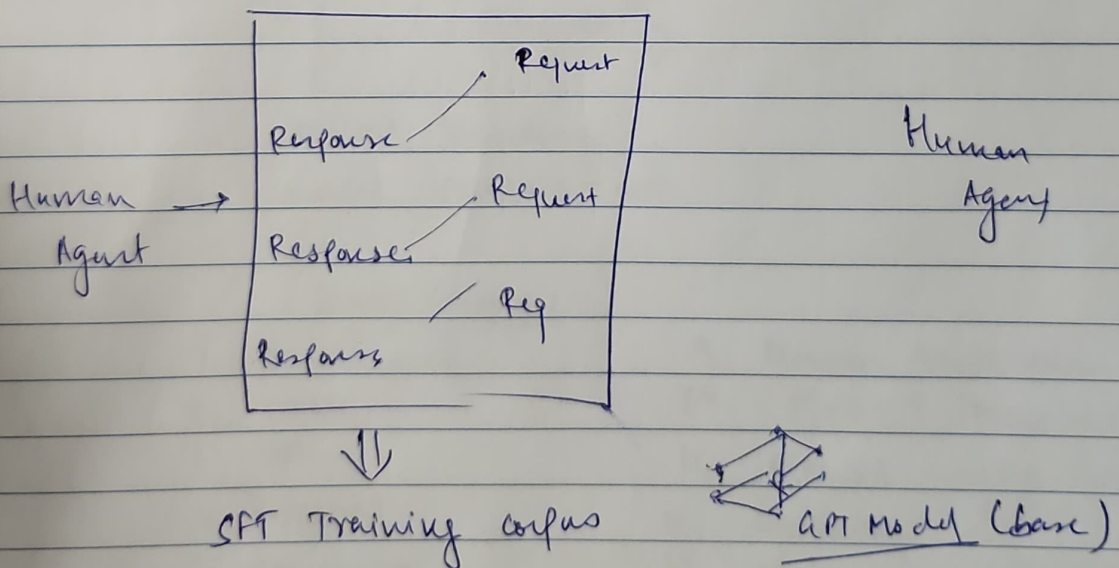
- Test Summary
- Sentiment Analysis
- Sentence Completion
- TRANSLATION

① Generative Pre Training



② Supervised Fine Tuning (SFT)

Human Conversation \Rightarrow {Reddit, Quora, Fb, twitter, Stackoverflow}



JAY ALAMAR → THE TRANSFORMER

*

1. History of LLM
2. Intro of Generative AI
3. LLM
- 4.

TRANSFORMER

ENCODER - DECODER PART

{ BERT
GPT
VLMPT }

Unsupervised LEARNING

SUPERVISED FINE TUNING

Human factor

{ Hugging FACE } ⇒ { open AI }

TEXT DATA OPERATION FOR GEN AI INLP

1. PRE-PROCESSING
2. ENCODING
3. EMBEDDING