AI Ecosystem

Understanding AI Market Landscape, Building Team, Business Value & Projects Overview
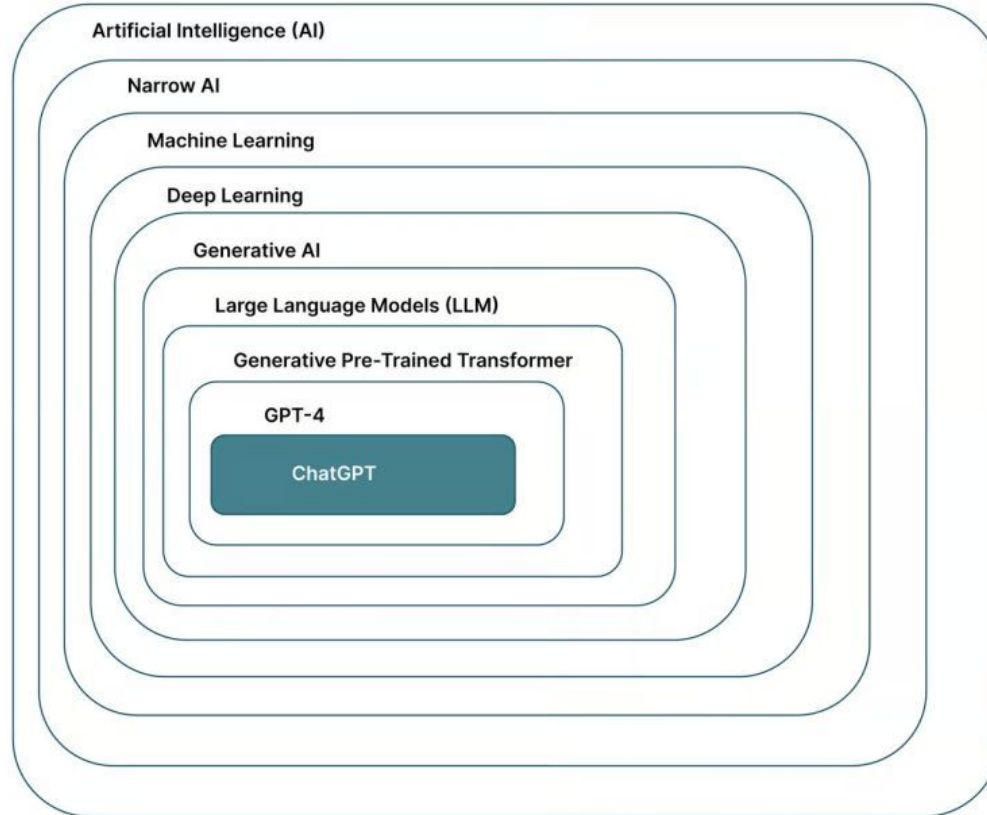
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Microsoft MVP

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- Limitations of LLMs and need for augmenting them like Fine tuning, RAG etc

- LLM Evolution to Agents and Agentic AI solutions (Intro only)
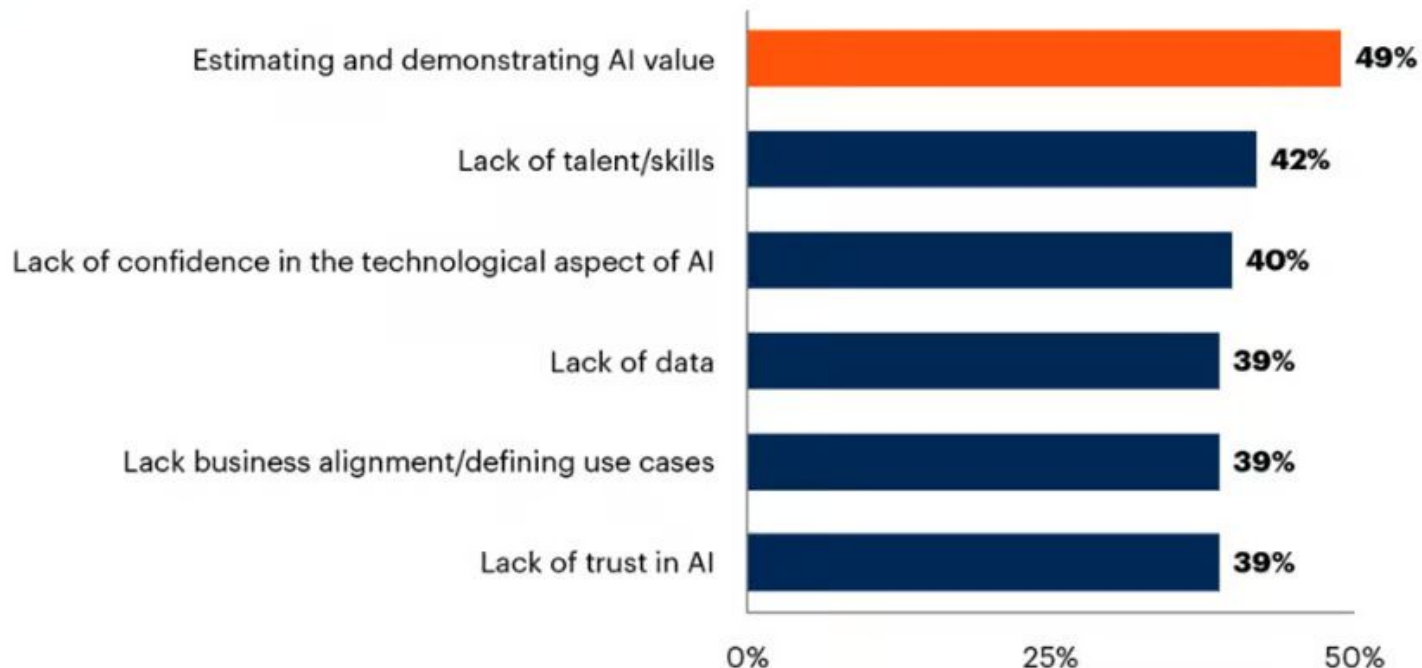
Artificial Intelligence Taxonomy

Artificial Intelligence (AI)

Narrow AI

Machine Learning

Deep Learning

Generative AI

Large Language Models (LLM)

Generative Pre-Trained Transformer

GPT-4

ChatGPT

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AI Landscape 2025

2 major challenges businesses face with AI right now:

- estimating and demonstrating AI value

- lack of talent/skills

Figure 1: Top Barriers to Implement AI Techniques (Sum of Top 3 Ranks)

Barrier	Percentage
Estimating and demonstrating AI value	49%
Lack of talent/skills	42%
Lack of confidence in the technological aspect of AI	40%
Lack of data	39%
Lack business alignment/defining use cases	39%
Lack of trust in AI	39%

n = 632, leaders highly involved in AI; excludes "unsure"

Q. What are or will be the top 3 barriers to the implementation of AI techniques within your organization?

Source: 2023 Gartner AI in the Enterprise Survey

810529_C

Gartner

AI 50 2024 VISUALIZED

Forbes   SEQUOIA   MERITECH

Apps

CONSUMER USES

ENTERTAINMENT
- character.ai
- Midjourney
- Pika

PRODUCTIVITY
- ChatGPT
- Claude
- DeepL
- perplexity
- Notion
- tome

ENTERPRISE STACK

GENERAL PRODUCTIVITY
- ChatGPT
- ADEPT
- DeepL
- Claude
- glean
- Notion
- tome
- WRITER

LEARNING & DEVELOPMENT
- Sana
- synthesia

CUSTOMER EXPERIENCE
- CRESTA
- SIERRA

DEVELOPER & DATA TEAMS
- AssemblyAI
- codeium
- kumo
- GitHub*

INDUSTRY VERTICALS

CREATIVE
- Midjourney
- Photoroom
- runway
- Rosebud AI
- Pika
- IlElevenLabs
- Leonardo.Ai

DEFENSE
- ANDURIL
- VANNEVAR Labs

HEALTH & BIO
- ABRIDGE
- Cradle
- insitro
- OWKIN

INDUSTRIAL
- FIGURE
- TRACTIAN
- Waabi

PROFESSIONAL SERVICES
- Harvey.
- Hebbia

Infrastructure

INFERENCE PROVIDERS
- anyscale
- databricks
- replicate
- together.ai
- baseten

APP DEV FRAMEWORKS
- LangChain

MODEL HUBS
- Hugging Face
- replicate

FOUNDATION MODEL PROVIDERS
- ANTHROP\C
- cohere
- MISTRAL AI_
- OpenAI

STORE & COMPUTE

LABEL / PROCESS DATA
- Cleanlab
- scale
- UNSTRUCTURED

CLOUD DATA PROVIDERS
- databricks
- Pinecone
- Weaviate
- MongoDB*
- snowflake*

CLOUD SERVICE PROVIDERS
- Google Cloud*
- aws*
- Azure*

HARDWARE
- cerebras
- nvidia*
- AMD*
- intel*
- (etc.)

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AI market growth and its relevance to your industries.

- Valued at USD 233.46 billion in 2024 and

- Projected to reach USD 1,771.62 billion by 2032

- The AI chips market has quadrupled in value since 2021 ($10.8 billion), reaching $44.3 billion in 2025.

	Funding in Million U.S. Dollars
OpenAI	11,000
Anthropic	1,000
Scalle AI	602.6
Anyscale	259
Inflection AI	225
Weights & Biases	200
Cohere AI	164.9
Hugging Face	160.2
OctoML	131.9
AI21 Labs	118.5
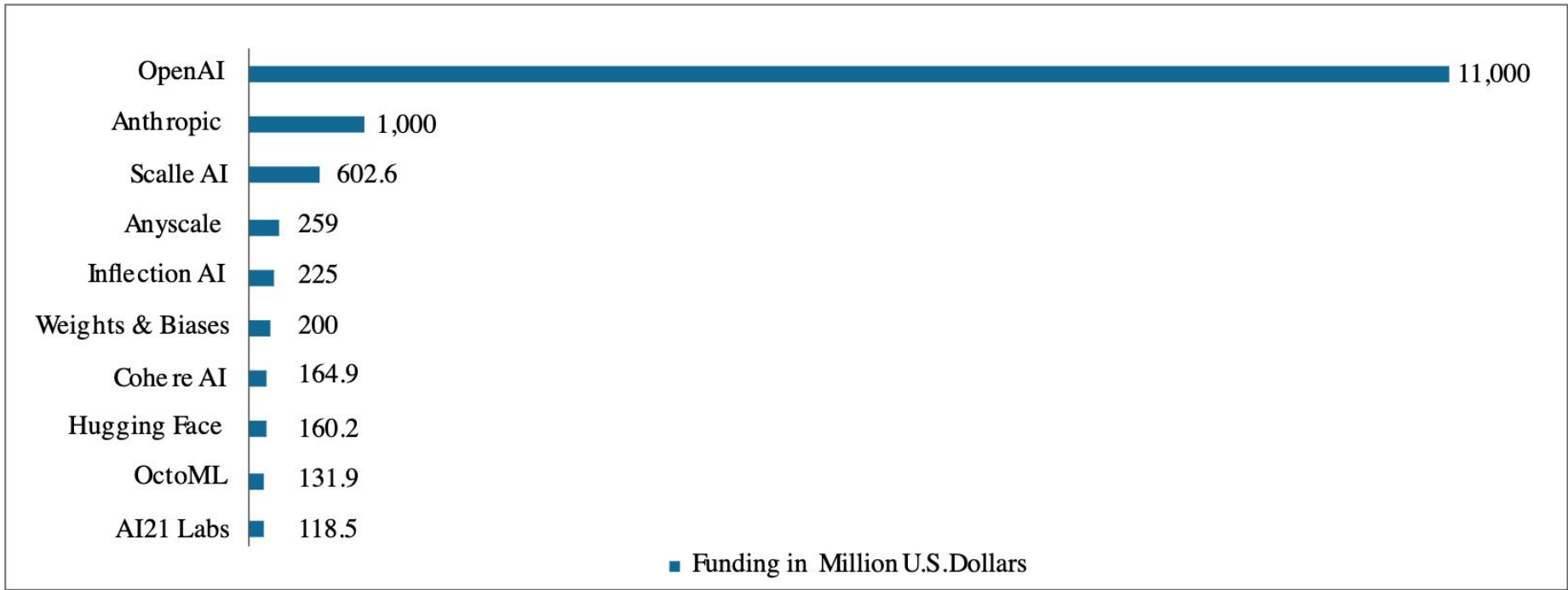
Capital Raised by AI Startups in 2023

AI's Impact on the Financial Services Industry's Revenue

Chart showing "Revenue Increase" (y-axis) versus "Percentage of Applicable Financial Service Institutions" (x-axis):

- More than 20%: ~34%
- Between 10% and 20%: ~17%
- Between 5% and 10%: ~20%
- Less than 5%: ~16%
- No impact: ~12%
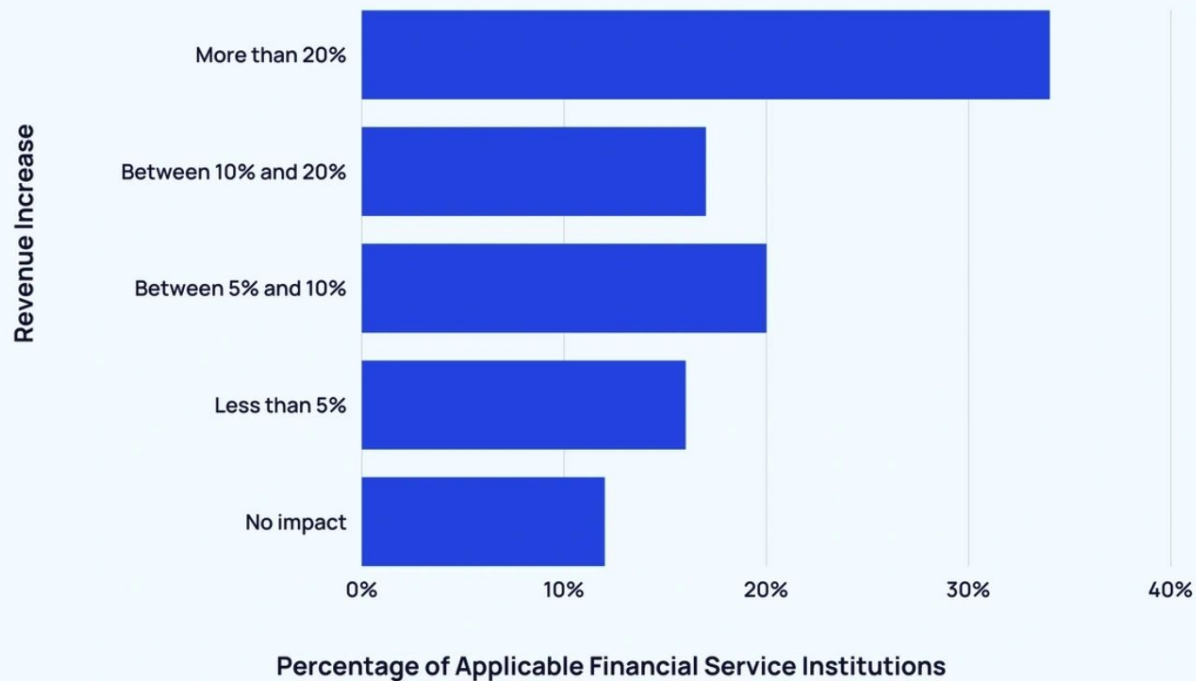
Applications by Industry

- In manufacturing, AI systems optimize production lines, predict equipment failures before they occur, and significantly improve quality control processes

- Financial institutions deploy AI systems for fraud detection, risk management, and investment advisory services

With generative AI added to the picture, 30 percent of hours worked today could be automated by 2030.

Midpoint automation adoption[1] by 2030 as a share of time spent on work activities, US, %

● Automation adoption without generative AI acceleration

● Automation adoption with generative AI acceleration

XX — Percentage-point acceleration in automation adoption from generative AI

STEM professionals	16
Education and workforce training	16
Creatives and arts management	15
Business and legal professionals	14
Managers	9
Community services	9
Office support	7
Health professionals	6
Builders	6
Property maintenance	6
Customer service and sales	6
Food services	5
Transportation services	5
Mechanical installation and repair	5
Production work	4
Health aides, technicians, and wellness	4
Agriculture	3
All sectors[2]	8

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Business opportunities

Efficiency, cost savings, and competitive edge.

- Automated 40 operations daily, saving 40 hours monthly, showcasing efficiency gains (StepWise)

JPMorgen Chase in Finance

Aspect	Details
Organization	JPMorgan Chase
AI Technologies Used	Document Parsing, Anomaly Detection, Machine Learning Algorithms
Key Applications	Reviewing legal documents, detecting fraudulent activities
Impact	Reduced document review time from 360,000 hours annually to seconds, enhanced fraud detection accuracy, significant reduction in financial losses

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AI Evolution

From neurons to neural networks, RNNs, CNNs, LSTMs, transformers, and LLMs.

Neuron
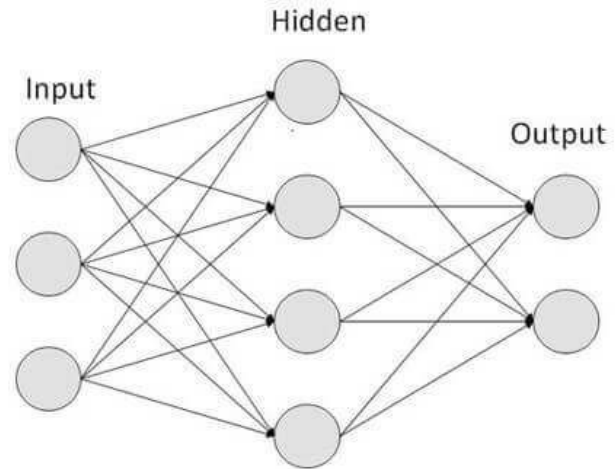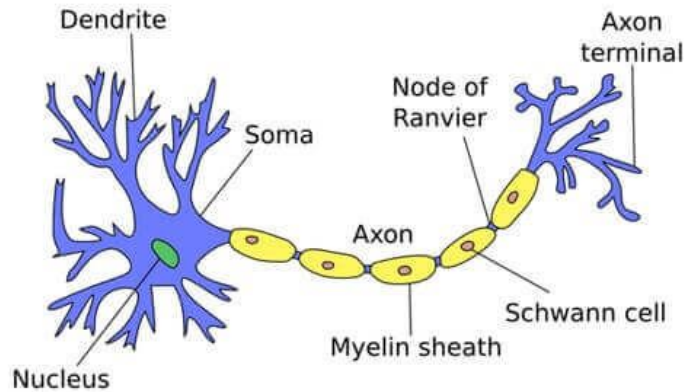
Neural Networks
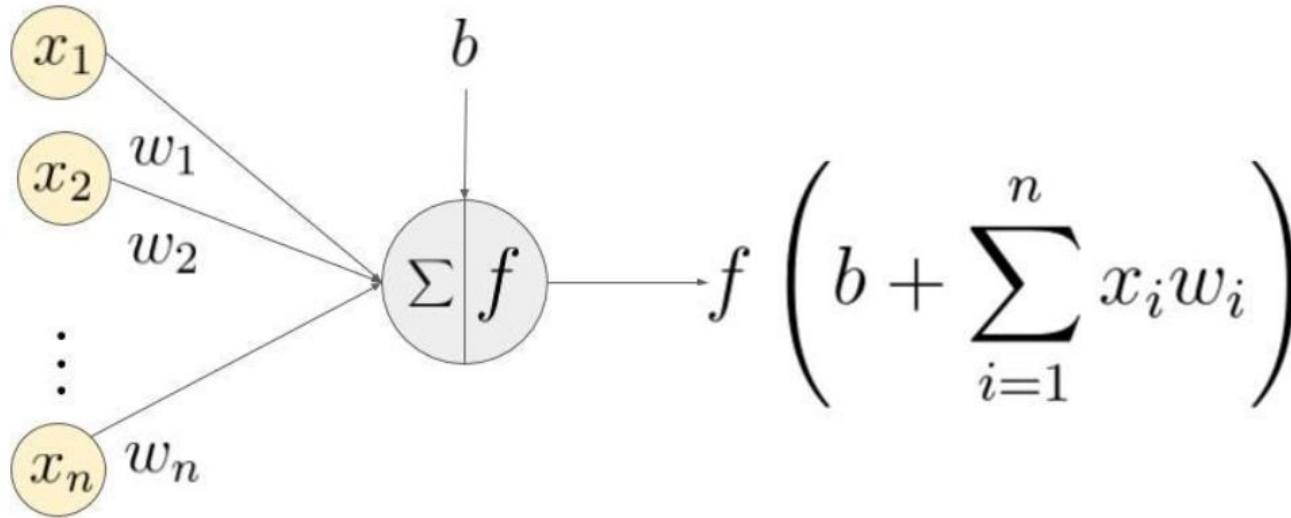
An example of a neuron showing the input (x_1 - x_n), their corresponding weights (w_1 - w_n), a bias (b) and the activation function f applied to the weighted sum of the inputs.

CNN (Convolutional Neural Network)
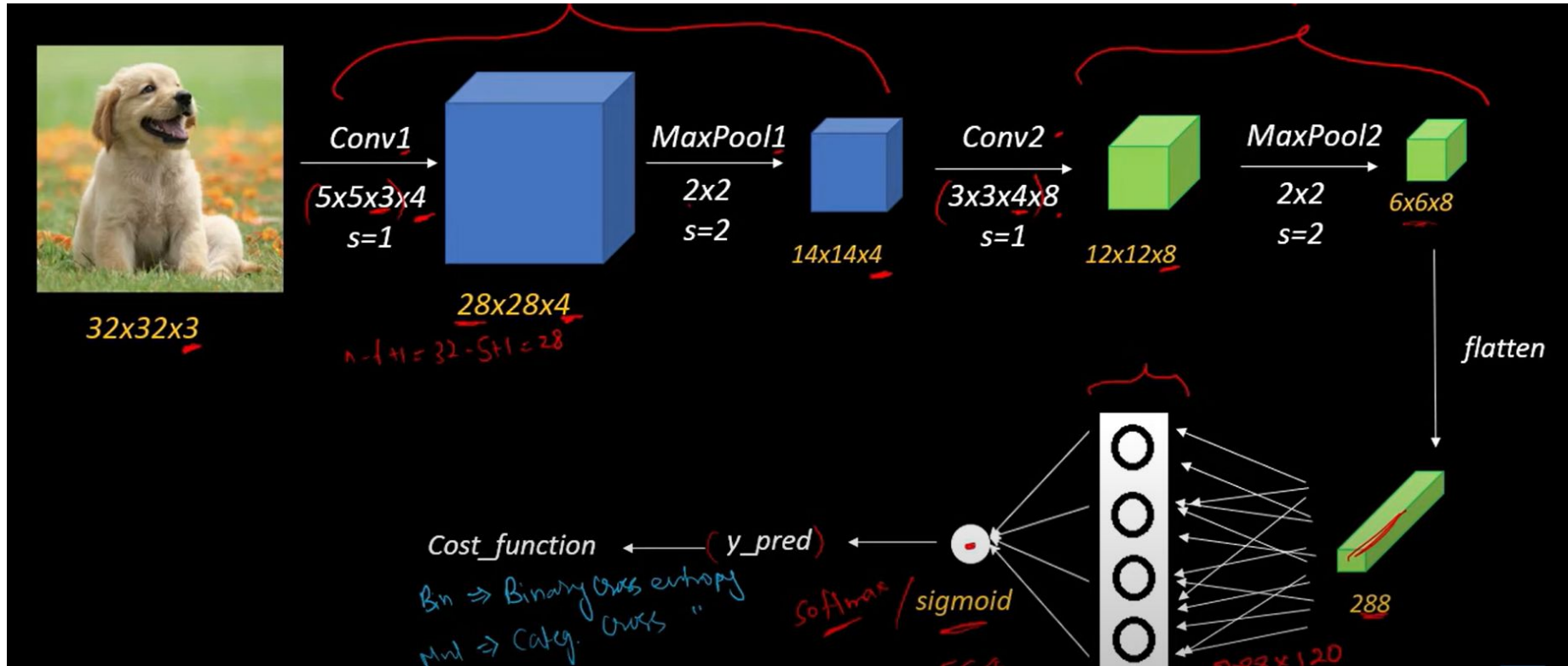
Attention Mechanism

"**Himanshu** is an AI consultant. **He** is going to solve your problems."

RNN (Recurrent Neural Network)
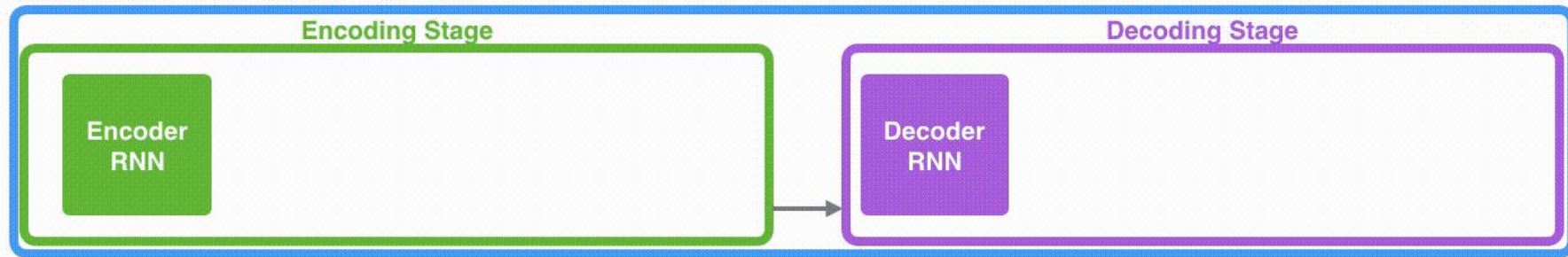
LSTM (Long Short Term Memory)
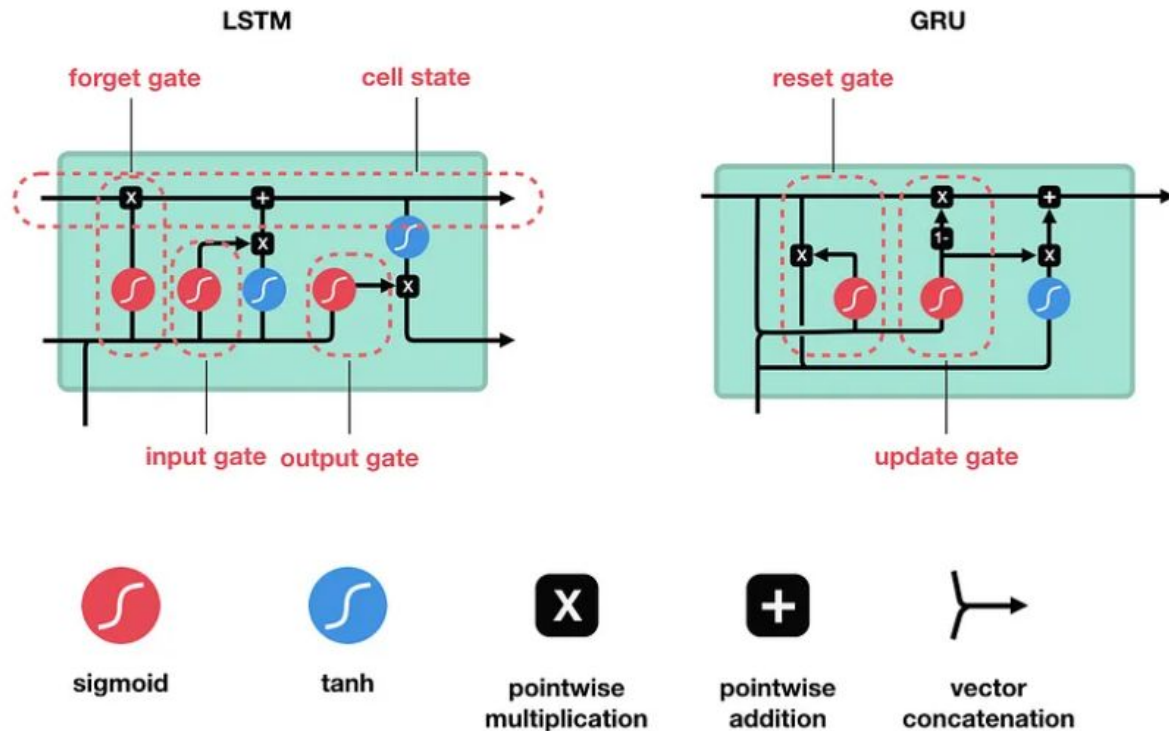
What exactly is GPT?

- Generative

- Pre-Trained

- Transformer

Transformers

Output
Probabilities

Softmax

Linear

Add & Norm

Feed
Forward

Add & Norm

Multi-Head
Attention

N×

Add & Norm

Feed
Forward

Add & Norm

Multi-Head
Attention

N×

Add & Norm

Masked
Multi-Head
Attention

Positional
Encoding

Positional
Encoding

Input
Embedding

Output
Embedding

Inputs

Outputs
(shifted right)

Large Language Models

The sky is → LLM ⋯⋯

blue = -0.96
clear = -1.60
usually = -2.47
the = -3.40
< = -3.47

More likely

Less likely

→ The sky is blue

Total: -0.96 logprob on 1 token
(73.18% probability covered in top 5 logits)

How do we test the application effectiveness?

- Benchmark datasets (Humanity's Last Exam)
- OpenAI's Gym
- TensorFlow's TF-Agents
- Accuracy, response time, and resource utilization
- Monitoring tools like Prometheus
- HELM, CRFM, ARC, MLPerf, etc.

Limitations of LLMs

- LLMs will always start fresh

- LLMs do not improve with use

- To get a better response, you must adapt to LLM

Solutions:
- Fine-Tuning
- RAG Approaches

LLM Evolution to Agents

From passive text generation to active task execution, decision-making, and process automation.

- The Bot Factory (for creating new AI agents)
- Creative Writers Workshop (supporting professional writers across genres)
- Entrepreneur Support Center (providing business planning, strategy, and legal guidance)
- Documentation & Marketing (specializing in technical documentation and marketing copy)
- Industry-specific support centers for legal, immigration, and other specialized domains

Here's How I can Help You

1. The Elite [AI Leadership Accelerator]
2. AI Engineer HQ for Professionals
3. AI Newsletter - the master
4. LinkedIn Content
5. AI Engineering & Consulting Services

Questions?

Thank You

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 Microsoft MVP

PIKA.ART

Resources

AI Engineer Roadmap:
https://god-level-python.notion.site/AI-Engineer-HQ-b3c98407b4ab45819811db081ae9d102?pvs=4

AI Newsletter: https://newsletter.himanshuramchandani.co/

Linkedin: https://www.linkedin.com/in/hemansnation/

The Elite for AI Leaders:
https://god-level-python.notion.site/The-Elite-AI-Leadership-Accelerator-1adffb33c49580488ae2c6179178a51b?pvs=4