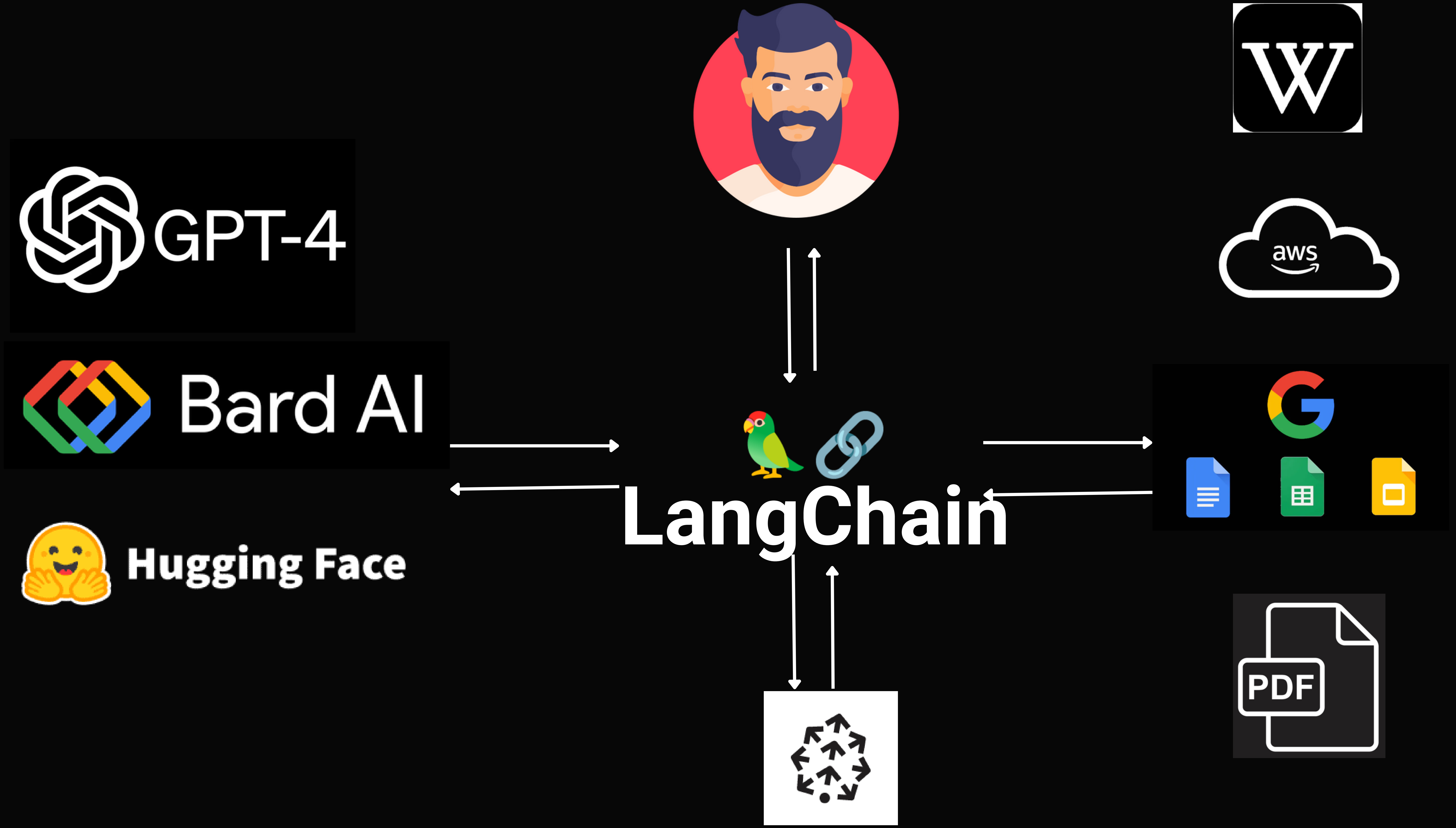

GPT-4
Bard AI
Hugging Face
LangChain
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PDF

What is LangChain? 🤔 🦜🔗

LangChain is an OpenSource framework that allows developers working with AI to combine LLMs with external sources of computation and data.

LLMs alone **are often limited** in their ability to understand the context, interact with the real world, or learn and adapt.

🦜🔗 LangChain

LLMs have an impressive general knowledge but are limited to their training data.

LangChain allows you to connect an LLM like GPT-4 to your own sources of data.

Using LangChain you can make your LLM Application take actions.

LangChain is data-aware and agentic-aware.

🦜🔗 OpenAI

General Pipeline

1. A user asks a question.
2. The question is sent to the LLM.
3. A vector representation of the question is used to do a similarity search in the vector database.
4. Relevant chunks are fetched from the vector database and feed to the LLM.
5. Now the LLM has both the initial question and the relevant information from the vector database and is therefore capable of providing an answer or taking an action.

LangChain Use-Cases

- Chat Bots
- Question Answering Systems
- Summarization Tools
- Medical Doctor Assistant App
- Lawyer Assistant App

LangChain Main Concepts

1. LangChain Components
2. Chains
3. Agents

LangChain Components

1. LLM Wrappers

2. Prompt Templates

3. Indexes

4. Memory

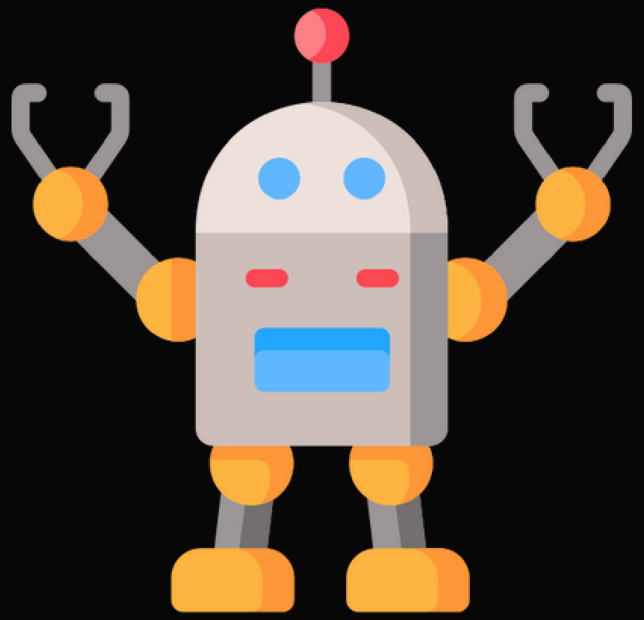
LangChain Chains 🦜🔗

Chains allow us to combine multiple components together to solve a specific task and build an entire LLM application.

LangChain Agents 🦜🔗

Agents facilitate interaction between the LLM and external APIs. They play a crucial role in decision-making, determining which actions the LLM should undertake.

This process involves taking an action, observing the result, and then repeating the cycle until completion.



With **sequential chains**, you can make a series of calls to one or more LLMs. You can take the output from one chain and use it as the input to another chain.

There are two types of sequential chains:

1. SimpleSequentialChain
2. General form of sequential chains

🦜🔗

SimpleSequentialChain represents a series of chains, where each individual chain has a single input and a single output, and the output of one step is used as input to the next.

🦜🔗

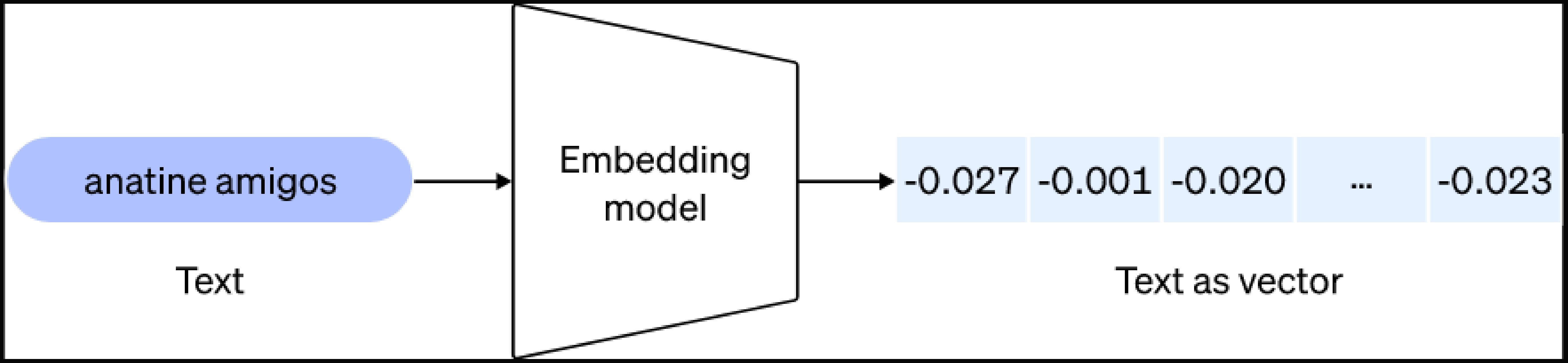
LangChain

Embeddings

🦜🔗

Embeddings are the core of building LLMs applications.

Text embeddings are numeric representations of text and are used in NLP and ML tasks.



anatine amigos

Text

Embedding model

-0.027	-0.001	-0.020	...	-0.023

Text as vector

🦜🔗

LangChain

The distance between two embeddings or two vectors measures their relatedness which translates to the relatedness between the text concepts they represent.

Similar embeddings or vectors represent similar concepts.

Embeddings Applications 🦜🔗

- **Text Classification:** assigning a label to a piece of text.
- **Text Clustering:** grouping together pieces of text that are similar in meaning.
- **Question-Answering:** answering a question posed in natural language.