

LangChain Models



LangChain provides seamless integration with a variety of LLMs—from OpenAI to Cohere, Hugging Face, and beyond. It supports both chat-based and text completion models, allowing developers to plug in their preferred LLMs easily.

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What are Language Models?

Definition:

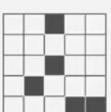
Language models (LMs) are AI systems trained to understand and generate human-like text. They predict the next word based on previous context.

Applications:

- Text generation
- Chatbots
- Code generation
- Text summarization
- Question answering

What is Statistical Language Modeling? |

Statistical Language Modeling, or Language Modeling and LM for short, is the development of probabilistic models that can **predict the next word in the sequence given the words that precede it.**



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Types of Language Models

LLMs vs Chat Models:

Type	Description	Example
LLM	General-purpose model for many NLP tasks	GPT-4, LLaMA, PaLM
Chat Model	Specifically fine-tuned for conversations	ChatGPT, Claude, Gemini Chat

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Closed-Source vs Open-Source Models

Closed Source:

- Developed & hosted by companies.
- Require API key.
- Examples: OpenAI (GPT-4), Anthropic (Claude), Google (Gemini).

Open Source:

- Community-developed and self-hostable.
- HuggingFace Hub provides 1000s of models.
- Examples: LLaMA 2, Falcon, Mistral, OpenChat, Mixtral.



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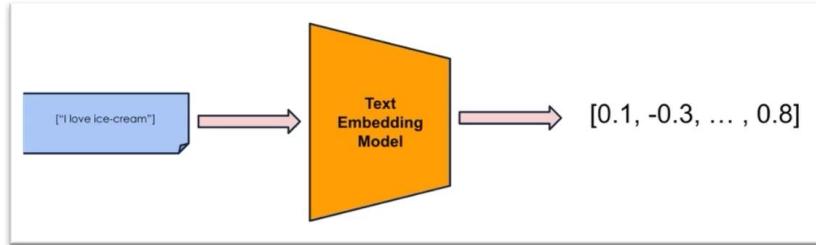
What are Embedding Models?

Definition:

Embedding models convert text into high-dimensional vectors to capture semantic meaning.

Use Cases:

- Similarity search
- Clustering
- RAG (Retrieval-Augmented Generation)



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Closed vs Open Embedding Models

Model Type	Provider	Example Model	Hosted or Local
Closed	OpenAI	text-embedding-3-small	Hosted API
Closed	Google, Anthropic	Gemini Embed (Beta)	Hosted API
Open Source	HuggingFace	sentence-transformers/all-MiniLM-L6-v2	Local or cloud

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