

Empowering Semantic Search with a LLM

Course#: GEN AI-006

Duration: 6 hours

Price: 399.00

Course Description

Uplift your tech and AI career with our cutting-edge SemSearch: Empowering Search with LLM Boot Camp program. Uncover the limitless potential of large language model and redefine your expertise in working with Semantic Search.

Objectives

Our program trains you with the skills to generate Semantic search using large language models and introduce you an advanced approach to information retrieval, empowering the deep understanding of language models which showcase intense impact of semantic search. Jump into real world analysis with enormous numbers of datasets and embark on a journey that will skyrocket your proficiency and open doors to new opportunities in the tech and AI provinces.

Audience

Looking to take your career in AI and technology to new heights? Our SemSearch course is designed to empower professional specialists of all backgrounds, whether you're a seasoned Gen AI researcher, machine learning engineer, data scientist, or tech professional involved in natural language understanding and natural language generation projects. With our programs comprehensive curriculum, you'll master the art of semantic search that is integrated with large language model for optimistic programming skills in retrieving information. By enrolling in our course, you'll be able to fetch the infinite opportunities in the dynamic world of AI and technology.

Prerequisites

Anyone can attend the course

Content

1. Artificial Intelligence
 - a. Defining AI
 - b. Journey to the world of AI

- c. Goal of AI
- d. Importance of data management
- e. The data and AI
- f. Knowledge representation in AI
- g. The art of learning
- h. Types of AI
- i. Networking in AI
- j. Real world applications of AI
- k. Social impact of AI
- l. AI can elevate your career
- m. Ethics and governance in AI
- n. AI and the future

2. Generative AI

- a. Introduction to generative AI
- b. State of the art generative models
- c. Generative AI in creative industries
- d. Ethical Considerations in Generative AI
- e. Business Applications of Generative AI
- f. Generative AI and Synthetic Media
- g. Future of Work with Generative AI
- h. Legal and Intellectual Property Issues in AI
- i. Combating Misinformation and Deepfakes
- j. Environmental Impact of Generative AI
- k. Generative AI for Social Good
- l. Interactive AI and User Experience
- m. The Future of AI Art and Ethics

3. Large Language Models

- a. Overview of large language models
- b. The Mechanics of Language Models
- c. GPT-4 and Beyond
- d. LLMs benchmarking
- e. Key Components and Architectural Insights
- f. Training Large Language Models
- g. Ethical Considerations in Language Modeling
- h. Developing Multilingual Models and challenges

- i. Interactivity and Personalization with LLMs
- j. Privacy and Security in Language Models

4. Prompt Engineering

- a. Prompt engineering
- b. Why prompt engineering in AI
- c. The arts and science of crafting prompts
- d. How prompt engineering works
- e. Use cases of prompt engineering
- f. Prompt engineering techniques
- g. Prompt engineering and cloud
- h. How prompt engineering bridges gap in RAG systems
- i. A decade of evolution in prompt engineering
- j. Python and libraries for prompt engineering
- k. Industries using prompt engineering usecases

5. Python libraries for Semantic Search

- a. Importance of python libraries in semantic search
- b. Natural language processing libraries
- c. Transformer based models
- d. Machine learning and text processing
- e. Vector database and search engines
- f. Deep learning frameworks

6. Semantic Search using Cosine Similarity

- a. Semantic search
- b. NLP and semantic search
- c. Symmetric and asymmetric semantic search
- d. Understanding AI first semantic search
- e. Python for semantic search
- f. Stages of semantic search
- g. Use cases of semantic search
- hi. Defining cosine similarity
- j. Semantic search implementing cosine similarity
- k. Lab- Implementation of Semantic Search through Vectorization, Cosine Similarity

and visualization techniques

7. Introduction to Semantic LLM

- a. Importance of semantic search
- b. importance of LLM in semantic search
- c. Ways to use LLM in semantic search
- d. Upshots of Semantic LLMs
- e. Course outline
- f. Comparison to keyword search with semantic search
- g. Reranking
- h. Embedding and dense retrieval
- i. Evaluation methods
- j. Search powered LLMs

8. Keyword Search

- a. Defining Keyword Search
- b. Setting up the environment for keyword search
- c. Execution of keyword search
- d. Modifying the search options
- e. Lab- Performing basic keyword search using Weaviate-client , Cohere Library using Python

9. Embeddings

- a. What is embeddings
- b. Libraries used for embeddings
- c. Discussing embeddings with an example
- d. Word embedding
- e. Sentence embedding
- f. Article embedding
- g. Lab- Execution of Embedding method using cohere umap-learn altair datasets for visualizing numerical representations of text

10. Dense Retrieval

- a. Introduction to dense retrieval with an example

- b. Executing dense retrieval for simple, moderate and complicate queries
- c. Use of chunking process in dense retrieval execution
- d. Lab - Implementation of Dense Retrieval for creating Vector Database AnnoyIndex, Numpy, Pandas

11. Reranking

- a. Defining reranking and libraries
- b. Stating the importance of reranking
- c.d. Lab- Implementation of Reranking for Keyword Search and Vector Search using Python

12. Generating Answers

- a. LLMs for generating answers
- b. Comparison of general LLM and Semantic LLM for information retrieval
- c. Sequence of execution for generating answers
- d. Lab- Implementation of Generating solution of a prompt query using Cohere and Weaviate Libraries using Python

13. Semantic Search using FAISS

- a. Defining Similarity search
- b. FAISS library
- c. How can a vector representation be used?
- d. Evaluating similarity search using FAISS
- e. Use cases of FAISS library
- f. FAISS storage and retrieval
- g. Lab- Implementation of Semantic Search using FAISS Library Through Vector Quantization, Query Vectorization, Searching the index techniques