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Text Embedding: Everything You Need To Know

Course#:GEN AI-005
Duration:3.5 hours
Price:399.00

Course Description

Elevate your tech and AI career with our cutting-edge Text Embedding: everything you need to know course. Discover the limitless potential of Text embedding.

Objectives

This course equips you with the skills to understand and apply text and embeddings with and dive into real-world case studies that showcase with practical knowledge.

Audience

Looking to take your career in AI and technology to new heights? Our Text Embedding: everything you need to know course is designed to empower professionals of all backgrounds, whether youre a seasoned AI researcher, software engineer, data scientist, or tech professional involved in natural language processing projects with basic Python knowledge who wants to learn about text embeddings and how to apply them to common NLP tasks

Prerequisites

Anyone can attend the course

Content

Module 1: What is Artificial Intelligence
- Brief history of AI
- Importance and applications of AI
- Building blocks of AI
- Type of AI

AI in Real-world Applications
- Healthcare applications
- Finance and trading
- Autonomous vehicles
- Natural resource management

AI Tools and Technologies

AI programming languages (e.g., Python)

AI libraries and frameworks (e.g., TensorFlow, PyTorch)

AI development environments

Module 2: Introduction to Text Embeddings

Definition and Overview

What are text embeddings?

Importance in natural language processing (NLP).

History and Evolution

Early methods of text representation.

Transition to embeddings.

Module 3: Fundamental Concepts

Vector Space Models

Concept of word representation in vector space.

Dimensionality and Sparsity

Challenges of high-dimensional spaces.

Context and Meaning

How embeddings capture semantic meaning.

Module 4: Types of Text Embedding Techniques

Count-Based Methods

Bag of Words (BoW), TF-IDF.

Prediction-Based Methods

Word2Vec, GloVe.

Contextual Embeddings

ELMo, BERT, GPT.

Module 5: Deep insights about Word2Vec and GloVe

Architecture: CBOW and Skip-gram.

Training process and optimization.

GloVe Theory and implementation.

Comparison of GloVe with Word2Vec.

Module 6: Contextual Embeddings and Transformers

Challenges in representing larger text units.

Bi-directionality and context-specific embeddings.

Transformers Architecture

Attention mechanism and its impact.

Module 7: Real World Applications and Case Studies

Real-World Applications

Examples in search engines, recommendation systems, sentiment analysis.

Case Studies

Specific cases where text embeddings significantly improved performance.

Module 8: Future Directions and Ethical Considerations

Advancements in Text Embeddings

Potential future developments.

Ethical and Bias Considerations

Module 9: Various Advanced Embeddings Methods- Part 1

Word Embeddings

Contextual Embeddings

Sentence Embeddings

Document Embeddings:

Multilingual Embeddings

Module 10: Various Advanced Embeddings Methods- Part 2

Evaluation of Embeddings

Visual-Text Embeddings

Multimodal Embeddings

Cross-Domain Embeddings

Custom Embedding Models

Efficient Embedding Techniques

Lab 1 Visualizing Embeddings

Lab 2 Text Generation using LLM

Lab 3 Building QA System with Semantic Search