2-weeks Online Live

FDP | Industrial Training | Internship cum Training on

Mastering Multi-Prompt Engineering

Duration: 30-Hrs (10-days)

Prerequisite: Basic understanding of Python programming

Introduction to AI, NLP, and Language Models

- History and Evolution of AI
- Basics of Machine Learning
- Introduction to Natural Language Processing
- Key Challenges in NLP
- Overview of Language Models
- Understanding Transformers and Their Impact

Generative Artificial Intelligence

- Introduction to Generative Artificial Intelligence
- What are Transformers
- Prompt Engineering
- What are Foundation Models
- Types of GenAI
- Distinction between traditional AI and Generative AI

Transformers Understanding Large Language Models (LLM)

- Explanation of Large Language Models
- Significance in natural language processing and understanding.
- Overview of popular LLMs in the industry (e.g., GPT-3, BERT, T5)
- Applications in various domains
- Architecture of Large Language Models Transformer Architecture

- Explanation of the Transformer architecture as a foundation for LLMs
- Components such as attention mechanisms, layers, and heads
- Discussion on the impact of scaling model size on performance
- Trade-offs and considerations in choosing model sizes
- Different Open-Source Large Language Models
- Overview of Hugging Face Transformers

Foundations of Prompt Engineering

- What is Prompt Engineering?
- Importance of Prompt Design in AI Interactions
- Types of Prompts: Zero-shot, One-shot, Few-shot
- Understanding Model Responses to Prompts
- Best Practices in Prompt Construction
- Zero-shot Learning: Theory and Examples
- One-shot Learning: Theory and Examples
- Few-shot Learning: Theory and Examples
- Comparative Analysis of Prompt Types
- **Hands-on**: Crafting Effective Prompts for Different Scenarios

Zero-Shot Learning

- Deep Dive into Zero-Shot Learning
- Zero-Shot Learning Algorithms
- Evaluating Zero-Shot Learning Models
- Limitations and Challenges
- Zero-Shot Learning in NLP and Computer Vision
- Practical Applications of Zero-Shot Learning
- Case Studies: Zero-Shot Learning in Industry
- Tools and Libraries for Zero-Shot Learning
- **Hands-on:** Implementing a Zero-Shot Classifier

Troubleshooting and Optimizing Zero-Shot Models

Few-Shot Learning

- Understanding Few-Shot Learning
- Key Algorithms and Approaches
- Meta-Learning in Few-Shot Learning
- Data Augmentation Techniques
- Few-Shot Learning in NLP
- Few-Shot Learning Applications
- Implementing Few-Shot Learning Models
- Case Studies and Success Stories
- **Hands-on:** Creating a Few-Shot Learning System
- Optimization and Troubleshooting Tips

Advance Prompt Engineering Techniques

- Chain of Thought (CoT) Prompting
- Introduction to Chain-of-Thought Prompting
- The Role of Chain-of-Thought in Complex Problem Solving
- Designing Effective Chain-of-Thought Prompts
- Examples of Chain-of-Thought Prompting in Action
- Evaluating the Effectiveness of Chain-of-Thought Responses
- Practical Applications of Chain-of-Thought Prompting
- Building Chain-of-Thought Prompts for AI Models
- Tree of Thoughts (ToT) Prompting
- Tree of Thoughts (ToT) Prompting
- CoT vs. ToT
- **Demo:** Tree of Thoughts Prompting with LangChain and OpenAI
- **Hands-on:** Solving Math Word Problems Using Chain-of-Thought
- **Case Studies:** Chain-of-Thought in Various Domains
- Advanced Techniques and Optimization Strategies
- **Hands-on:** Developing an Iterative Prompting System
- **Case Examples:** Iterative Prompting in Creative Writing

Lang Chain for LLM Application Development (Part I)

- LangChain Prompts
- Prompt Templates
- Prompt Templates: Example
- Chat Prompt Template
- Flow of Chatbot Application
- Model I/O: Prompts, Language Models, Output Parsers
- Demo: LangChain-Models, Prompts, and Output Parsers
- Chatbot Application Flow
- Document Loaders: CSV Document Loader, File Directory Loader, HTML Document Loader, PDF Document Loader
- Text Splitters
- CharacterTextSplitter
- Text Embedding Models in LangChain
- **Demo:** Dynamic Message Generation in LangChain

LangChain for LLM Application Development (Part II)

- Introduction to VectorStore
- How VectorStore Works?
- Demo: Loaders, text splitters, embeddings, VectorStores
- LangChain Retriever
- LangChain Chains
- Foundational LangChain Chain
- Simple LLMChain: Example
- Sequential Chain in LangChain
- Sequential Chain: Example
- Stuff Chain, Refine Chain, Map Reduce Chain
- LangChain Memory
- Building Memory into a System
- LangChain Agents
- **Demo:** Running Local Falcon LLM

Negative Prompting

- Concept and Importance of Negative Prompting
- Techniques for Effective Negative Prompting
- Use Cases: Controlling AI Model Outputs
- Analyzing the Impact of Negative Prompts 5. Crafting Negative Prompts for Specific Outcomes
- Practical Implementation of Negative Prompting
- **Hands-on:** Building a Content Moderation Tool Using Negative Prompts
- **Case Studies:** Negative Prompting in Industry
- Best Practices and Ethical Considerations

Advanced Prompting Tuning Techniques

- Prompt Tuning and Fine-Tuning Language Models
- Leveraging External Knowledge Bases in Prompting
- Advanced Evaluation Metrics for Prompting Strategies
- Practical Implementations of Advanced Techniques
- **Practical:** Developing a Fine-Tuned Model for a Specific Task
- Integrating Prompt Engineering with Other AI Techniques
- Challenges and Solutions in Advanced Prompting

Industry Applications and Case Studies & Project

- Prompt Engineering in Content Creation and Journalism
- **Applications in Healthcare:** Diagnostic Assistance and Patient Care
- Enhancing Customer Service with AI and Prompt Engineering
- Educational Applications: Personalized Learning and Tutoring Systems
- Innovative Uses of Prompt Engineering in Entertainment
- **Project:** Customer Support Chatbots: Develop conversational AI chatbots for customer support in various industries such as e-commerce, banking, or telecommunication.

Training Highlights

- 30+ Hours live online Hands-on based learning with Projects.
- **Training includes:** Soft copy of Training material, Training PPT's, Project code & Training Recording.
- 2-weeks **Certificate of completion** in association with **Mechanica IIT Madras**

Who can attend?

- Training is best suitable for Engineering college faculty, Research scholar, Student & Working IT Professional.

To Know More & Register Now: www.eduxlabs.com/prompt-engineering

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