

# **Open Source Al**

# **Audience course Open Source Al**

The course Open Source AI is intended for developers, data scientists, machine learning engineers, and AI enthusiasts who want to work with open source AI tools.

#### **Prerequisites Open Source AI Course**

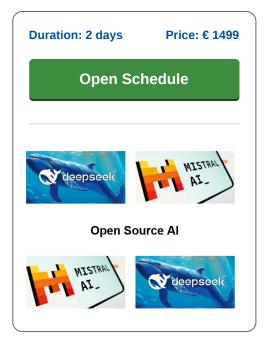
To participate in the course, basic knowledge of Python and data analysis is required. Experience with machine learning or neural networks is beneficial.

# **Realization training Open Source AI**

The course is conducted under the guidance of an experienced trainer, with theory and practice alternating. Practical examples and case studies are used for illustration.

### **Open Source AI Certificate**

After successfully completing the course, participants will receive a certificate of participation in the course Open Source AI.



# **Content Course Open Source Al**

The course Open Source AI dives into the power of open-source LLMs like DeepSeek, Mistral, and LLaMA. Participants learn model selection, prompting, fine-tuning, deployment, and how to build practical AI tools using accessible frameworks and APIs.

#### **Overview of Open LLMs**

This module explores popular open-source models like DeepSeek, Mistral, and LLaMA. It compares architectures, discusses model hubs like Hugging Face, performance, token usage, pricing, and responsible deployment practices.

# **Getting Started with DeepSeek**

Participants learn how to install and configure DeepSeek, use multilingual features, and apply basic prompting. The module also covers integration, model compression, performance tips, and deployment options for developers.

#### **Prompting and Tooling**

Explore prompting techniques including zero-shot, few-shot, chaining, and function calling. Learn about LangChain, RAG pipelines, custom memory, vector stores, and managing chat history and agent flows efficiently.

#### **Fine-Tuning Open Models**

This module focuses on fine-tuning workflows using datasets, LoRA, and PEFT. You'll explore training via Colab or AWS, testing outputs, evaluating prompts, embeddings, and enabling models to evolve through continuous learning.

# **Deployment and Scaling**

Participants learn how to deploy models using FastAPI, Streamlit, and Docker. It also covers optimization, edge/cloud strategies, local setups, performance monitoring, version control, and cost-aware deployment planning.

## **Case Studies**

See real-world applications like legal summarizers, healthcare chatbots, and multilingual generators. Other cases include AI CRMs, educational bots, retrieval tools, and open-source copilots with embedded memory.



# **Modules Course Open Source Al**

Module 1: Overview of Open LLMs	Module 2: Getting Started with DeepSeek	Module 3: Prompting and Tooling
DeepSeek, Mistral, Mixtral, and LLaMA	DeepSeek architecture	Zero-shot vs few-shot
Benefits of open-source Al	Installing and configuring	Prompt chaining
Architecture comparisons	Sample use cases	Function calling
Use cases and performance	Prompting strategies	LangChain basics
Hugging Face and model hubs	Tools and APIs	RAG workflows
Responsible deployment	Multilingual capabilities	Vector databases
Token limits and pricing	Performance tips	Indexing content
Embeddings and tokenizers	Model compression	Custom memory solutions
Current limitations	Developer integrations	Chat history management
Benchmarking tools	Deployment options	Agent architecture
Module 4: Fine-Tuning Open Models	Module 5: Deployment and Scaling	Module 6: Case Studies
Dataset preparation	API wrappers	Legal document summarizer
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Supervised fine-tuning	Using FastAPI with models	Healthcare chatbot
	Streamlit for frontends	Healthcare chatbot Al-powered CRM assistant
LoRA and PEFT		
LoRA and PEFT Training pipelines	Streamlit for frontends	Al-powered CRM assistant
LoRA and PEFT Training pipelines Using Colab/AWS for training	Streamlit for frontends Dockerized deployments	Al-powered CRM assistant Multilingual content generator
LoRA and PEFT Training pipelines Using Colab/AWS for training Evaluation and testing	Streamlit for frontends Dockerized deployments Resource optimization	Al-powered CRM assistant Multilingual content generator Financial insights analyzer
LoRA and PEFT Training pipelines Using Colab/AWS for training Evaluation and testing Prompt evaluation	Streamlit for frontends Dockerized deployments Resource optimization Running locally	Al-powered CRM assistant Multilingual content generator Financial insights analyzer Open-source copilot
Supervised fine-tuning LoRA and PEFT Training pipelines Using Colab/AWS for training Evaluation and testing Prompt evaluation Embedding evaluation Real-world use cases	Streamlit for frontends Dockerized deployments Resource optimization Running locally Edge vs cloud deployment	Al-powered CRM assistant Multilingual content generator Financial insights analyzer Open-source copilot Email generator with memory