

AI for Data Scientists - 24 hours

Course description

A cutting-edge, hands-on program designed for data professionals who want to go beyond simply using AI and gain a deep understanding of how modern Generative AI systems work under the hood. Participants explore the core architectures behind today's most advanced AI models, including Transformers, Diffusion models, and Embeddings, and gain practical experience with Hugging Face. The course reveals what happens behind the scenes of Large Language Models (LLMs) and guides participants through building real AI-powered applications.

Students master modern GenAI toolchains such as LangChain, LlamaIndex, and Retrieval-Augmented Generation (RAG), while developing practical skills in Prompt Engineering, Fine-Tuning, Agentic AI, workflow automation, and model evaluation. The emphasis is on real-world, business-driven use cases and measurable impact.

Graduates leave the program with deep technical understanding and the ability to translate AI capabilities into real innovation, evolving from traditional Data Scientists into AI Innovators.

What Participants Gain?

By the end of the course, participants will understand how modern Generative AI architectures such as Transformers and Diffusion models operate and how embeddings enable semantic search and retrieval. They will be able to work with Hugging Face models, understand the internal mechanics of LLMs, and design LLM-based applications using LangChain and LlamaIndex. Participants will build Retrieval-Augmented Generation (RAG) solutions, apply prompt engineering and fine-tuning strategies, design agentic AI workflows, automate analytical and business processes, and evaluate model performance in real-world, business-driven scenarios. Graduates will be equipped to architect and deliver production-ready AI solutions and act as innovation leaders within their organizations.

Target Audience

- Data Scientists
- Senior Data Analysts transitioning into AI roles
- Machine Learning Engineers
- AI Engineers and Applied AI practitioners
- Data professionals aim to deepen their technical understanding of Generative AI

Prerequisites

- Solid background in data science or machine learning
- Experience with Python and data analysis workflows
- Familiarity with basic ML concepts
- No prior hands-on experience with Generative AI frameworks is required

Course Contents:

Model 1: Generative AI Fundamentals

- Transformers + Diffusion architectures + Embeddings
- HuggingFace
- Behind the Scenes of an LLM

Model 2: Practical LLMs

- LLM-based Applications Overview
- Prompt engineering
- LangeChain + LlamaIndex frameworks
- Use Case: RAG
- Agentic AI
- Fine tuning (why, approaches, tools)
- Workflow automation tools
- Evaluation