

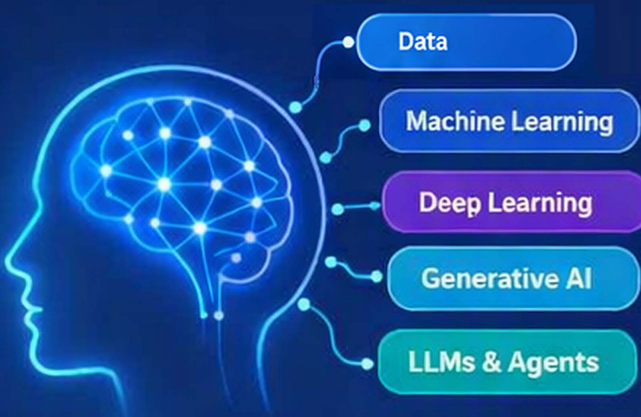
AI Fundamentals

Understand AI. Learn How It Works.
See How Modern AI Is Built.

 Beginner Friendly

 No Programming Required

 10 Sessions
40 Hours



Artificial Intelligence is rapidly becoming part of how organizations work, make decisions, create content, automate processes, and interact with technology. Yet understanding AI requires more than knowing how to use an AI chatbot or write a prompt.

AI Fundamentals provides the conceptual foundation needed to understand what AI is, how machines learn from data, how neural networks work, how modern AI processes images and language, and how today's Generative AI, Large Language Models, and AI Agents are built. The course begins with the fundamentals of Artificial Intelligence and establishes a clear relationship between AI, Machine Learning, Deep Learning, Generative AI, Foundation Models, LLMs, and AI Agents.

Learners then explore how Machine Learning systems learn from data, including datasets, features, labels, training, validation, testing, loss, generalization, gradient descent, learning rate, model capacity, underfitting, and overfitting.

Who Should Attend?

This course is designed for beginners who want to understand Artificial Intelligence from the ground up.

It is suitable for:

- Professionals who want a solid foundation in AI
- Business managers and decision-makers
- Entrepreneurs and business owners
- IT and technology professionals entering AI
- Cybersecurity and information-security professionals
- Students and recent graduates
- Educators and trainers
- Professionals preparing for AI-related roles
- Anyone who wants to understand how modern AI systems work
- Professionals who use Generative AI but want to understand the technology behind it

No Prior AI Experience Required

You do **NOT** need:

- Previous AI knowledge
- Machine-learning experience
- Advanced mathematics
- Advanced statistics
- Programming experience

Basic familiarity with computers and digital technologies is helpful but not required.



What You Will Learn

You will gain a clear understanding of the key concepts, technologies and real-world applications of modern AI.

-  **AI Foundations**
- What AI is, the AI landscape types of AI, real-world applications.
-  **Machine Learning**
- How machines learn from data, learning types, and applications.
-  **Data & Model Learning**
- Datasets, features, labels, training, validation, testing, generalization, loss, gradient descent and more.
-  **Machine-Learning Models**
- Decision trees, KNN, evaluation metrics (accuracy, precision recall, F1), confusion matrices.
-  **Neural Networks & Deep Learning**
- Artificial neurons, layers, activation functions, architectures, and deep learning.
-  **Computer Vision**
- Image processing, CNNs, filters, feature maps, classification.
-  **Natural Language Processing**
- Language models, embeddings, tokenization, RNNs and more.
-  **Generative AI & LLMs**
- Transformers, attention, tokens, embeddings, pre-training, fine-tuning, human feedback, prompt engineering.
-  **Modern AI Systems**
- RAG, fine-tuning, AI agents, tools, workflows and memory.
-  **AI Limitations & Responsible Use**
- Hallucinations, bias, privacy, security, verification, human oversight.

Learning Outcomes

By the end of the course, you will be able to:

1. Explain what Artificial Intelligence is and distinguish it from traditional software and programming.
2. Describe the relationship between AI, Machine Learning, Deep Learning, Generative AI, Foundation Models, LLMs, and AI Agents.
3. Explain how Machine Learning systems learn from data, including the roles of datasets, features, labels, training, validation, testing, and generalization.
4. Explain how models improve their predictions using concepts such as loss, gradient descent, and learning rate.
5. Recognize and explain underfitting and overfitting and understand why they affect real-world AI performance.
6. Understand common Machine-Learning approaches, including Decision Trees and K-Nearest Neighbors.
7. Interpret fundamental model-evaluation measures, including accuracy, precision, recall, F1 score, and confusion matrices.
8. Explain how Neural Networks and Deep Learning work at a conceptual level.
9. Describe how AI systems process images using Computer Vision and Convolutional Neural Networks.
10. Explain how machines represent and process human language, including embeddings, tokenization, and neural language models.
11. Explain the fundamental architecture and purpose of Transformers.
12. Describe how Large Language Models are developed and used, including pre-training, fine-tuning, human feedback, and inference.
13. Understand how Generative AI systems produce content such as text, images, code, and other forms of generated output.
14. Explain how Retrieval-Augmented Generation works and distinguish it conceptually from fine-tuning.
15. Explain what an AI Agent is and how agents use tools, workflows, memory, and iterative action cycles.
16. Recognize major limitations and risks of AI systems, including hallucination, bias, privacy, security, and misinformation.
17. Approach AI systems more critically and effectively, understanding both their capabilities and their limitations.
18. Build a coherent mental model of modern AI, from data and learning through models, generation, retrieval, tools, and human oversight.

 **Course Structure**
10 sessions | From fundamentals to modern AAI systems

1
Understanding AI

2
Machine Learning: How Machines Learn

3
Data: The Foundation of ML

4
New Models: Learn

5
Classical ML in Practice

6
Model Evaluation

7
Neural Networks & Deep Learning

8
Computer Vision & Language

9
Generative AI, Transformers & LLMs

10
RAG, Fine-Tuning & AI Agents

 Build real understanding, not just terminology.

 Gain a clear mental model of the AI ecosystem.

 Be ready for the next step in your AI journey.

Same technology. A clearer perspective.