

AI for Python

Develop the skills to employ AI in your Python coding through this hands-on course. Learn key AI concepts and build & deploy your own AI app.

Group classes in NYC and onsite training is available for this course. For more information, email corporate@nobledesktop.com or visit: <https://www.nobledesktop.com/classes/ai-python>



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Course Outline

Section 1: What is AI?

Introduction to AI

- Definition and scope
- History and evolution of AI
- Applications of AI in various fields

Types of AI

- Narrow AI vs. General AI
- Strong AI vs. Weak AI

Section 2: From Machine Learning to AI

Understanding Machine Learning (ML)

- Definition and types of ML (Supervised, Unsupervised, Reinforcement Learning)
- Key concepts: Algorithms, Models, Training, and Testing

Transitioning from ML to AI

- Integrating ML models into AI systems
- Examples of ML applications in AI

Section 3: How AI Works

Core Concepts in AI

- Neural Networks and Deep Learning
- Natural Language Processing (NLP)
- Computer Vision

AI Methodologies and Approaches

- Rule-based systems
- Heuristic search
- Genetic algorithms

Section 4: Major Python Libraries for AI

Introduction to Key Libraries

- NumPy, Pandas, and Matplotlib for data manipulation and visualization
- Scikit-learn for machine learning
- TensorFlow and Keras for deep learning
- NLTK and SpaCy for natural language processing

Putting the Libraries into Action

- Installation
- Basic usage of these libraries

Section 5: How ChatGPT Works

Overview of ChatGPT

- The architecture of GPT models
- Training data and processes

Practical Applications of ChatGPT

Uses in customer service, content creation, and more

Ethics

Important ethical considerations and challenges

Section 6: Master Techniques Encompassing Text Preprocessing

Importance of Text Preprocessing in NLP

- Tokenization, stemming, and lemmatization
- Removing stop words and noise

Hands-On Exercises with Python Libraries

NLTK and SpaCy

Section 7: Dive Deep Into the World of Reinforcement Learning

Fundamentals of Reinforcement Learning (RL)

- Key concepts: Agents, Environments, Rewards, and Policies
- Exploration vs. Exploitation dilemma

Algorithms in RL

- Q-Learning, Deep Q-Networks (DQN)
- Practical examples and coding exercises

Section 8: Build Your Own AI App

Overall Structure of the App and APIs

- Planning and designing an AI application
- Understanding and integrating APIs

Build Components of the Code

- Writing and organizing code for AI functionalities
- Implementing machine learning models

Gather Information for Reinforced Learning

- Data collection and preprocessing
- Setting up the RL environment

Gather Images Based on Results

- Using computer vision techniques to process images
- Integration of image processing results into the app

Add Features, Maps, Images, etc.

- Enhancing the app with additional features
- Utilizing external libraries for maps and image handling

How to Deploy the App

- Overview of deployment options
- Step-by-step guide to deploying the app on cloud platforms (e.g. AWS, Google Cloud, Heroku)
- Best practices for maintaining and scaling the app