

Blockchain and Machine Learning Synergy

Duration: 03 days (24 hours)

Training Objectives

By the end of this course, participants will be able to:

1. Understand the fundamentals of blockchain technology and its architecture.
 2. Apply machine learning concepts for predictive analysis and decision-making.
 3. Explore the intersection of blockchain and machine learning.
 4. Implement basic smart contracts integrated with AI models.
 5. Analyze practical use cases and solutions combining the two technologies.
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Modules

Day 1: Blockchain Technology

1. **Introduction to Blockchain**
 - Definition and Components
 - Public vs. Private Blockchains
 - Consensus Mechanisms (PoW, PoS, etc.)
 2. **Blockchain Applications**
 - Cryptocurrencies
 - Supply Chain Management
 - Decentralized Applications (DApps)
 3. **Hands-On Session**
 - Setting up a Private Blockchain
 - Deploying a Basic Smart Contract
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Day 2: Machine Learning Essentials

1. **Introduction to Machine Learning**
 - Supervised, Unsupervised, and Reinforcement Learning
 - Overview of Algorithms (Regression, Decision Trees, Neural Networks)
2. **Model Training and Evaluation**

- Data Preprocessing
- Feature Engineering
- Training and Testing

3. Hands-On Session

- Building a Predictive Model Using Python (e.g., Scikit-learn)
 - Evaluating Model Performance
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Day 3: Blockchain and Machine Learning Integration

1. Synergy Between Blockchain and ML

- Securing ML Models with Blockchain
- Decentralized AI
- Blockchain for Data Integrity in ML

2. Use Cases and Industry Applications

- Fraud Detection in Financial Systems
- Decentralized AI Models for IoT
- Predictive Maintenance in Supply Chain

3. Practical Implementation

- Integrating Smart Contracts with ML Models
- Building a Decentralized Predictive Analytics App

4. Capstone Project

- Design and Develop a Blockchain-ML Application