



مركز الوقت للتدريب
Time Training Center

APPLICATIONS OF AI FOR ANOMALY DETECTION COURSE



Introduction

Applications of AI for Anomaly Detection is a focused course designed to equip professionals with the knowledge to leverage artificial intelligence and machine learning for detecting unusual patterns, fraud, and system deviations across various industries. Participants will explore use cases in finance, cybersecurity, manufacturing, and IT operations, gaining hands-on exposure to AI-driven techniques that enhance accuracy and response times. Ideal for analysts, IT professionals, and decision-makers, the course bridges AI theory with practical, real-world applications.

Learning Objectives

- Understand core AI techniques for anomaly detection
- Implement ML models to identify irregular patterns
- Evaluate anomalies in structured and unstructured data
- Apply use cases in fraud detection and cybersecurity
- Integrate anomaly detection into business processes

Course Details

Mode of Training	Classroom or Online
Duration	5 Days

Who Should Attend

- Data analysts and AI professionals
- IT operations and security teams
- Business intelligence and risk analysts
- Digital transformation leaders

Certificate(s)

Participants who complete a minimum of 80% of the total training hours will receive a **Certificate of Completion** issued by **Time Training Center**. This certificate reflects their active participation and commitment to professional development in the relevant field.



Course Outline

Module 1: Introduction to Anomaly Detection

- Understanding anomalies, outliers, and rare events
- Importance of anomaly detection across industries
- AI's evolving role in modern anomaly detection systems

Module 2: Machine Learning Techniques

- Supervised learning for anomaly classification
- Unsupervised learning for discovering unknown anomalies
- Semi-supervised learning approaches and hybrid models
- Strengths and limitations of different techniques

Module 3: AI Models and Algorithms

- Clustering methods (e.g., K-Means, DBSCAN)
- Classification approaches (e.g., SVM, decision trees)
- Deep learning for anomaly detection (e.g., autoencoders, GANs)
- Selecting appropriate algorithms for different anomaly types

Module 4: Data Preparation and Feature Engineering

- Data cleaning, normalization, and transformation strategies
- Feature selection and extraction for improved model accuracy
- Handling imbalanced datasets
- Techniques for synthetic data generation when anomalies are rare

Module 5: Real-World Applications

- Fraud detection in banking and finance
- Network and system monitoring in IT operations
- Anomaly detection in IoT devices and industrial systems
- Healthcare applications: patient monitoring and diagnostic systems

Module 6: Integrating AI with Business Systems

- Deploying AI models into production environments
- Building feedback loops for continuous model improvement
- Monitoring AI performance and drift management
- Ethical considerations and responsible AI practices in anomaly detection

Methodology

We employ a comprehensive and applied learning strategy, integrating theory with real-world implementation:

- ❖ **Conceptual Learning:** Expert-led sessions on catalytic theory and engineering principles
- ❖ **Interactive Workshops:** Group exercises, presentations, and technical discussion forums
- ❖ **Case-Based Learning:** Industry-specific examples and troubleshooting scenarios
- ❖ **Technology Integration:** Digital tools, simulations, and catalyst modeling applications
- ❖ **Assessment:** Pre-tests, post-tests, and Competence Validation Exams for Certified courses to ensure knowledge transfer and skills validation

Note: Instructors may adjust the training approach to fit technical requirements or participant engagement levels.

Instructors

Our instructors are AI practitioners and data scientists with 10+ years of experience designing anomaly detection systems across sectors such as finance, cybersecurity, and industrial automation. They bring deep expertise in machine learning and real-time analytics, translating complex models into practical business applications. All instructors are vetted for both subject mastery and training excellence. Detailed trainer profiles will be shared post-scheduling.

About Time Training Center

Time Training Center is a leading professional training institute in Abu Dhabi that provides students and professionals with quality education and skill development programs. Time Training Center is accredited by the Abu Dhabi Center for Technical Vocational Education & Training (ACTVET) with a specialization in Computer and Management Training programs and certified by QA QC with ISO 9001:2015.

Operating in Abu Dhabi for over 3 decades, Time Training Center has established brand value as a high-quality Management & Technical Training Center in Abu Dhabi. We have also secured strong loyalty from corporate companies and associations with our holistic and practical teaching approach.

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