Deploying Machine Learning Models Training Course

Professional Development Training Course Outline

Category	Data Science	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

In today's rapidly evolving technological landscape, the ability to effectively transition machine learning models from research environments to real-world applications is a critical skill. This intensive training course on **Deploying Machine Learning Models** addresses this crucial gap by providing participants with a thorough understanding of the end-to-end deployment lifecycle. Participants will gain practical experience in leveraging cutting-edge tools and methodologies to streamline the **MLOps pipeline**, ensuring scalability, reliability, and efficient management of their machine learning solutions. This course emphasizes hands-on learning and real-world case studies, empowering individuals and organizations to unlock the full potential of their **artificial intelligence initiatives** and achieve tangible business value through robust and well-governed **model deployment strategies**.

This program is meticulously designed to equip learners with the necessary expertise to navigate the complexities of **productionizing machine learning models**. From understanding different deployment environments and infrastructure considerations to implementing robust monitoring and continuous integration/continuous delivery (**CI/CD for ML**) practices, this course covers the essential knowledge and skills required for successful deployment. By focusing on industry best practices and incorporating the latest advancements in **cloud-based ML deployment**, **edge AI deployment**, and **serverless machine learning**, participants will be well-prepared to tackle the challenges of deploying sophisticated models in diverse operational settings. The curriculum also highlights the importance of **model governance**, **security in ML deployment**, and **performance optimization** to ensure long-term success and responsible AI implementation.

Programme Curriculum

Deploying Machine Learning Models Training Course

Introduction

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Course Duration

5 days

Course Objectives

Upon completion of this training course, participants will be able to:

1. Understand the complete **machine learning deployment lifecycle** and its key stages.
2. Identify and evaluate various **deployment environments** such as cloud, on-premise, and edge.
3. Implement **containerization strategies** using Docker and Kubernetes for scalable deployments.
4. Design and build robust **CI/CD pipelines for machine learning models**.
5. Apply different **model serving techniques** including REST APIs and batch processing.
6. Monitor **model performance and drift** using appropriate metrics and tools.
7. Implement effective **data management strategies** for deployed models.
8. Ensure **security and compliance** in machine learning deployment workflows.
9. Optimize **model inference speed and resource utilization** for cost-efficiency.
10. Troubleshoot common issues and challenges in **machine learning deployment**.
11. Leverage **cloud-specific ML deployment services** offered by major providers.
12. Implement strategies for **version control and rollback** of deployed models.
13. Understand the principles of **model governance and ethical considerations** in deployment.

Organizational Benefits

Organizations that invest in this training course can expect to realize several key benefits:

- **Accelerated time-to-market** for machine learning applications.
- **Improved efficiency** in the machine learning operations process.
- **Reduced deployment costs** through optimized resource utilization.
- **Enhanced reliability and stability** of deployed models.

- **Better governance and compliance** with industry standards.
- **Increased innovation** by enabling faster experimentation and deployment cycles.
- **Improved collaboration** between data science and engineering teams.
- **Greater return on investment** from machine learning initiatives.

Target Audience

This training course is ideal for:

1. Data Scientists
2. Machine Learning Engineers
3. Software Engineers
4. AI/ML Team Leads
5. DevOps Engineers
6. IT Professionals
7. Cloud Architects
8. Technical Managers

Course Outline

Module 1: Introduction to Machine Learning Deployment

- Understanding the ML lifecycle and the deployment phase.
- Key challenges and considerations in deploying ML models.
- Overview of different deployment architectures and strategies.
- The role of MLOps in streamlining the deployment process.
- Introduction to essential tools and technologies for deployment.

Module 2: Deployment Environments and Infrastructure

- Exploring cloud-based deployment options (AWS, Azure, GCP).
- On-premise deployment considerations and best practices.
- Deploying models on edge devices and IoT platforms.
- Choosing the right infrastructure for different use cases.
- Managing infrastructure costs and scalability.

Module 3: Containerization with Docker and Kubernetes

- Introduction to Docker and containerization principles.
- Building and managing Docker images for ML applications.
- Orchestration with Kubernetes: concepts and architecture.
- Deploying and scaling ML models using Kubernetes.
- Best practices for containerizing ML workloads.

Module 4: Building CI/CD Pipelines for Machine Learning

- Understanding the principles of Continuous Integration and Continuous Delivery.
- Designing CI/CD pipelines for the ML lifecycle.
- Automating model building, testing, and deployment.
- Integrating version control and rollback mechanisms.
- Utilizing CI/CD tools for MLOps (e.g., Jenkins, GitLab CI).

Module 5: Model Serving Techniques

- Implementing RESTful APIs for real-time model inference.
- Batch processing for large-scale predictions.
- Utilizing model serving frameworks (e.g., TensorFlow Serving, TorchServe).
- Choosing the appropriate serving technique for different applications.
- Load balancing and scaling model serving infrastructure.

Module 6: Monitoring and Maintaining Deployed Models

- Defining key performance indicators (KPIs) for deployed models.
- Implementing model performance monitoring and alerting systems.
- Detecting and addressing model drift and concept drift.
- Logging and auditing deployed model activity.
- Strategies for model retraining and updates in production.

Module 7: Data Management for Deployed Models

- Handling data pipelines for model input and output.
- Ensuring data quality and consistency in production.
- Implementing data versioning and lineage tracking.
- Addressing data privacy and security concerns.
- Integrating with data lakes and data warehouses.

Module 8: Security, Governance, and Optimization

- Implementing security best practices for deployed ML models.
- Addressing ethical considerations and bias in AI deployment.
- Establishing model governance frameworks and compliance.
- Techniques for optimizing model inference speed and resource usage.
- Cost management and resource allocation in production environments.

Training Methodology

This training course will employ a blended learning approach, incorporating:

- **Interactive lectures** with real-world examples and case studies.
- **Hands-on lab sessions** using industry-standard tools and platforms.
- **Group discussions** and knowledge sharing among participants.
- **Practical assignments** to reinforce learning and skill development.
- **A capstone project** where participants deploy a machine learning model.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

Register Online Now