# MLOps Enablement with Red Hat AI Enterprise (AI500) Training

Duration: **5 Day**

BILGINC IT Academy
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**Experience MLOps through Red Hat's proven open culture and practices, and learn how to move machine learning models into production more reliably, efficiently, and collaboratively.**

MLOps Enablement with Red Hat AI Enterprise (AI500) is a five-day immersive program designed to help teams experience and implement a successful MLOps adoption journey.

While many AI and data science courses focus on a specific framework or technology, AI500 explores how multiple open source tools work together across a complete **MLOps workflow**. The course combines continuous discovery, continuous training, and continuous delivery in a highly interactive format that reflects real-world machine learning delivery scenarios.

The experience is intentionally cross-functional. Data scientists, machine learning engineers, platform engineers, architects, and product owners work beyond their traditional silos and collaborate as a shared delivery team. This approach demonstrates how technical practices and team collaboration work together to improve innovation and delivery efficiency.

The course is based on **Red Hat OpenShift AI, Red Hat OpenShift GitOps, and Predictive AI** .

## Benefits for Organizations

Many organizations find that their existing structures and machine learning practices are not sufficient to deliver AI-driven transformation outcomes such as faster model deployment, continuous improvement through feedback loops, and solutions that remain aligned with user needs.

Achieving these goals requires organizations to make:

- Collaboration,
- Automation,
- Lifecycle management,
- Continuous training,
- Continuous delivery

part of their standard machine learning operating model.

AI500 introduces real-world MLOps culture and modern delivery practices through hands-on experience.

Participants build a predictive machine learning model using Red Hat OpenShift, Red Hat OpenShift AI, and industry-standard MLOps software, tools, and techniques.

This approach can help organizations:

- Reduce the time required to deploy new models.
- Establish repeatable and standardized MLOps workflows.
- Monitor model quality more consistently.
- Improve alignment between technical teams.
- Scale AI transformation initiatives in a more controlled way.

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### Benefits for Participants

After completing AI500, participants should have practical experience with MLOps culture, modern MLOps practices, and the end-to-end process of bringing a machine learning model into production.

Participants will be able to:

- Apply MLOps principles to streamline machine learning development and deployment.
- Understand the complete lifecycle from inner-loop experimentation to outer-loop operations.
- Manage experiment tracking and model deployment processes.
- Build automated training pipelines.
- Establish continuous training and automated deployment workflows.
- Apply model monitoring practices.
- Improve traceability through dataset versioning.
- Use advanced deployment approaches such as canary and blue-green releases.
- Apply feature store concepts.
- Extend security guardrails into machine learning workflows.
- Improve collaborative development skills through pair and mob programming practices.

## Prerequisites

Participants are recommended to have:

- Completed Red Hat's free skills assessment to determine whether the course matches their current experience level,
- Completed **Containers, Kubernetes and Red Hat OpenShift Technical Overview (DO080)** or have a basic understanding of OpenShift, Kubernetes, and containers,
- A high-level understanding of AI or familiarity with**Red Hat AI Foundations**.

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## Who Should Attend

AI500 is designed to demonstrate how different roles involved in machine learning delivery can share responsibilities, collaborate more effectively, and work toward a common objective.

The course is especially relevant for:

### MLOps Platform Users

- Data scientists
- Data engineers
- Application developers

These roles work directly with data, experimentation, and model development.

### MLOps Platform Providers

- Machine learning engineers
- MLOps engineers
- Platform engineers

These participants focus on automation, infrastructure, deployment, and operational support for machine learning workloads.

### MLOps Platform Stakeholders

- Architects
- IT managers

These roles help shape and oversee MLOps strategy from both a technical and organizational perspective.

The course scenarios include practical work with machine learning systems while demonstrating how these different personas can align their efforts on a shared platform.

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## What You Will Learn

AI500 follows a predictive intelligent application from ideation through experimentation and ultimately into production.

During the course, participants will:

- Take a machine learning use case through an end-to-end lifecycle.
- Work with inner-loop experimentation, dataset exploration, and experiment tracking.
- Automate model training through pipelines.
- Build an MLOps environment for continuous training and automated deployment.
- Monitor machine learning model behavior and performance continuously.
- Introduce dataset versioning to improve traceability.
- Explore advanced deployment patterns such as canary and blue-green releases.
- Use feature store concepts to improve consistency between training and serving.
- Apply automated security guardrails to support organizational security requirements.

## Training Outline

### What Is MLOps?

Explore the principles, practices, and cultural elements that make up an effective MLOps model.

Understand why reliable machine learning delivery depends not only on technology, but also on collaboration, automation, standardization, and continuous improvement.

### Inner Loop

Become familiar with the tools required for model experimentation and development.

Create a workbench, explore the dataset, begin tracking experiments, and deploy initial machine learning models.

### Training Pipelines

Automate the model training steps that were previously carried out manually.

Build repeatable training pipelines that make model development more suitable for production workflows.

### Outer Loop

Create the MLOps environment where continuous training pipelines, automated deployment, and supporting tooling can operate together.

Establish the outer-loop processes required to move machine learning models from experimentation into production operations.

### Monitoring

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Explore how machine learning models can be affected over time by changes in data patterns, user behavior, and external conditions.

Use continuous monitoring to identify changes early, evaluate their impact on model accuracy, and support the adjustments required to maintain performance.

## Data Versioning

Improve traceability by introducing version control for datasets as they evolve.

Track which dataset versions are used during model training and make model development history easier to reproduce and audit.

## Advanced Deployments

Handle data and prediction pre-processing and post-processing more effectively.

Explore autoscaling to respond to changing workloads and introduce advanced release strategies such as:

- Canary deployments
- Blue-green deployments

These approaches help reduce risk and support safer model rollouts.

## Feature Stores

Explore more robust approaches for managing machine learning features and their changes over time.

Use feature store concepts to help maintain consistency between the feature data used during training and the feature data used during serving.

## Security

Extend organizational security practices into the machine learning lifecycle.

Implement automated security guardrails to help keep MLOps processes and deployed models aligned with defined security requirements.