

Industrial Training | FDP | Internship cum Training

2-weeks Online Live Training on

## Machine Learning Operations (MLOps)

[From Model Development to Deployment]

### 2-weeks MLOPs Training Plan

Duration - 30 Hours

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#### Day 1: Introduction to MLOps and AIOps

- **Objective:** Understand the fundamentals of MLOps and AIOps.
  - **Topics:**
    - What is MLOps?
    - Comparison of AIOps vs. MLOps.
    - Challenges in traditional ML workflows.
    - Core concepts: CI/CD/CM in ML.
  - **Hands-On:**
    - Explore a real-world example where MLOps improved model deployment and scalability.
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#### Day 2: Version Control with GIT

- **Objective:** Learn and practice GIT fundamentals.
  - **Topics:**
    - GIT basics: Clone, commit, push, pull, branch, and merge.
    - Resolving merge conflicts.
    - Best practices for managing ML projects in GIT.
  - **Hands-On:**
    - Create a GitHub repository for a sample ML project.
    - Practice basic GIT commands and workflows.
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#### Day 3: GitHub Actions for CI/CD

- **Objective:** Automate workflows with GitHub Actions.
- **Topics:**
  - Introduction to GitHub Actions.

- Writing simple YAML workflows.
  - Automating testing and deployment pipelines.
  - **Hands-On:**
    - Set up a GitHub Actions workflow to test and lint an ML project.
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## Day 4: Preparing ML Code for Production

- **Objective:** Refactor and modularize Jupyter Notebook code.
  - **Topics:**
    - Why convert notebooks to Python scripts?
    - Modularizing ML code: Functions, classes, and configurations.
  - **Hands-On:**
    - Convert a sample Jupyter Notebook to a Python script.
    - Test the script locally.
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## Day 5: Deploying ML Models with Flask or FastAPI

- **Objective:** Build and deploy REST APIs for ML models.
  - **Topics:**
    - Introduction to Flask and FastAPI.
    - Creating REST API endpoints for ML models.
    - Testing APIs with tools like Postman.
  - **Hands-On:**
    - Build and deploy a REST API using Flask.
    - Extend it using FastAPI for better performance.
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## Day 6: Deploying Interactive Dashboards with Streamlit

- **Objective:** Create interactive visualizations and deploy ML models with Streamlit.
  - **Topics:**
    - Introduction to Streamlit.
    - Building dashboards for ML models.
    - Deploying Streamlit apps locally and on Streamlit Community Cloud.
  - **Hands-On:**
    - Create a Streamlit app to interact with an ML model.
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## Day 7: Introduction to PyPI and Python Packaging

- **Objective:** Package and distribute ML code through PyPI.
  - **Topics:**
    - What is PyPI?
    - Creating a Python package.
    - Publishing packages to PyPI or TestPyPI.
  - **Hands-On:**
    - Package and publish a sample ML project to TestPyPI.
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## Day 8: Introduction to MLflow

- **Objective:** Use MLflow to track and manage ML experiments.
  - **Topics:**
    - Overview of MLflow components: Tracking, Projects, Models, Registry.
    - Setting up MLflow locally.
    - Recording and visualizing experiment metrics.
  - **Hands-On:**
    - Track a simple ML experiment using MLflow.
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## Day 9: Monitoring and Managing Deployed Models

- **Objective:** Understand post-deployment monitoring and management.
  - **Topics:**
    - Why monitor ML models?
    - Tools and frameworks for monitoring (e.g., Prometheus, Grafana).
    - Handling model drift and retraining pipelines.
  - **Hands-On:**
    - Simulate model drift and retrain a model.
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## Day 10: Capstone Project

- **Objective:** Apply all concepts in a real-world scenario.
- **Project Description:**
  - **Scenario:** Build an end-to-end MLOps pipeline for a classification problem.
  - **Tasks:**
    - Use GIT for version control.
    - Build and test the model.
    - Deploy the model using FastAPI.
    - Track experiments with MLflow.
    - Create a Streamlit app for user interaction.



- Automate workflows using GitHub Actions.
  - **Outcome:**
    - Present the deployed solution to the group.
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## Additional Features:

- **Resources:**
  - Sample datasets, scripts, and project files.
  - Access to recorded sessions and supplementary reading materials.
- **Certification:**
  - Participants receive a course completion certificate upon successfully completing the capstone project.

## Training Highlights

- 30+ Hours live online Hands-on based learning with Projects.
- **Training includes:** Soft copy of Training material, Training PPT's, Project code & Training Recording.
- 2-weeks **Certificate of completion** in association with **Mechanica IIT Madras**

## Who can attend?

- Training is best suitable for Engineering college faculty, Research scholar, Student & Working IT Professional.

**To Know More & Register Now:** <https://www.eduxlabs.com/mlops>

## EduxLabs Teams

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