ClearML Developer Certification

- 2 Days
- Lecture and Hands-on Labs

Course Overview

Master the integration of machine learning (ML) models into applications using ClearML In this course, you will learn to consume pre-trained models via APIs, embed them into web or mobile applications, and collaborate with Data Scientists and ML Engineers in an existing ClearML environment. The course covers ClearML SDK usage, API-driven model serving, and app integration with frameworks like Flask and FastAPI. Labs progress from basic API calls to building a fully integrated application, culminating in a capstone project that delivers a mock e-commerce recommendation system. Ideal for developers with Python and API experience, this course offers ClearML Developer Certification from Alta3 Research, ensuring practical skills for real-world ML integration without deep ML theory.

Review this course online at https://www.alta3.com/courses/clearml-dev

Who Should Attend

- Software Developers
- Application Engineers
- DevSecOps Engineers
- Full-Stack Developers

What You'll Learn

- Consume ML models via ClearML Serving APIs in $\leq$15 minutes.
- Integrate models into web/mobile applications using Flask or FastAPI.
- Collaborate with Data Scientists and ML Engineers using ClearML projects and dashboards.
- Handle model versioning and governance for compliance.
- Implement error handling and optimize API performance for production apps.

Outline

All Outlines are subject to change dependent on changes in the underlying technologies

Introduction to ClearML for Developers

- Lecture: What is MLOps? Role of Serving in ML Workflows
- Lecture: ClearML Overview for Developers
- Lecture: Introduction to REST APIs for ML Integration
- Lecture + Lab: Query a Pre-trained Model API
- Lecture + Lab: Explore ClearML Dashboards for Model Metrics
- Lecture + Lab: Set Up Python Environment with ClearML SDK

Collaboration and Governance

- Lecture: Collaborating with Data Scientists and ML Engineers
- Lecture: ClearML Projects and Team Visibility (Renamed from RBAC)
- Lecture: Documentation Strategies with Model Metadata
- Lecture + Lab: Access a Shared ClearML Project
- Lecture + Lab: Review and Apply Model Card Metadata
- Lecture + Lab: Troubleshoot API Access Errors

Model Serving with ClearML APIs

- Lecture: ClearML Serving: Architecture and Endpoints
- Lecture: Batch vs. Real-Time Inference for Applications
- Lecture: Security Patterns: Gateways and Auth Wrappers (Added per ChatGPT)
- Lecture + Lab: Deploy a Standard Model Endpoint (Scikit-Learn) (Changed from vLLM to generic)
- Lecture + Lab: Test Endpoint and Implement Basic Token Auth
- Lecture + Lab: Implement Application-Side Latency Fallbacks

Ecosystem Integrations

- Lecture: Embedding ML Models in Web Applications
- Lecture: Scaling strategies: Caching and Load Balancing
- Lecture: Handling Model Updates from ML Engineers
- Lecture + Lab: Integrate ClearML Endpoint into Flask App
- Lecture + Lab: Implement Error Handling for API Failures
- Lecture + Lab: Implement Response Caching in Flask

Capstone: Build a Real-World AI Application

- Lecture: Capstone Overview: E-Commerce Recommendation System
- Lecture: Simulating Handoff from ML Engineer (Wes)
- Lecture: Certification Prep: Scenarios and Best Practices
- Lecture + Lab: Select and Serve Forecasting Model from ClearML
- Lecture + Lab: Build Mock E-Commerce App with Recommendations
- Lecture + Lab: Recover from Simulated API Failure
- Lecture + Lab: Practice Certification Exam Task

Prerequisites

- Python - PCEP Certification or Equivalent Experience
- Familiarity with REST APIs and basic web frameworks (e.g., Flask or FastAPI)
- Basic Linux command-line skills