Cisco Introduction to Artificial Intelligence (CIAI)

Modality: Virtual Classroom

Duration: 2 Days

CLC: 25 Units

About this course:

Artificial Intelligence (AI) and Machine Learning (ML) is a dominant trend in the enterprise with the ubiquity of large amounts of observed data, the rise of distributed computing frameworks, and the prevalence of large hardware-accelerated computing infrastructures. There are several compute platforms designed and purpose-built for Deep Learning (DL). These platforms should be storage and I/O-optimized to deliver industry-leading performance to speed up Deep Learning (DL) using neural networks and large data sets to train computers for complex tasks. The *CIAI - Cisco Introduction to Artificial Intelligence* instructor-led course introduces the learner to the Artificial Intelligence (AI), Machine Learning (ML), and Deep Learning (DL) essentials in addition to compute platforms such as Cisco UCS, through a combination of lecture and hands-on labs.

Course Objective:

- Understand Big Data and Data Science concepts
- List and describe the concepts, major features, algorithms, and benefits of AL/ML/DL
- Use AL/ML/DL techniques, such as Neural Networks.
- Get familiar with Data Science and Infrastructure AI Tools and soft wares
- Describe the Cisco AI/ML/DL Computing Solutions Portfolio alignment
- Describe the Cisco UCS C480 ML M5 Deep Learning Server

Audience:

- Cisco Integrators/Partners
- Consulting Systems Engineers
- Technical Solutions Architects
- Data Center Administrators and Engineers
- Anyone interested in AI/ML/DL

Prerequisite:

The knowledge and skills that a learner should have before attending this course include:

- Understanding of server design and architecture.
- Familiarity with Cisco UCS, Storage, and Server Virtualization

Course Outline:

Data and AI/ML/DL Fundamentals

Introduction to Big Data
Introduction to Data Science
Introduction to Data Engineering
Introduction to Artificial Intelligence (AI)
Introduction to Machine Learning (ML)
Introduction to Deep Learning (DL)
AI/ML/DL Use Cases

Artificial Intelligence (AI)

AI Concept, Methods, and Techniques
Key AI Challenges (Customer and Provider)
AI Business Drives
Evolution of AI Algorithms

Machine Learning (ML)

Machine Learning (ML) Algorithms
Supervised Learning
Unsupervised Learning

Deep Learning (DL)

Deep Learning Project Phases
Custom AI Deep Learning Workflow
Deep Learning (DL) Algorithms

Neural Networks

Neural Networks Fundamentals
Neural Architecture Search (NAS)
Cisco Neural Architecture Construction (NAC)

Data Science and Infrastructure AI Tools

Big Data with AI/ML/DL
Kubeflow
SkyMind SKIL
Cloudera Data Science Workbench
DL Frameworks > Handwritten Math
Kubernetes
Skymind SKIL
Demo: Classifying Handwritten Digits with TensorFlow

Cisco Computing Solutions/UCS AI/ML/DL Portfolio

The Big data journey
Cisco Computing Solutions for AI

Test, development, and model tuning
    Cisco HyperFlex HX24 and Cisco UCS C240 M5
Machine learning and deep learning
    Cisco UCS C480 ML M5
Inferencing
    Cisco HyperFlex HX240
    Cisco UCS C220 M5 andCisco UCS C240 M

Cisco UCS C480 ML Rack Server

Cisco UCS C480 ML M5 Overview
Cisco UCS C480 ML M5 Features and Benefits
    System Front and Rear View
    CPU, GPU, and IO Module
    Internal NVLink Topology
    Storage Options – RAID Card and Drives
    Connectivity with Lan on Motherboard (LoM)
Cisco UCS C480 ML M5 Management
    Integrated Management Controller (IMC) – OoBM
    Cisco UCS Unified Management
    Cisco Intersight (cloud-based)
Cisco UCS C480 ML M5 Deployment
    Standalone
    Cisco UCS managed environment.
Cisco UCS C480ML Rack Server for Deep Learning

Labs

- Lab 1: Deep Learning Framework Setup (TensorFlow and Jupyter Stack)
- Lab 2: Classifying Handwritten Digits with TensorFlow
- Lab 3: DL Chatbot - Training a Model to Have a Conversation with a Google Chatbot similar to Alexa or Siri
- Lab 4: ML Training a Machine to play "The Snake Game"