

# Artificial Intelligence and Machine Learning Fundamentals (AIMLF)

## ID AIMLF Prix sur demande Durée 3 jours

### **Objectifs**

- · Understand the importance, principles, and fields of AI
- Implement basic artificial intelligence concepts with Python
- Apply regression and classification concepts to real-world problems
- Perform predictive analysis using decision trees and random forests
- Carry out clustering using the k-means and mean shift algorithms
- Understand the fundamentals of deep learning via practical examples

#### Contenu

#### 1: Principles of Artificial Intelligence

- Introduction
- Fields and Applications of Artificial Intelligence
- Al Tools and Learning Models
- The Role of Python in Artificial Intelligence
- Python for Game AI
- Summary

#### 2: Al with Search Techniques and Games

- Introduction
- Heuristics
- Pathfinding with the A\* Algorithm
- Game Al with the Minmax Algorithm and Alpha-Beta Pruning
- Summary

## 3: Regression

- Introduction
- Linear Regression with One Variable
- Linear Regression with Multiple Variables
- Polynomial and Support Vector Regression
- Summary

#### 4: Classification

- Introduction
- The Fundamentals of Classification
- · Classification with Support Vector Machines

Summary

## 5: Using Trees for Predictive Analysis

- Introduction to Decision Trees
- Random Forest Classifier
- Summary

#### 6: Clustering

- · Introduction to Clustering
- The k-means Algorithm
- Mean Shift Algorithm
- Summary

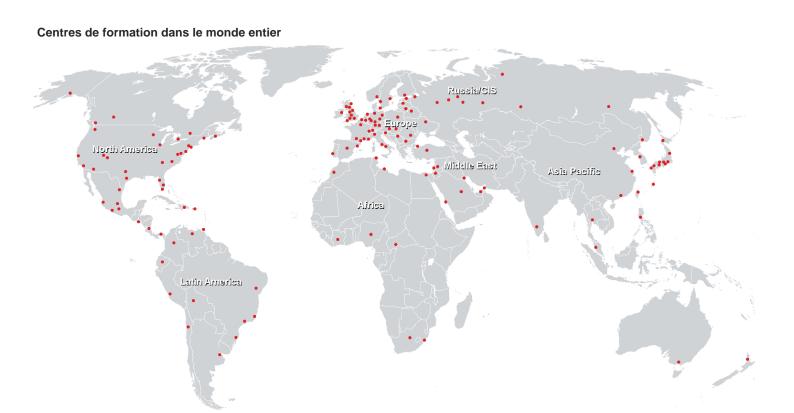
### 7: Deep Learning with Neural Networks

- Introduction
- TensorFlow for Python
- · Introduction to Neural Networks
- · Deep Learning
- Summary

## 8: Appendix A

- Lesson 1: Principles of AI
- Lesson 2: Al with Search Techniques and Games
- Lesson 4: Classification
- Lesson 5: Using Trees for Predictive Analysis
- · Lesson 6: Clustering
- Lesson 7: Deep Learning with Neural Networks

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