Artificial intelligence for Telecom

Training description

The course Artificial intelligence for Telecom is an essential first step in establishing your understanding of how Artificial Intelligence (AI) is changing the telecoms industry. The course takes you through the basic terminology and features of AI, identifies the various types and usages of AI and discusses the applications fields in AI.

Within this AI Training, will also discuss Machine Learning and Deep Learning, and explain the role of Big Data. We will also discuss about technology behind chatGPT and its applications.

Finally, we will focus on deployment of artificial intelligence in networks, we will understand how Artificial intelligence manage Data-driven Network, and finish the course by specific 4G and 5G use cases.

Who would benefit:

This course is designed for all engineers managers either technical or non-technical

Training content

1) What is Artificial Intelligence?

- Introduction
- What is AI
- AI Classification
- Introduction to machine learning
- AI Background and definitions
- AI in Telecom

2) Application field of AI

- Introduction
- AI in smart homes
- AI in smart cities
- AI in retail
- AI in self-driving cars
- AI in industry

3) Machine Learning

- What is machine learning
- Supervised learning
- Non-supervised learning
- Semi-supervised learning
- Reinforcement learning

4) Deep Learning concepts & Techniques:

- What is a neural network?
- Supervised learning with neural networks
- Why deep learning is taking off?
- Origins of neural networks
- Self-organizing networks

- ➢ Biological neuron
- ➢ Perceptron limitations
- ➢ Multi-layer perceptron
- ➢ Binary classification
- ➢ Logistic regression

5) Deep Learning Architectures:

- ➢ Multilayer Perceptrons (MLPs)
- ➢ Self Organizing Maps (SOMs)
- ➢ Convolutional Neural Networks (CNNs)
- ➢ Long Short Term Memory Networks (LSTMs)
- ➢ Recurrent Neural Networks (RNNs)
- ➢ Generative Adversarial Networks (GANs)
- ➢ Radial Basis Function Networks (RBFNs)
- ➢ Deep Belief Networks (DBNs)
- ➢ Restricted Boltzmann Machines(RBMs)
- ➢ Autoencoders

6) Introduction to Python :

- ➢ Types & Expressions
- ➢ Variables & Strings
- ➢ Operations on strings
- ➢ Tuples
- ➢ Lists & Dictionaries

7) Big Data and AI :

- ➢ Introduction to big data
- ➢ Types of big data
- ➢ Characteristics of big data
- ➢ Roles of big data

8) Artificial intelligence Frameworks

- ➢ TensorFlow
- ➢ PyTorch
- ➢ DEEPLEARNING4J
- ➢ Microsoft Cognitive Toolkit/CNTK

➤ Keras
➤ ONNX
➤ MXNET
➤ CAFFE

9) Deep dive into ChatGPT, and Its applications

➤ Overview of ChatGPT and its evolution.
➤ The technology Behind ChatGPT
➤ ChatGPT and Chatbots.
➤ ChatGPT Application 1 : Language Generation with ChatGPT
➤ ChatGPT Application 2 : Sentiment Analysis with ChatGPT
➤ ChatGPT Application 3 : Text Summarization
➤ ChatGPT Application 4 : ChatGPT in Medical Diagnosis

10)   Artificial intelligence adoption in Telcos

➤ Telecom complexity requires AI
➤ AI technology adoption with services providers
➤ Challenges for successful adoption of AI
➤ Benchmark of AI offering within Telcos

11)   Artificial intelligence to manage Data-driven Network

➤ Added value of AI in operators
➤ Why should we do AI in the 4G/5G networks?
➤ What can AI do for the networks?
➤ How to introduce AI in the networks?
➤ ETSI-ENI architecture

12)   4G/5G Artificial intelligence use cases

1. AI for 4G/5G RAN network management
2. Fault detection in 4G and 5G RAN
3. Customer QoS Determination
4. AI for 4G/5G Network optimization
5. AI Network optimization in practice
6. AI for 4G/5G Network operations