loT + Al Workstation

Note Shown image is just for illustration original may differ

The workstation Features:

1 It covered theory and algorithm development of loT, Machine learning, Deep learning, and NLP.
2 It covered study of TensorFlow and Keras for high performance numerical computation.
3 It supports to work on real time image processing applications using computer vision.
4 It supports for Real time sensors interface for Machine Learning.
5 It supports C, C++. R and Python programming.
6 Al voice assistance and chatbot using NLP is available.

The workstation is support to perform following study / learning:

Introduction to loT, Al, Machine Learning, Neural Network & Deep Learning.

Supervised and Unsupervised learning

1 Linear regression.
2 Logistic regression.
3 Gradient descent.
4 Decision tree.
5 Random forest.
6 Bagging & boosting.
7 KNN.
8 K-Means.
9 Hierarichal clustering. Deep Learning
10 Neural Network overview and representation.
11 Convolutional Neural Networks.
12 Recurrent Neural Networks.
13 Activation Function.
14 Loss Function.

Testing and understanding of:

1. Air temperature & humidity sensors.
2. Air quality PM1, PM2.5 and PM10 sensors.
3. C02 sensor.
4. 02 sensor. Learn and explore:
5. Python programming.
6. C and C++ programming.
7. Al frameworks like TensorFlow, Keras, PyTorch GoogleAl, Amazon web services and Caffe.
8. loT sensors and cloud application. Interfacing of:
9. LED and switches program.
10. Sensor and actuators.

Applications using machine learning and OpenCV

1. Face detection & tracking.
2. Face recognition.
3. Emotion recognition
4. Gesture recognition.
5. Smile detection.
6. Vehicle detection.
7. Object detection using YOLO algorithm.
8. Drowsiness detection.
9. License plate recognition.
10. Fingerprint recognition.
11. Text identification.
12. Traffic sign recognition.
13. Motion detection.

Applications using audio processing and deep learning:

1. Audio fingerprinting.
2. Music recommendation.
3. Speech recognition.
4. Sentiment analysis.
5. Dialog flow - Chatbot using NLP.
6. Text classification using NLP.
7. Machine translation using NLP.
8. Named entity recognition using NLP.

The training is include single user Classroom / laboratory teaching, learning and simulation software module.

The contents easy explanation of various complex topics with animation and simulation for ease of student learning. It is also support learning through videos, graphs, charts, along with mandatory rich content and theory to understand fundamental concepts, interactive learning objects, FAQ, MCQ etc.

- The contents supply either the digital online access or license protection

- Internet of Things which has following key features:

- Basic of IoT and its architecture

- Block diagram and its internal Structure of IoT

Working of Sensor like Temperature and Humidity:

- Air Quality Sensor Soil Moisture: Ambient Light Sensor

- Soil/Water temperature

- PIR Sensor Sensors and Actuators Interface for IoT

- How to Send data on Cloud Sensor Data Monitoring using PC and Mobile Programming Language used for IoT Different applications of IoT

It is support to build applications for:

1   Natural language processing.

2   Internet of things.

3   Preventive maintenance.

4   Cyber security.

5   Agriculture and food industry.

6   Remote healthcare monitoring.

7   Environment monitoring and forecast.

8   Warehouse and logistics.

9   Retail analysis.

10 Intelligent traffic management.

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