



SPYPRO SECURITY SOLUTIONS Pvt. Ltd.,

C Y B E R S E C U R I T Y

5-Days Workshop on IoT Integrated with Machine Learning (ML)

In today's data-driven world, the integration of Internet of Things (IoT) with Machine Learning (ML) enables systems to learn from sensor data, predict outcomes, detect anomalies, and automate intelligent decisions. IoT combined with ML plays a vital role in smart cities, healthcare, agriculture, manufacturing, and industrial automation. This five-day comprehensive workshop on IoT Integrated with Machine Learning is designed to provide participants with in-depth theoretical knowledge and extensive hands-on experience in developing intelligent IoT solutions using software tools, cloud platforms, and machine learning algorithms.

Topics to be Covered in IoT Integrated with Machine Learning

Day 1: Introduction to IoT and Machine Learning

- Overview of Internet of Things (IoT) and its importance
- IoT system architecture and components
- Types of IoT devices and sensors
- Introduction to Machine Learning (ML)
- Role of Machine Learning in IoT systems
- Real-world applications of IoT integrated with ML

Day 2: IoT Software Development and Data Communication

- Fundamentals of IoT software development
- Communication protocols for IoT (HTTP, MQTT)
- Data formats and data transmission techniques
- Cloud platforms for IoT data management
- Secure data communication in IoT systems
- Practical exercises on IoT data simulation and transmission

Day 3: Data Handling and Preprocessing for Machine Learning

- Understanding IoT sensor data
- Data collection and storage techniques
- Data cleaning and preprocessing methods
- Handling missing, noisy, and inconsistent data
- Feature extraction and feature scaling
- Practical exercises on preprocessing IoT datasets

Day 4: Machine Learning Models for IoT Applications

- Supervised learning techniques for IoT data
- Unsupervised learning techniques for IoT data
- Regression and classification models
- Anomaly detection in IoT systems
- Model evaluation and performance metrics
- Practical exercises on building ML models for IoT data

Day 5: Intelligent IoT Systems, Deployment, and Use Cases

- ML-driven decision making in IoT
- Real-time prediction and alert systems
- Edge ML vs Cloud ML concepts
- Deployment of IoT + ML solutions
- Security considerations for IoT and ML systems
- Case studies and real-world use cases
- Final hands-on project and demonstration

Duration: The duration of this workshop will be five consecutive days, with 6 hours per day, totaling 30 hours, properly divided into theory and hands-on practical sessions.

Certification Policy:

- Certificate of Merit for all the workshop participants from SmartBridge.
- At the end of this workshop, a small competition will be organized among the participating students and winners will be awarded with a '**Certificate of Excellence**'.
- Certificate of Coordination for the coordinators of the campus workshops
- **Internship and placement also provide for selected student..**

Eligibility: It's a basic level workshop so there are no prerequisites. Anyone interested, can join this workshop.

Pre-Requisites:

- Seminar hall/classroom having sitting capacity of 200 students for conducting hands on session for all the participants.
- Good Quality public address system ideally one/two cordless mikes will be required.
- Projector/ Screen along with black/white board for teaching and presentation purposes.
- One small stereo jack cord to connect in laptop for its sound system.
- Laptop/Computer per two students is necessary.

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<https://spyprosecuritysolutions.com/>

EMAIL: info@spyprosecuritysolutions.com

PHONE: +918182881234

PHONE: +918182891234

LAND LINE NUMBER:0866-4617587

Address:100 Feet road backside, Madhapur, Hyderabad, Telanagana,500081