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J3 Batch

BTech Data Science Semester 4

The worldwide interest in WSN and IoT has increased a lot in the recent years. WSN and IoT are the two of the most researched areas in the last decade.

WSN can be distinct as a network of small devices, called sensor nodes, which are spatially dispersed and collaborating to transfer information from sources to sinks wirelessly

The collaborative nature of WSN and IoT has several advantages, including self-organization, flexibility, rapid deployment, and processing capacity.

However, it also has a lot of challenges, like hardware design, application design, communication protocols, scalability, heterogeneity, network coverage, energy conservation, communication link failures, decentralized management, QoS, security and privacy to name a few. A WSN and IoT technologies must address these challenges to realize the numerous envisioned applications and meet their requirements. Therefore, new methods and techniques are needed to overcome these challenges.

Artificial Intelligence (AI) is a modern science for discovering patterns and making predictions from data based on statistics, data mining, pattern recognition, and predictive analytics . Machine Learning, which relates to the AI field, is a process of development, analysis and implementation leading to establish a systematic process

Machine Learning, which relates to the AI field, is a process of development, analysis and implementation leading to establish a systematic process. It provides machines' capabilities to find solutions to complicated problems, by exploiting the Big Data

ML aims to resolve issues in the WSN and IoT fields, by allowing the learning created on the experience and building models centered on an algorithmic kernel

ML algorithms can be classified into supervised and unsupervised learning.

In a supervised learning model, the algorithm learns on a labeled dataset, providing an answer key that the algorithm can use to evaluate its accuracy on training data. An unsupervised model, in contrast, provides unlabeled data that the algorithm tries to make sense of by extracting features and patterns on its own.

The large scale deployment of IoTs especially in smart cities environment generate large amount of data. The present machine learning schemes are unable to cope with large amount of dynamic data in real time environment hence much data is wasted without information extraction. The large amount of unlabeled data can be mixed with small amount of labeled data for better convergence of machine learning schemes