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BTech Data Science - 2ND Year

**A SURVEY ON MACHINE LEARNING IN INTERNET OF THINGS : ALGORITHMS , STRATEGIES AND APPLICATIONS**

In the IoT era, a large number of connected objects and sensing devices are dedicated to collect, transfer, and generate a huge amount of data for a wide variety of fields and applications. The development of Artificial Intelligence (AI) has led to the emergence of Machine Learning (ML) which has become the key enabler to figuring out solutions and learning models to enhance the QoS parameters of IoT and WSNs. By learning from past experiences, ML techniques aim to resolve issues in the WSN and IoT's fields by building algorithmic models. IoT can be defined as a global network infrastructure composed of various connected devices that rely on communication, sensory, information processing technologies, and networking. Both these technologies offer numerous advantages over conventional networking solutions, such as reliability, accuracy, lower costs and flexibility.

By 2020, statistical results shows that the number of connected devices is expected to reach 50 billion. The increase in number of connected devices will enhance network coverage but on the other hand, it will also increase the size of collected data as well as computational complexity at the centralized base station. However, there are a few challenges like hardware design, application design, communication protocols, network coverage, energy conservation, communication link failures, QoS, security and privacy.

ML is a modern science for discovering patterns, making predictions and being able to give a decision from data based on statistics, data mining, pattern recognition and predictive analysis. This technology helps us to extract useful information from massive and varied data source without having to rely on a human and is highly suitable for complex and huge data sources. 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. In Supervised Learning, we regroup algorithms which lead to the generation of a function that maps inputs to desired outputs. In Unsupervised learning, we regroup algorithms which lead to models a set of unlabeled inputs. Whereas in Semi-supervised learning we regroup algorithms which lead to combining both labeled and unlabeled data to generate an appropriate function.