K-Nearest Neighbour Algorithm for Classification of IoT-Based Edge Computing Device

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Abstract

The world's population has boomed with the billions of connected devices in our households, towns, factories, hospitals, and so on. Limited-resource

applications communicate with the world and users. To evaluate meaningful behavior to execute specific predictions and make decisions, several of these technologies are built on machine learning (ML) procedures. Hence, the need to integrate intelligence using machine learning algorithms on end devices is important. Implementing machine learning on edge devices enhances and makes it possible to perform computations near to the data sources. Therefore, the objective of this investigation is to provide a method that guarantees the implementation of low-performance ML techniques on hardware in the Internet of Things model, creating means for IoT awareness. The study employed the use of the KNN ML algorithm for the implementation, and a confusion matrix in terms of accuracy was used to evaluate the system. The result of the experiment shows an 85% accuracy which outperformed other methods that have been suggested and compared within the literature. However, this study proves to be relevant and can be adopted for better efficiency in IoT and edge/cloud computing applications.

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