

Intelligent edge and 5G technologies for pervasive computing and communications

Smartphones, sensors, wearable devices, smart home products and connected devices have become a part of our daily lives. Mobile and pervasive computing are essential to deal with the rapid increase in the usage of embedded devices and the Internet of Things. 5G mobile networks are expected to revolutionize the entire world in the near future, and there are a lot of challenges and opportunities in 5G implementation. 5G mobile communication is fast and energy-efficient, which aims to support the billions of connected devices. Edge devices provide a lot of new opportunities in pervasive mobile computing applications. Intelligent edge computing has become popular in recent years due to increased bandwidth, low latency and smart decision-making capability. Integrating edge analytics with 5G mobile networks is critical for reliability and speed.

The special issue focuses on applying intelligent edge analytics and 5G technologies to pervasive computing and communication systems. The first paper, titled “A non-linear mathematical model-based routing protocol for WBAN based Healthcare Systems,” focuses on reducing energy consumption and maximizing the data transmission rate in WBANs. The second paper, “Hyperparameter Tuning of AdaBoost Algorithm for Social Spammer Identification,” proposes a hybrid modified whale optimization algorithm for spam profile detection. The proposed method reduces the server load by excluding complex features and retaining only lightweight features. The third paper, “Lifetime Ratio Improvement Technique Using Special Fixed Sensing Points in Wireless Sensor Networks,” aims to improve the lifetime ratio of wireless sensor networks by maintaining the battery level at the desired point for better network health. The fourth paper, “Heal Nodes Specification Improvement using Modified CHEF method for Group based Detection Point Network”, attempts to resolve the network lifetime problems during the communication of detection points over a period of time. It was developed to increase the lifetime ratio, throughput, residual energy and number of alive nodes.

In the fifth paper “Industrial IoT Enabled Fuzzy Logic Based Flame Image Processing for Rotary Kiln Control”, a fuzzy logic rule-based analysis is proposed to measure temperature using a burning flame image in which it considers red, green and blue (RGB) magnitude planes. In the sixth paper, “IoT Based Lung Cancer Detection Using Machine Learning and Cuckoo Search Optimization,” IoT-based lung cancer detection is proposed to access the lung CT images from any remote place and to provide high accuracy in image processing. The next paper, “Safety Driven Intelligent Autonomous Vehicles for Smart Cities using IoT” focuses on developing IoT-based intelligent and safe autonomous vehicles for deployment in smart cities. In the eighth paper, “RNN Based Multispectral Satellite Image Processing for Remote Sensing Applications”, a deep learning-based automated method is presented for classifying multispectral images. In the next paper, “Enhanced RSA key encryption application for metering data in Smart Grid”, the authentication of the smart metre data has been proposed with enhanced RSA key encryption using an efficient way of generating large prime numbers. This efficient generation of prime numbers can be successfully applied to the smart metre systems, thereby increasing the strength and speed of the key encryption. The final paper, “Design of Low Power SRAM Based Ubiquitous Sensors for Wireless Body Area Networks,” focuses on developing smart Ubiquitous



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