Guest editorial: Reliability and usability of machine learning and IoT for urban intelligence

Krishna Kant Singh¹ · Ahmed A. Elngar² · Ivan Izonin³

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Abstract

The special issue aims to cover the latest research topics in urban intelligence backed by machine learning and internet of things (IoT). It is intended to serve as a platform to researchers who want to present research in urban intelligence. The special issue focuses explicitly on the reliability and usability of machine learning and IoT in urban intelligence. It emphasizes on the extent to which machine learning and IoT can help specialists in developing technologies for urban intelligence. Urban development backed by information technology is one of the most significant building blocks of smart infrastructure. The increasing population worldwide requires the development of smart cities for making the infrastructure smart and optimized. A smart city requires technologically efficient systems to support transportation, safety systems as well as communication. Thus, to achieve a cost effective and self- sustainable system technologies like IoT combined with machine learning are being widely used. Therefore, in this special issue, the objective is to publish articles related to understanding the concepts of machine learning and IoT related to urban intelligence.

1 Overview of submissions

The special issue comprises of four articles in machine learning and IoT for urban intelligence. The articles cover the difference aspects of the field. Each article focusses on a different problem and presents the scope of research in the respective area.

Keserwani et al. presented a smart anomaly based intrusion detection system for IoT networks. The authors have proposed a system for the identification of various attacks for IoT networks. Meta-heuristic algorithms, grey wolf optimization (GWO) and particle swarm optimization (PSO) are utilized for feature extraction. The attacks are classified

based on these features using a random forest classifier. The proposed methods is applied on various datasets for performance evaluation and comparison with state of the art methods.

In the review by Goel et al., the various technologies and future opportunities of IoT are presented. The authors have presented the existing IoT technologies, protocols and applications. The article also provides a review of the prevailing IoT architecture in various fields. In addition, the future perspectives of IoT technologies are discussed.

In another article, an e-waste management system is proposed by Singh et al. The paper focusses on the problem of hazardous waste materials in urban areas. They have proposed an IoT and machine learning-based solution for managing the e-waste in urban areas. An IoT-based collection vendor machine is designed for collection and recycling of e-waste items. The solution will lead to the resolution of the problems associated with toxic elements present in e-waste items.

Goyal et al. presented an Ensemble-based intelligence algorithm for the analysis of HVAC data obtained from various sensors for a commercial building. The proposed technology will enable the development and designing of intelligent building integration system. The intelligent buildings comprise multiple services that work together. A single point for monitoring and controlling these services is used.

✉ Krishna Kant Singh
krishnaiitr2011@gmail.com

Ahmed A. Elngar
elngar_7@yahoo.co.uk

Ivan Izonin
ivanizonin@gmail.com

¹ Department of ECE, KIET Group of Institutions, Delhi-NCR, Ghaziabad, India

² Faculty of Computers and Artificial Intelligence, Beni-Suef University, Beni Suef 62511, Egypt

³ Lviv Polytechnic National University, Lviv, Ukraine

All the services will be managed and the load of HVAC systems will be controlled using the proposed system.

All these articles will significantly add to the existing body of knowledge in the field. The authors have laid a path towards the development of solution of more complex problem related to IoT and machine learning.

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