EDITORIAL

Editorial

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This second issue of the ninth volume of the Journal of Reliable Intelligent Environments brings eight articles in various technical areas.

We include six research papers:

A machine learning approach for investigating the impact of seasonal variation on physical composition of municipal solid waste—by O. Adeleke, S. Akinlabi, TC Jen, and I. Dunmade—proposes an adaptive neuro-fuzzy inference system (ANFIS) model—optimized with evolutionary algorithms, particle swarm optimization (PSO), and genetic algorithm (GA)—to investigate the effect of seasonal variation on the physical composition of solid waste for the city of Johannesburg. The robustness and the performance of the proposed model has been verified also under critical conditions.

Making distributed edge machine learning for resource-constrained communities and environments smarter: contexts and challenges—by HL Truong, TH Tram, and TD Cao—analyzes representative real-world business scenarios for edge ML solutions and their contexts in resource-constrained communities and environments. The authors also identify and map the critical contexts of distributed edge ML and discuss the impacts of these contexts on data, software components, deployment models, and perceived quality.

Data-driven model for the evaluation of the reliability of sensors and actuators used in IoT system architecture—by D. Aikhuele, H. Nwosu and D. Ighravwe—presents a hybrid failure mode and effect analysis (HFMEA) model, which is a proactive reliability tool proposed for the evaluation of the reliability of sensors and actuators used in the design of an IoT system architecture by prioritizing the system's failure modes.

Network intrusion detection based on deep learning method in internet of thing by S. Hosseini and SR Sardo, which describes a hybrid model of deep learning and shallow learning to detect intrusions in IoT devices. The proposed model using a spider monkey optimization feature selection algorithm seeks to select the most relevant features, then a Siamese neural network-based model is proposed to make data more classifiable.

SUIL: A modeling language for spatial user interaction—by K. Chaoui, S. Bouzidi-Hassini, and Y. Bellik—presents a spatial interaction modeling language called Spatial User Interaction Language (SUIL) for modeling and generating code of spatial interfaces.

A comprehensive study and performance analysis of deep neural network-based approaches in wind time-series forecasting—by M. Rahman et al.—presents a comprehensive review of deep neural network-based approaches, like the Nonlinear Autoregressive Exogenous Inputs, Nonlinear Input–Output, and Nonlinear AutoRegressive neural network models, in time-series forecasting applications. Then it applied Nonlinear Autoregressive Exogenous inputs based prediction models in wind-speed forecasting for short-term scheme. The meteorological parameters related to wind time-series have been analyzed and used for evaluating the performance of the proposed models.

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And two reviews:

A comprehensive survey on SDN security: threats, mitigations, and fu- ture directions—by Y. Maleh et al.—provides a review of the state-of-the-art research literature and a taxonomy that concerns main characteristics—

including those affecting the reliability and performability—of the SDN different layers.

Literature review and research direction towards channel estimation and hybrid pre-coding in mmWave massive MIMO communication systems—by C. V. Ravikumar et al.—reviews and evaluates different algorithms for both channel estimation and hybrid pre-coding in MIMO communication systems. Evaluation focuses on performance, security and reliability of the algorithms.

We hope these articles stimulate the community to produce further improvements in these areas.