

# Preface to JAISE 16(2)

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## 1. This issue

This regular issue of JAISE is composed of six articles. The review process for the manuscripts in this issue was supervised by our editors Lukas Esterle, Ehsan Adeli, Vincent Tam, and Anthony Fleury, whom we thank for their service. The first article in this issue has been selected as editor's choice article and has been made free to read.

**Building Information Modeling and affective occupancy evaluation: A scoping review** by José Luis Gómez-Sirvent et al., presents a scoping review to find information related to the use of Building Information Modeling (BIM) in their use to measure the well-being of the building occupants. Two ways of using BIM are highlighted: (i) visualization and monitoring of occupant well-being and (ii) showing building design alternatives to future occupants. The included papers show that BIM has potential for assessing the mental and emotional state of building occupants.

**Low-cost IoT-enabled indoor air quality monitoring systems: A systematic review** by João Peixe et al., examines indoor air given its importance for health and a survey of Internet of Things (IoT) based solutions is performed. The survey shed light on data storage and data consulting strategies prevalent in the work reported in the literature as well as existing challenges.

**Wavelet-based temporal models of human activity for anomaly detection in smart robot-assisted environments** by Manuel Fernandez-Carmona et al., focuses on the analysis of human activity patterns and detection of deviations from expected behaviour through the use of Hybrid Markov Logic Networks. The working of the proposed system is illustrated by applying the method to two datasets related to office and domestic environments with the intention to measure level of activity within those spaces. The experimental results explore the difficulties of deployment of such systems in smart environments including comparison with various algorithms and robot integrated services.

**Design and implementation of hybrid low power wide area network architecture for IoT applications** by B. Shilpa et al., considers the challenges on IoT networks adoption, including interoperability between different network systems. The proposed system design enhancement is illustrated through smart street light controlling system implemented as a real-world deployment at a university campus to showcase the efficiency of the hybrid network. This work illustrates how the hybrid LPWAN architecture can provide a better coverage and capacity while consuming less power than that of the LoRa or Wi-SUN network.

**Imbalance-learning road crash assessment under reduced visibility settings: A proactive multicriteria decision-making system** by Zouhair Elamrani Abou El Assad et al., analyses the important practical problem of road crash prediction which is a fundamental contribution and expectation from intelligent transportation systems. More specifically this work focuses on reduced-visibility scenarios and considers a heuristic ensemble system as a core aspect of the strategy. This work considers real-time roadway properties, land zones characteristics, vehicle telemetry, driver inputs and weather conditions. Results are collected using a desktop driving simulator. There is also an analysis of ensemble-based imbalance-learning strategy to address data scarcity typical of datasets in this domain.

**A UAV deployment strategy based on a probabilistic data coverage model for mobile CrowdSensing applications** by Michele Girolami et al., considers Mobile CrowdSensing and complements more common ways to obtain data on crowd location with the use of unmanned aerial vehicles (UAV) as mobile sensors gathering data from not so well covered locations. It presents a probabilistic model designed to measure the coverage of a location. Performance of StationPositioning is compared with the ratio of the covered locations against other well-known algorithms. Experimental results show that StationPositioning is able to optimize the selected target location for a number of UAV stations with a maximum covered ratio up to 60%.

## **2. Upcoming issues**

The following is a list of upcoming issues of JAISE:

- September 2024: Thematic Issue on “Sensing, Decision-Making and Economic Impact for Next-Generation Technologies”.
- December 2024: Regular Issue.
- March 2025: Regular Issue.

More information on the call for papers to the future issues is available on the webpage of JAISE at: <https://www.iospress.com/journal-of-ambient-intelligence-and-smart-environments>