

Foreword and Editorial

International Journal of Reliable Information and Assurance

We are very happy to publish this issue of an International Journal of Reliable Information and Assurance by Global Vision Press.

This issue contains 4 articles. Achieving such a high quality of papers would have been impossible without the huge work that was undertaken by the Editorial Board members and External Reviewers. We take this opportunity to thank them for their great support and cooperation.

The research paper “A Performance Model of Controller Area Networks for Vehicles under Unsaturated Traffic” proposes a performance model of controller area networks (CAN) to measure the effect of bit- error, especially on an identifier field of CAN messages over erroneous channels. CAN were introduced to allow various devices embedded inside cars to communicate in real-time over a shared channel. For resolving collisions in a real-time way, CAN adopt a contention-free protocol, namely a bit-map algorithm where messages are bitwise arbitrated based on their priority, precisely the identifier in CAN’s messages when multiple nodes contend for the shared channel. Contamination on the identifier, therefore, can severely degrade the performance of CAN since all senders recognizing errors immediately terminate their transmission and wait for a certain amount of time to resume competition. Furthermore, when the number of errors experienced exceeds the predetermined threshold, CAN stays at the bus-off mode where no messages are sent, requiring outside intervention to be back to the normal operational mode. To predict the performance deterioration of CAN over noisy channels, this paper builds a Markov chain model of CAN.

The paper “Resource Management for Reliable IoT Environments” explored that Sensor network consists of a large number of sensor nodes that combine physical sensing capabilities with networking capabilities. The objective of this research is to introduce the base architectures of IoT sensor network, fog computing and edge computing technology. In this paper, a new approach of handling IoT data is proposed for efficient data service in IoT environment. Proposed scheme can transmit compressed sensor data by reducing overhead in advance through column-based data compression.

In the research paper “Experiments on Detecting Fake News over Social Media using Machine Learning Algorithms”, spreading fake news has become a serious issue in the current social media world. It is broadcasted with dishonest intentions to mislead people. This has caused many unfortunate incidents in different countries. The most recent one was the latest presidential elections where the voters were misleading to support a leader. Twitter is a popular social media platform where it represents the gateway for real time news. We extracted real time data on multiple domains through twitter and performed analysis. The dataset was preprocessed and user verified column played a vital role. Multiple machine algorithms were then performed on the extracted features from preprocessed dataset. Logistic Regression and Support Vector Machine had promising results with both above 92% accuracy. Naive Bayes and Long-Short Term memory didn’t achieve desired accuracies. The model can also be applied to images and videos for better detection of fake news.

In the paper “Protocol, Security Issues and Challenges in Mobile Ad Hoc Networks: An Extensive Review”, an overview of secure specially appointed steering conventions for remote systems was presented. Impromptu system is a gathering of hubs that is associated through a remote medium framing quickly evolving topologies. Assaults on specially appointed system steering conventions disturb organize execution and unwavering quality with their arrangement. They quickly exhibit the most well-known conventions that take after the table-driven and the source-started on-request approaches. The association flanked by the proposed arrangements and parameters of specially appointed system demonstrates the execution as indicated by secure conventions. They talk about in this paper directing convention and challenges and furthermore examine verification in specially appointed system.

June 2020

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International Journal of Reliable Information and Assurance**