Foreword and Editorial

International Journal of Multimedia and Ubiquitous Engineering

We are very happy to publish this issue of International Journal of Multimedia and Ubiquitous Engineering by Science and Engineering Research Support soCiety.

This issue contains 5 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.

In this work "A Comparative Analysis of Single-Hop and Multi-hop transmission using EERDT Protocol in Mobile and Critical Scenario for WBAN", an energy efficient and reliable data delivery protocol is proposed while considering the fact of nodes mobility and critical time when data needs to be reported. As human body changes its posture, the node's position will also get changed. To avoid path loss in this situation direct routing technique *i.e.* nodes will directly transfer the data to base station is used. Direct routing will reduce packet collisions as well as packet loss at sink with the help of TDMA scheduling. Proposed routing technique enhances packet delivery and network lifetime.

In this paper "Adaptive Clustering in Wireless Sensor Networks", an adaptive clustering algorithm for wireless sensor networks has been proposed. The proposed clustering algorithm ensures the formation of uniform clusters within square sensing field size. Temporal and spatial correlations among data values are exploited to form the clusters.

The paper "A Stackelberg Game Spectrum Sensing Scheme with Malicious Users in Cooperative Cognitive Radio Networks" aiming at solving the problem of the spectrum sensing data falsification attack in cognitive radio networks, a novel spectrum sensing scheme with malicious users that reports the presence of primary user with certain probability, in which Stackelberg game is adopted to improve the sensing performance. Considered as leaders, users with acceptable reliability will share their sensing observations with the ones experiencing malicious and fading channel conditions. According to the reliability difference between the malicious users and other users, the proposed scheme can indentify malicious users easily. The performance of the Stackelberg game scheme is investigated and compared with schemes which don't employ Stackelberg game. It proves the benefits of the proposed scheme.

The research objective of this research "Procedural Content Generation for Dynamic Level Design and Difficulty in a 2D Game Using UNITY" was to develop a true PCG-based game where the content of the game is generated in real-time. The PCG component is not merely a part of the game but the central mechanic of the game, without which the game could not exist at all. It proposed an approach that uses pseudorandom generators to assign coordinates on the game world and a form to determine if an entity is already placed on the coordinate and how and when to remove entities on the game world. With our approach of blending procedural content generation with dynamic difficulty adjustment, it has not only demonstrated it can develop a game with an infinite level capability using the smallest amount of disk space but we can also tailor it to the strength of the gamer by ensuring each level is not only unique in design but in player experience and satisfaction as well.

This paper "Random Projection for Linear Twin Support Vector Machine", proposes a novel algorithm, named random projection for twin support vector machine (RP-TSVM), which inherits the high precision and fast solving speed of TSVM bounded with high efficiency and data-independent property of RP. We give two proofs on the geometry of TSVM under random projection. The first is that the sum of squared distances from the hyper-plane to points of one class in TSVM is almost unchanged with high probability, which insure the accuracy of RP-TSVM. The second is that the minimum enclosing ball in the feature space is preserved to within ε - relative error, ensuring comparable generalization as in the original space. Numerical experiments demonstrate the theoretical discoveries.

September 2017

Sabah Mohammed, Lakehead University, Canada

Editors of the September Issue on
International Journal of Multimedia and Ubiquitous Engineering