

## Guest Editorial Preface

# Special Issue on Emerging Technologies and Systems for Collaboration

V. Vinoth Kumar, MVJ College of Engineering, India

David Asirvatham, Taylor's University, Malaysia

Biplab Sikdar, National University of Singapore, Singapore

With the rapid development of web technologies, pervasive and ubiquitous computing systems, distributed computing systems, and the availability of massive amounts of data have been changing the field of computer supported collaboration, particularly with the emergence of new capabilities and forms of collaboration, as well as new challenges and issues. It invites contributions aimed at a wide range of topics such as clouds, social networks, e-learning, e-business, e-health, knowledge management, cyber security, mobile clients, Web 3.0, virtual environments, visualization, ubiquitous collaboration, and socio-technical collaboration issues that will provide a big picture of present and future trends in computer systems.

This special issue on “Emerging Technologies and Systems for collaboration” of the International Journal of e-Collaboration (IJeC) contains six manuscripts which are an excellent work in the area of collaborative filtering, Stock market prediction system, Internet of Things, Security systems and different collaborative technologies. The accepted manuscripts presented a different perspective of solving real-world problems and provide directions for various approaches, principles, applications and the implementation of Emerging Technologies and Systems for collaboration. Each published manuscript has undergone full double-blind peer review, prior to being selected for this special issue. All submitted articles are thoroughly evaluated for novelty and quality.

In the first article, “Three-Dimensional Submarine to Submarine Passive Target Tracking in Presence of Non-Gaussian Noises,” explores challenges of three-dimensional target tracking in underwater surveillance. The authors proposed angles measurement by hull mounted sensors and considered to appraise the target motion parameter. Due to noise in measurements and nonlinearity of the system it is very hard to find out the target location. The researchers carried out this work (target tracking) in Gaussian noise environment whereas in this paper same work is carried out for non-Gaussian noise environment. The performance evaluation of the filters using Monte-Carlo Simulation and Cramer-Rao lower bound (CRLB) is accomplished and the results are analyzed.

Authors of the second article, “Public Key Encryption With Equality Test for Industrial Internet of Things Based on Near-Ring,” applied to organizations have moved from the conventional industries to smart industries by embracing the approach of Industrial Internet of Things (IIoT), which has provided an avenue for the integration of smart devices and communication technologies. The authors present a Public Key Encryption with Equality Test based on DLP with decomposition problems over near-ring. The proposed method is highly secure, and it solves the problem of quantum algorithm attacks in Industrial Internet of Thing systems.

In the third article, “Measure of Nonlinearity With Application to Bearings-Only Target Tracking,” the authors identifies Measure of Nonlinearity (MoN), it is tried to find out the magnitude of

nonlinearity for passive target tracking with bearings-only measurements in underwater environment. The method derived to measure the nonlinearity is completely based on the state covariance matrices of the filters. It is tried to find out the allowable magnitude of nonlinearity in terms of MoN with which a filter can perform to estimate the target motion parameters with required accuracy. In this paper, MoN values for different filters are computed for different scenarios.

Fourth paper, titled “Crime Prediction Using Twitter Data,” explores that social media platforms are being increasingly used across the world and many prospects to using the data for prediction and analysis. This makes Twitter the ultimate source to use the data as an augmentation for the decision support systems. Once the relevant tweets are identified, topic modelling is applied to find out the major crimes in the different beats of Chicago. Kernel Density Estimation (KDE) is applied to traditional data. The result of this and topic modelling are used to predict the crime count for each beat using logistic regression.

In the fifth article, “Communal Fraud Detection Algorithm for Establishing Identity Thefts in Online Shopping,” the author’s present research on E-commerce sector and gaining popularity as well as expressing progressive growth. Due to increasing the demand of automation process and the reach of internet towards the end-users have poised this trust. In spite of the technology advancements, the privacy and security of e-commerce merchant as well as consumer data is constantly under threat. Identity theft, which is considered as more important security problems for end-users, is addressed by One Time Password generated instantly.

Finally, in the last article, “Collaborative Filtering-Based Recommendation System Using Time Decay Model,” the authors proposed Online collaborative movie recommendation system attempts to help customers of accessing their favourable movies by gathering exactly comparable neighbours between the movies from their chronological identical ratings. Collaborative filtering based movie recommendation systems require viewer-specific data and the need for collecting viewer-specific data diminishes the effectiveness of the recommendation.

We would like to extend our thanks to all the authors who have contributed their research results that will definitely a great help or a resource for other researchers working in this area. Special thanks to Dr. Jingyuan Zhao, the Chief Editor of the journal for providing all necessary support required from manuscript submission to its final acceptance. At last but not the least, thanks to Ms. Alexis Miller, assistant development editor, IGI Global, as the work would not have reached to its present form without her invaluable help.

*V. Vinoth Kumar*  
*David Asirvatham*  
*Biplab Sikdar*  
*Guest Editors*  
*IJeC*