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## Preface

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**Biographical notes:** Alireza Souri received his PhD in Computer Engineering from the Azad University, Iran. He is currently an Associate Professor in the Haliç University, Istanbul, Turkey, and collaborates as Research Fellow at School of Electrical and Electronics Engineering, Shandong University of Technology, Zibo, China. He has authored/co-authored more than 85 scientific articles and conference papers in established journals. Also, he is an associate editor of *Human-Centric Computing and Information Sciences*, *Cluster Computing*, *Connection Science*, *IET Communications*, *Journal of High Speed Networks*, and *Network Modelling Analysis in Health Informatics and Bioinformatics*.

Amir Masoud Rahmani received his BS in Computer Engineering from the Amir Kabir University, Tehran, in 1996, MS in Computer Engineering from Sharif University of Technology, Tehran, and PhD in Computer Engineering from IAU University, Tehran, Iran. Currently, he is a Professor in the Department of Computer Engineering. He is an author/co-author of more than 400 publications in technical journals and conferences. His research interests are in distributed systems, the internet of things and evolutionary computing.

Shanmuganathan Vimal is working as an Associate Professor in the Department of Artificial Intelligence and Data Science, Ramco Institute of Technology, Tamil Nadu, India. He is EMC Certified Data Science Associate and CCNA certified professional too. He holds a PhD in Information and Communication Engineering from the Anna University, Chennai. His areas of interest include game modelling, artificial intelligence, cognitive radio networks, network security, machine learning and big data analytics. He is a senior member in the IEEE, and has hosted 22 special issues in IEE, Elsevier, Springer, Wiley and CMC tech science journals. He has served as a guest editor for SCI journals, edited three books in Scopus indexed and also hosted three international conferences indexed by Scopus.

## 1 Introduction

Today, machine learning methods are used to evaluate prediction aspects on big data and information systems such as embedded systems and high performance computing. Energy-efficient strategies are one of the important challenges for reducing power consumption and saving battery life of sensors and smart devices in embedded and computing systems. Machine learning algorithms and meta-heuristic methods can be applied to optimise these strategies for enhancing energy efficiency, security and privacy of high performance computing systems. This special issue presents machine learning methods and evolutionary algorithms for optimising resource management approaches, communication problems and embedded services in smart environments.

## 2 Published papers in this issue

In this special issue, 27 papers were submitted, and after peer review, ten research studies have been accepted for publication in *IJES*.

In the following articles, 'Computer embedded automatic test system based on VxWorks', 'Virtual sports rehabilitation and monitoring system for the elderly based on intelligent interaction and embedded system', 'Digital medical instrument based on embedded computer system' and 'Embedded system for mobile interconnection control

system of sports training cyclists', the authors have presented a new machine learning algorithm to evaluate accuracy and prediction approaches of embedded systems. Execution time, accuracy and precision are important factors that the authors have evaluated.

On the other hand, 'National cybersecurity: assessment, risks and trends', 'Development of methods formalisation subject technology design of multimedia edition', 'Physical fitness evaluation system for athlete selection based on big data technology', 'Beidou GPS SINS satellite positioning system based on embedded operating system', 'A simple measurement matrix for compressed sensing of synthetic aperture ultrasound imaging' and 'Data mining in college student education management information system' are articles in which the authors have used existing data mining methods for image processing, energy-efficient algorithms, security-aware scenarios and big data environments for computing systems.

## 3 Conclusions

This special issue presents existing peer reviewed technical articles that present novel perspectives and technical aspects of energy efficient with high performance evaluation for embedded and computing systems using machine learning algorithms. We are grateful for the support of Editor-in-Chief Prof. Li for this scientific effort.