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## Editorial

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**Biographical notes:** V. Vinoth Kumar is an Associate Professor at the Department of Computer Science, MVJ College of Engineering, India. His current research interests include big data analytics, Internet of Things, machine learning and wireless networks. He is the author/co-author of papers in international journals and conferences, including SCI-indexed papers. He has published as over than 35 papers in IEEE Access, Springer, Elsevier, IGI Global, Emerald, etc. He has co-chaired major Conferences Program Committees such as: ICACB'18, ICAIIS'19, etc. He has filed 3 IPR patents in IoT applications and currently working on funded project to CSIR and ISRO.

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K.S. Arvind is working with MVJ College of Engineering as an Associate Professor. He completed his undergraduate in Computer Science and Engineering at Pondicherry University, India. He received his postgraduate in Computer Science and Engineering at Anna University, Chennai, India. He had completed a PhD in Computer Science and Engineering at Anna University, Chennai, India, from 2006–2007. Currently, He is the author of many articles published in international and national. He also holds memberships in IEEE, IACSIT, and CSTA. His areas of interest include cloud security and privacy.

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## 1 Introduction

This special issue brings together papers focusing on a wide range of topics relevant to the research and understanding of current developments in systems of systems and systems engineering concepts. The special issue includes a selection of expanded papers submitted in the call for papers titled “ICAIIIS 2020 Advances in Technology Innovations and Systems Engineering”.

The theme of this special issue is “Advances in technology innovations and systems engineering”. Recent developments in emerging technologies such as the Internet of Things (IoT), machine learning, machine vision, reconfigurable engineering, and blockchain technologies (Katina et al., 2019) have enabled new applications and services to be developed and deployed in the areas of computer and systems engineering – there remains a need and opportunity to expand these concepts into ‘system of systems’ engineering. These emerging technologies offer unprecedented opportunities for solving problems in diverse applications for industry, health, agriculture, defence, and the environment. For example, while bridges and automation systems have the capacity to build smart structures augmented with intelligent sensors and smart decision making to reduce costs and maintenance, the realisation remains within reach.

## 2 The contents of the special issue

The first paper, by Sathish Kumar and Iyapparaja focuses on ‘Fog and edge computing simulators systems: research challenges and an overview’.

The second paper, by Niveditha et al. focuses on ‘Effective prediction of bitcoin price using wolf search algorithm and bidirectional LSTM on internet of things data’.

The third paper, by Mallikarjuna et al. discusses ‘An efficient vote casting system with Aadhar verification through blockchain’.

The fourth paper, by Basha et al. focuses on ‘Design of energy and EDP efficient 1-bit full subtractor based divider circuits for computing systems’.

The fifth paper, by Sowmiya and Kalaiselvi on ‘Modelling higher education environment based on knowledge system transfer between instructor and learners using genetic algorithm’.

The sixth paper, by Ishwarappa and Anuradha focuses on ‘An empirical hybrid DBN-EL system model for stock market prediction with big data’.

The seventh paper, by Sreeram et al. focuses on ‘Quantify and alleviate oAuth approach token system exploiting by conspiracy lattice’.

The eighth paper, by Naga Chandrika and Srinivasa Reddy discusses ‘Graph classification system using normalised graph convolutional networks’.

The ninth paper, by Gayathri Devi and K. Manikandan focuses on ‘Performance analysis of hybrid classification system model for big data stream using internet of things’.

The tenth paper, by Premson and Sakthivel discusses ‘VLSI system architecture optimisation for DLMS adaptive filter using PPG based multiplier’.

The eleventh paper, by Priya et al. focuses on ‘Queueing network model with jockeying to reduce the waiting time in the airport’.

The twelfth paper, by Chawla and Ahlawat discusses ‘Resolving software interoperability issues of unsigned number and date-time precision using JADE framework system’.

The thirteenth paper, by Sujatha and Raj focuses on ‘Challenges in implementing video deduplication in cloud storage system’.

The fourteenth paper, by Hemavathi et al. focuses on ‘Analysis of text classification methods with large volume of tweets using deep learning’.

The fifteenth paper, by Mukherjee et al. focuses on ‘A novel IPSO technique for path navigation and obstacle avoidance’.

This special issue focused on high-quality research topics including:

- sustainable development of systems integration, e.g., smart city, retail, logistics, healthcare, transportation, utilities, etc.
- development of automated vehicles for Metropolitan transportation system
- intelligent decision support systems, prediction systems and warning systems
- current developments of supercomputers, agent-based models and data warehousing, system development for ecological change and large-scale logistic systems
- privacy and security issues in the convergence of AI and IoT, ML/DL based algorithm and solutions for complex systems
- critical infrastructures operations on cloud computing systems
- new risks and vulnerabilities for computational intelligence systems
- emerging hardware architectures for IoT and big data, blockchain for data security and privacy.

In this limited set of papers, we can see the limitations of current methods and tools. These limitations present challenges and opportunities for the development of robust methods and tools to address challenges in technology and engineering systems.

## **Acknowledgements**

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## **Reference**

- Katina, P.F., Keating, C.B, Sisti, J.A. and Gheorghe, A.V. (2019) 'Blockchain governance', *International Journal of Critical Infrastructures*, Vol. 15, No. 2, p.121, <https://doi.org/10.1504/IJCIS.2019.098835>