

## Tentative Outline

### Special Thematic Issue for the journal Recent Advances in Computer Science and Communications

**Title of the Thematic Issue: “Cloud, Edge, Fog and IOT: Towards the Computing Continuum”**

*Guest Editor: Dr. Prateek Agrawal*

#### **Scope of the Thematic Issue:**

As per the Statista data, we are living in a world having more than 30 Billion IoT active devices. Managing this massive flooding of collected data from each device is a major challenge. The Computing Continuum (CC) extends the high-performance cloud data centers with energy-efficient and low-latency devices. These devices are close to the data sources located at the edge of the network. However, the heterogeneity of the CC raises multiple challenges related to application and data management. These include (i) how to efficiently provision compute and storage resources across multiple control domains across the CC, (ii) how to decompose and schedule an application, and (iii) where to store an application source and the related data. To support these decisions, we can explore novel approaches for (i) resource characterization and provisioning with detailed performance, mobility, and carbon footprint analysis, (ii) application and data decomposition with increased reliability, and (iii) optimization of application storage repositories.

To reduce the data being sent to the cloud, supports for new applications (like smart cities, e-health, multimedia streaming etc.), faster response times of applications, to reduce CO2 emission, and to improve the data security; several approaches for resource characterization, resource provisioning, mobility prediction, infrastructure deployment and application scheduling across the CC. Latency to reach the cloud data centers can be very high. Executing applications physically closer to the data sources can improve their performance. The utilization of the CC supports the emerging IoT systems. Heterogeneity of devices application domain, data management and distribution are primary objectives to work with CC.

This special issue on “Cloud, edge, fog and IoT: towards the computing continuum” invites innovative work, the solution and research ideas based on the challenges and the limitations in the domain of computing continuum.

**Keywords:** Computing Continuum, IoT active devices, Cloud, edge, fog, heterogeneity, infrastructure deployment.

#### **Sub-topics:**

- Data security in IoT devices
- IoT: Knowledge management, Rules, Semantics and Ontologies
- Architectures of IoT services
- Video streaming data processing
- E-healthcare data processing
- Deep learning for data provisioning
- IoT and Smart house
- Smart city using AI
- Effective computing: Image based data analytics
- Augmented reality
- Smart farming
- Intelligent transportation system
- Web services
- Virtual machine images

- Cloud, edge and fog computing
- Edge Intelligence: Design and Applications
- Edge gateway: Real time analytics
- Internet of everything

#### **Tentative titles of the articles:**

- AI enabled methods for efficient data processing and monitoring
- Secured big data transfer model in decentralized systems
- Where to use Cloud, Edge and Fog computing
- Experimental Study of SaaS, PaaS and their Contribution in Cloud Computing
- Ontology based student behavior monitoring system
- Intelligent healthcare system to monitor the Ayurveda doshas
- Cloud enabled block chain based monitoring system for logistic industries
- Efficient Virtual machine imaging in secured environment using Federated learning
- Cloud enabled high performance data processing
- Decentralized secure authentication in Industrial IOT
- IOT enabled crop monitoring system to increase the produce
- A review on Smart city and industrial IOT

#### **Schedule:**

- ✧ Thematic issue submission deadline: 30 September 2022
- ✧ Review Notification: 15 November 2022
- ✧ Revised paper submission deadline: 15 Dec 2022
- ✧ Final notification: 15 Jan 2023

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