

## Call for papers in Special Session

### **Track 5: Artificial Intelligence of Things (AIoT)**

Title: Enabling Technologies for AIoT

AIoT, an acronym for Artificial Intelligence of Things, signifies a pivotal evolution in the realm of technology. It embodies the fusion of two transformative forces: Artificial Intelligence (AI) and the Internet of Things (IoT). At its core, AIoT involves embedding AI capabilities into IoT devices and systems, enabling them to not only collect and transmit data but also to process, analyze, and act upon that data in real-time. In the AIoT ecosystem, IoT devices serve as the sensory organs, gathering an immense stream of data from the physical world. This data, encompassing everything from environmental conditions and user behavior to machine statuses and beyond, is then fed into AI algorithms. These algorithms, ranging from machine learning models to neural networks, process the data to unearth patterns, correlations, and insights that would be otherwise challenging for human analysis.

The ramifications of AIoT are far-reaching. Industries like manufacturing benefit from predictive maintenance, as AIoT systems can predict equipment failures before they occur, minimizing downtime. Agriculture becomes more efficient through precision farming, where AIoT devices monitor soil conditions, weather patterns, and crop health to optimize yields. In healthcare, wearable devices seamlessly monitor vital signs and can issue alerts for anomalies, thereby enhancing patient care. The AIoT synergy extends to smart cities, where interconnected devices and AI-driven analytics enhance urban planning, traffic management, and resource allocation. Consumers experience personalized convenience through AIoT-powered smart homes that adjust temperature, lighting, and security based on user preferences and behavioral patterns. As AIoT evolves, challenges emerge, such as data security, privacy concerns, and the need for robust AI models that can handle the complexities of diverse IoT data streams. Addressing these challenges will be crucial to fully realizing the potential of AIoT and harnessing its transformative power to reshape industries, amplify efficiencies, and forge a more interconnected and intelligent world.

We are looking for original submission for this special session in track 5. This session will be majorly focused on Enabling technologies for AIoT and future advances. Following are the expected topics for this session:

- AIoT Applications and Case Studies
- Sensor Networks and Data collection
- Edge and Fog Computing in AIoT
- Machine Learning and Deep Learning for IoT
- AI-driven Analytics and Decision-making
- Security and Privacy in AIoT
- Communication Protocols and Network Architectures
- Federated learning techniques in AIoT
- Explainable AI and Generative AI for IoT

## **Session Chairs:**

### **Dr Gaurav Singal**

Gaurav Singal (Senior Member, IEEE) received the Ph.D. and M.Tech. degrees from the Computer Science Engineering Department, Malaviya National Institute of Technology Jaipur, Jaipur, India. He is currently an Assistant Professor with the Computer Science and Engineering Department, Netaji Subhas University of Technology, (formerly known as NSIT), Delhi, India. He received the research grants from the Department of Science and Technology, Uttar Pradesh on women security and Department of Biotechnology (Govt. of India) on assistive devices. He is actively working in research and teaching from last ten years and published in number of reputed conferences and journals. He is a member of scientific society such as IEEE, ACM.

### **Dr Chhagan Lal**

Chhagan Lal received the Ph.D. degree in computer science and engineering from the Malaviya National Institute of Technology, Jaipur, India, in 2014. He was a Research Fellow with Simula Research Laboratories, Oslo, Norway. Before joining Simula, he was a Postdoctoral Fellow with the Department of Mathematics, University of Padova (UNIPD), Italy (<https://spritz.math.unipd.it/team.html>). He is currently a Researcher with the CyberSecurity Laboratories, Department of Intelligent Systems, Faculty of EEMCS, TU Delft, The Netherlands. During the Ph.D. degree, he was awarded the Canadian Commonwealth Scholarship under the Canadian Commonwealth Scholarship Program to work with the University of Saskatchewan, Saskatoon, SK, Canada. He has wide experience in proposal preparation and execution of EU H2020 projects. His research interests include various aspects of systems and network security and traffic engineering in next-generation networks, such as network security, blockchain technologies and smart contracts, and solutions for secure and reliable communication in networks, such as the IoT, SDN, VANETs, and ICN. He is an active member of the Security and Privacy Through Zeal (SPRITZ) Research Group, which is led by Prof. Mauro Conti.