7th International Conference on Information Management and Machine Intelligence (ICIMMI-2025)

Poornima Institute of Engineering & Technology Dec 15-16, 2025

Kindly Visit Link for details: https://icimmi.poornima.org

Special Session: Distributed Machine Learning in Edge-IoT Systems - Architectures and Applications

Session Chair: Dr. T. Poongodi
Email: tpoongodi2730@gmail.com
Mobile: 9942099785

Session Co- Chair: Dr. M. Kiruthika
E-mail: kiruthikats@gmail.com
Mobile: 9894240046

Session Co- Chair: Dr. D. Sumathi
E-mail: sumathi.research28@gmail.com
Mobile: 7674067233

Motivation and objective of the special session

Integration of Edge Computing and Internet of Things (IoT) has given way to the development of many intelligent devices that are capable to operate in real-time environment. Nonetheless to say, edge IoT devices generate huge amount of data that are distributed widely. In order to make use of these data, Distributed Machine Learning (DML), also known as Federated learning plays a sound role. The collected data are widely used for building responsible and smart decentralized systems. Convergence of IoT and edge computing has made a paradigm shift in collecting and utilizing the time-sensitive data. Distributed machine learning allows the model training and inference to occur in these edge devices itself, thereby reducing bandwidth and latency. This also reduces the dependency on centralized infrastructure for training and processing data. Another major advantage in using DML model is that it improves data security and privacy to a great extent as raw data is not getting transferred to any centralized systems.

Although there are numerous benefits in deploying DML model in edge-IoT devices, there are few challenges that have to be addressed. DML need to ensure that model training across heterogenous environments is carried out effectively as training happens in a resource constrained environment. It must also ensure privacy preservation and effective implementation of aggregation methods. Adaptation to real-world edge-IoT environment requires extensive research and exploration. This session focuses on the design and implementation of federated learning algorithms, DML architectures and aggregation algorithms that are applied to smart environments such as military, smart cities, healthcare, industrial IoT, agriculture, and smart manufacturing.

The papers are invited in the following broad areas, but not limited to

1. Federated learning in edge-IoT devices
2. Split learning for low-power resource-constrained IoT devices
3. Resource-efficient distributed model training algorithms
4. Model compression and pruning techniques for edge deployment
5. Privacy-preserving and secure aggregation frameworks
6. Fault-tolerant DML in dynamic IoT networks

7. Edge computing technologies for distributed IoT healthcare systems
8. Edge AI for industrial IoT applications
9. Artificial Intelligence of Things for distributed environment
10. Edge machine learning for AIoT devices
11. IoT-edge-cloud continuum for distributed real time applications
12. Visual AI for Intelligent IoT systems
13. Energy-efficient training algorithms for autonomous IoT devices
14. Communication-efficient model updates in distributed computing
15. Security and privacy algorithms for efficient distributed communication

PUBLICATION

The conference aims at carrying out double blind review process. The papers submitted by the authors will be assessed on the basis of their technical suitability, scope of work, plagiarism, novelty, clarity, completeness, relevance, significance and research contribution.

DEADLINE TO REMEMBER

Submission	**July 31, 2025**	**Acceptance**	**Aug 30, 2025**
Camera Ready Submission	**Oct 30, 2025**	**Registration (for inclusion of Paper in Proceedings)**	**Sep 30, 2025**

For any other query please visit our conference website https://icimmi.poornima.org or write us back at :icimmi@poornima.org