



ComSIA-2025

International Conference on Computing Systems and Intelligent Applications

*Organized by School of Open Learning, University of Delhi & Shaheed Rajguru
College of Applied Sciences for Women, University of Delhi
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******* CALL FOR PAPERS *******

SPECIAL SESSION ON

Distributed Computing and AI for Scalable Applications

SESSION ORGANIZERS:

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EDITORIAL BOARD: (Optional)

[Name, University or Organization, Country, e-mail]

SESSION DESCRIPTION:

Special Session. Distributed Computing and AI for Scalable Applications. The distributed computing framework and its intersection with AI technologies to be used against the backdrop of urgent need in various sectors for scalable and efficient applications. With the increasing complexity and scope of applications based on AI, traditional computing models are incapable of effectively handling large amounts of data, real-time processing, and resource optimization. Thus, this session is focused on making clear the difference distributive systems play in achieving high scalability and performance in AI models, especially concerning the role of cloud, edge, and parallel computing.

Core topics of interests are DAI architectures, federated learning, AI-based resource scheduling, and AI-edge computing for low-latency applications. Challenges on security, fault-tolerant, and energy-efficient distributed AI systems also come within the scope of discussion.

This session hopes to bring together researchers, practitioners, and industry experts discussing the current state of the art and challenges in scaling up AI applications using distributed computing. It will give insights into cutting-edge solutions for real-world applications in sectors like healthcare, autonomous systems, IoT, and finance, thus making it a point of interest for anyone interested in the future of AI-driven, large-scale computing systems.

RECOMMENDED TOPICS:

Topics to be discussed in this special session include (but are not limited to) the following:

1. Distributed AI Architectures

Develop AI models to design for distributed and parallel computing environments.

2. Federated Learning and Privacy Preserving AI

Federated learning frameworks for decentralized model training, keeping special attention on issues of privacy and security.

3. Edge Computing and Distributed AI

Edge computing towards low latency, scalable AI applications.

4. Cloud Computing for Scalable AI

Scalable AI Models and Services using the Cloud.

Distributed Data Processing of Large Scale for AI

Techniques and frameworks, such as Apache Spark, Hadoop, about processing large data collections in AI applications.

6. Resource Scheduling using AIDriven Resource Scheduling in Distributed Systems

Optimization of resource allocation and scheduling to support efficient training and deployment of AI models.

7. Parallel Computing for Deep Learning and AI Models.

Techniques for parallelizing deep learning models, in ensuring efficiency of training based on infrastructures that are in distribution.

8. AI for Distributed Sensor Networks

Distributed AI applications in sensor networks: processing data in real time and decision making.

9. Blockchain for Decentralised AI Applications

Utilization of blockchain technology to further enable decentralized applications, secure, and AIdriven applications on distributed networks.

10. Containerization and AI Deployment in Distributed Systems

Kubernetes and Docker for distributed scalable AI model deployment.

11. Distributed Reinforcement Learning

Reinforcement learning applications over distributed environments. This can be applied to large-scale decision making tasks.

12. Scaling Challenges for Distributed AI Systems

How to scale an AI model deployed on multiple computing nodes.

13. Collaborative Learning with Distributed AI Systems

Distributed AI model training methods between organizations or devices.

14. Energy Efficient Distributed AI

Methods for energy efficiency in distributed AI to make distributed systems more sustainable.

15. Distributed AI Systems Latency Minimization

Methods to reduce latency in real-time applications involving AI, distributed across different types of infrastructures.

16. AI-Based Fault Tolerance in Distributed Systems

Distributed computing for fault tolerance and robustness in the AI applications.

17. Distributed AI for Internet of Things (IoT)

Deploying the AI models on different types of IoT devices and distributed computing for big data in IoT.

18. High-Performance Computing for Scalable AI

Use of HPC infrastructures for the acceleration of AI tasks for large-scale distributed applications.

19. Distributed AI for Secure and Trusted Environments

Security threat concerns and trust management in AI-driven distributed systems.

20. Distributed AI in Co-design for CloudEdge

Cloud and edge resources to achieve high scalability and performance for AI applications.

21. Distributed AI for RealTime Applications

Realtime AI processing on distributed systems in applications like self-driving cars, smart cities, and robotics.

22. Resource Optimization for Distributed AI Workloads

Optimization of compute, memory, and storage resources for doing AI tasks in a distributed environment.

23. AI in Distributed Autonomous Systems

Application of AI in distributed autonomous systems, including drones and robotic fleets.

24. Distributed AI in Large Scale Health Care Systems

AI solutions for processing of medical data across distributed health care networks for scalable and real time diagnosis and prediction.

25. Interoperability in Distributed AI Systems

Ensuring interoperability between the different components and systems present in distributed AI infrastructures.

SUBMISSION PROCEDURE:

Researchers and practitioners are invited to submit papers for this special theme session on **[insert special session topic]** *on or before* **[insert due date]**. All submissions must be original and may not be under review by another publication. INTERESTED AUTHORS SHOULD CONSULT THE CONFERENCE'S GUIDELINES FOR MANUSCRIPT SUBMISSIONS at https://comsia.in/paper_submission.html. All submitted papers will be reviewed on a double-blind, peer review basis.

NOTE: While submitting paper in this special session, please specify **[insert special session title]** at the top (above paper title) of the first page of your paper.

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