



International Conference on Data-Processing and Networking (ICDPN-2025)

Date: 7th – 8th November, 2025

ORGANISED BY : Institute of Technology and Business in České Budějovice,
Near Prague, Czech Republic, Europe (Venue).

***** CALL FOR PAPERS *****

SPECIAL SESSION ON

Converging Vision and Connectivity: Intelligent Image Processing in Wireless Sensor Networks for Next-Generation Data Processing and Networking

SESSION ORGANIZERS:

Dr. Kanimozhi Suguna S, SRM Institute of Science and Technology, Faculty of Science and Humanities, Ramapuram, Chennai, Tamil Nadu, India, kanimozs4@srmist.edu.in
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SESSION DESCRIPTION:

The rapid evolution of Wireless Sensor Networks (WSNs) and advancements in Image Processing are driving a new era of intelligent, distributed, and high-performance data systems. This special session will explore the synergistic integration of vision-based sensing, on-node image analytics, and network-aware optimization, enabling next-generation data processing architectures for real-time, mission-critical applications.

Topics will cover low-power embedded vision, edge–fog–cloud integration, and adaptive communication strategies, highlighting how multi-modal sensor fusion and AI-accelerated image processing can overcome bandwidth, latency, and energy constraints in WSN deployments. This session will provide a platform for cutting-edge research, innovative algorithms, and applied solutions for sectors such as environmental monitoring, industrial IoT, healthcare sensing, autonomous systems, and surveillance networks.

RECOMMENDED TOPICS:

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

- Efficient Image Processing for WSNs
 - Low-complexity filtering, enhancement, and feature extraction for sensor nodes
 - In-network image summarization and content-aware compression
 - Event-triggered image capture and transmission strategies
- Network-Aware Image Data Management
 - Routing and scheduling for heterogeneous image data flows
 - Cross-layer design for latency, throughput, and energy trade-offs
 - Adaptive rate control and load balancing for bursty visual data

- Edge and Distributed Processing Architectures
 - Partitioning image processing tasks between node, cluster head, and cloud
 - Fog computing frameworks for real-time WSN data analysis
 - Energy harvesting and power-aware computation strategies
- Security and Robustness
 - Lightweight encryption and authentication for image payloads
 - Error-resilient image transmission over lossy WSN channels
 - Privacy-preserving distributed image analytics
- Application Domains
 - Structural health monitoring using image-enabled sensor nodes
 - Environmental monitoring: vegetation, water quality, and disaster assessment
 - Industrial inspection and anomaly detection in manufacturing
 - Traffic and infrastructure monitoring in smart city networks

SUBMISSION PROCEDURE:

Researchers and practitioners are invited to submit papers for this special theme session on **[Converging Vision and Connectivity: Intelligent Image Processing in Wireless Sensor Networks for Next-Generation Data Processing and Networking]** *on or before [20th August 2025]*. 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://www.icdpn-conf.com/Downloads>. All submitted papers will be reviewed on a double-blind, peer review basis.

NOTE: While submitting paper in this special session, please specify **[Converging Vision and Connectivity: Intelligent Image Processing in Wireless Sensor Networks for Next-Generation Data Processing and Networking]** at the top (above paper title) of the first page of your paper.

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