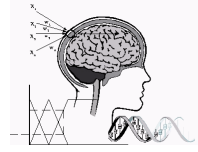




International

Innovation in Knowledge Based and Intelligent
Engineering Systems



INVITED SESSION SUMMARY

Title of Session: Generative AI at the Edge: From Smart Devices to Agentic IoT

Name, Title and Affiliation of Chair:

Dr. Maha Driss, Robotics and Internet-of-Things Laboratory, Prince Sultan University, Saudi Arabia

Prof. Wadii Boulila, Robotics and Internet-of-Things Laboratory, Prince Sultan University, Saudi Arabia

Dr. Aymen Yahyaoui, STRAST Group, Universidad Politécnica de Madrid, Madrid, Spain

Dr. Mahdi Jemmali, College of Computing and Informatics, University of Sharjah, United Arab Emirates

Details of Session (including aim and scope):

The Internet of Things (IoT) is undergoing a critical paradigm shift from "connected intelligence" to "agentic autonomy," where devices evolve from passive data relays into proactive agents capable of reasoning, planning, and executing tasks independently. This special session focuses on the convergence of Generative AI and Edge Computing, aiming to explore how Small Language Models (SLMs) and Foundation Models can be optimized to power this next generation of Action-Centric IoT. We invite cutting-edge research regarding the design of resource-efficient agentic frameworks, neuro-symbolic reasoning at the edge, and the deployment of autonomous systems that function reliably without cloud dependency, bridging the gap between advanced generative capabilities and the practical constraints of embedded environments.

The topics covered in this special session include, but are not limited to:

- Small Language Models (SLMs) and TinyML for Edge Devices
- Large Action Models (LAMs) and Action-Centric IoT
- Neuro-Symbolic AI for Reasoning at the Edge
- Vision-Language-Action Models (VLAMs) for Robotics
- Decentralized Multi-Agent Systems and Swarm Intelligence
- Efficient Model Adaptation and On-Device Fine-Tuning
- Edge-Native Model Optimization (Quantization, Distillation)
- Privacy-Preserving Generative AI and Federated Learning
- Trustworthiness, Hallucination Mitigation, and Safety Guardrails
- Sustainable and Energy-Efficient Edge Intelligence

Main Contributing Researchers / Research Centres (tentative, if known at this stage):

- Prince Sultan University, Saudi Arabia.

- Universidad Politécnica de Madrid, Madrid, Spain

- University of Sharjah, United Arab Emirates

Website URL of Call for Papers (if any):

Will be created after the acceptance of the invited session

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