

## **SPECIAL SESSION PROPOSAL**

### **Multimodal and Multimodel Artificial Intelligence: Foundations, Architectures, and Real-World Applications**

**for SIME 2026  
November 02 -04, 2026, Sousse, Tunisia**

#### **Session Co-Chairs:**

- Amal Jlassi, University of Tunis El Manar, Tunisia.
- Sami Hafsi, University of Carthage, Tunisia.
- Emna Amri, CESI, France.
- Boudour Ammar, University of Sfax, Tunisia.
- Zeineb Fki, University of Monastir, Tunisia.

#### **Session description:**

The next generation of artificial intelligence systems is increasingly defined by their ability to process, integrate, and reason across multiple data modalities. From text, images, audio, video, and time-series signals to structured and unstructured data streams, multimodal AI enables richer representations and more robust decision-making capabilities.

This special session, "Multimodal and Multimodel Artificial Intelligence: Foundations, Architectures, and Real-World Applications, organized in collaboration with IEEE Region 8 Women in Engineering, explores theoretical foundations, architectural innovations, and applied research in multimodal and multimodel AI systems. The session will investigate advanced fusion strategies, cross-modal alignment techniques, representation learning frameworks, and hybrid architectures that combine large language models (LLMs), vision transformers, graph neural networks, and time-series models.

Beyond model design, the session will address interpretability, scalability, robustness, and efficiency challenges in multimodal systems. Emphasis will also be placed on trustworthy and inclusive AI, including fairness, explainability, privacy-preserving learning, and regulatory considerations across industries.

Participants will explore applications across diverse domains such as smart cities, autonomous systems, cybersecurity, education, finance, agriculture, industry 4.0, and digital transformation. Case studies will demonstrate how multimodal AI enhances perception, reasoning, automation, and human-AI collaboration.

This session aims to empower women in AI and engineering, fostering interdisciplinary dialogue among researchers, engineers, industry leaders, and policymakers. By highlighting inclusive practices and promoting mentorship, the session seeks to advance scalable, transparent, and impactful multimodal intelligence systems while nurturing the next generation of women leaders in AI and engineering.

**Topics of Interest (not limited to):**

- ✓ Multimodal Representation Learning;
- ✓ Cross-Modal Alignment and Fusion Techniques;
- ✓ Hybrid Multimodal Architectures (LLMs + Vision + Time-Series + Graph Models);
- ✓ Foundation Models for Multimodal Intelligence;
- ✓ Multimodal Reasoning and Decision-Making Systems;
- ✓ Explainable and Trustworthy Multimodal AI;
- ✓ Federated and Distributed Multimodal Learning;
- ✓ Real-Time Multimodal Streaming Analytics;
- ✓ Human-AI Interaction in Multimodal Systems;
- ✓ Edge AI and Efficient Multimodal Deployment;
- ✓ Multimodal AI for Autonomous Systems;
- ✓ Benchmarking and Evaluation of Multimodal Models;
- ✓ Generative Multimodal Systems (Text-to-Image, Image-to-Text, Audio-Visual Generation);
- ✓ Ethical and Regulatory Challenges in Multimodal AI;

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**SUBMISSION**

Papers must be submitted electronically for peer review by: **May 15, 2026**

<https://sime-conf.org/submission/>

All papers must be written in English and should describe original work. The length of the paper is limited to a maximum of 6 pages (in the standard IEEE conference double column format).