



8th Global Power, Energy and Communication Conference
Naples/ITALY
June 3-5, 2026

Special Session on **Generative AI and Large Language Models for Intelligent and Responsible Systems**

Generative Artificial Intelligence (GenAI) has emerged as a transformative area of research that focuses on creating models capable of generating high-quality and context-aware data such as text, images, audio, and code. Among these, Large Language Models (LLMs) have gained significant attention due to their ability to understand and generate human-like language using large-scale training and advanced neural architectures.

Modern LLMs are primarily based on transformer architectures and have demonstrated strong performance in natural language understanding, reasoning, and content generation tasks. These models support flexible learning paradigms such as zero-shot and few-shot learning, enabling rapid adaptation to new tasks with minimal labeled data. Recent research has also focused on improving model efficiency, adaptability, and robustness through fine-tuning strategies, prompt engineering, and integration with external knowledge sources.

Generative AI systems are increasingly being applied across domains including healthcare, education, cybersecurity, finance, and software engineering. Techniques such as retrieval-augmented generation, multimodal learning, and domain-specific LLM customization have enhanced the practical usability of these models while addressing challenges related to accuracy and reliability. At the same time, issues related to ethical AI, bias mitigation, data privacy, and responsible deployment remain active research areas.

This special session aims to provide a focused platform for researchers and practitioners to present recent advancements, practical frameworks, and real-world applications of Generative AI and LLMs. Contributions highlighting innovative methodologies, performance evaluation, and applied use cases are particularly encouraged.

Topics of interest include, but are not limited to:

- Architectures of Generative Models (Transformers, Diffusion, GANs)
- Large Language Models (GPT, BERT, LLaMA, PaLM, Falcon, etc.)
- Prompt Engineering and In-Context Learning
- Fine-tuning, Parameter-Efficient Tuning (LoRA, PEFT, Adapters)
- Retrieval-Augmented Generation (RAG) Systems
- Multimodal Generative AI (Text–Image–Audio–Video Models)
- Generative AI for Software Development and Code Generation
- Explainability and Interpretability in LLMs
- Ethical AI, Bias, Fairness, and Hallucination Mitigation
- Privacy-Preserving and Secure LLMs
- Domain-Specific LLMs (Healthcare, Education, Law, Finance)
- Generative AI in Cybersecurity and Threat Intelligence
- Evaluation Metrics and Benchmarking of LLMs
- Edge AI and Resource-Efficient Generative Models
- Human-AI Collaboration and Conversational Agents

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Deadlines of the special session:

Full paper submission (maximum 6 pages):	March 15, 2026
Notification of acceptance:	April 12, 2026
Final submissions due:	April 26, 2026

All the instructions for paper submission are included at the conference website.

<https://gpecom.org/2026/guidelines/>