GMSys 2027

Third International ACM Green Multimedia Systems Workshop

Ghent, Belgium

April 2, 2027



GMSys 2027, a workshop held in conjunction with MMSys 2027, invites contributions on the design, implementation, measurement, and evaluation of energy-efficient, environmentally sustainable multimedia systems. We welcome research papers, position papers, and industry experience reports addressing energy consumption and environmental impact across content capture and generation, processing, storage, delivery, and consumption. This workshop covers multimedia applications ranging from entertainment to healthcare, drone-based monitoring and rescue, autonomous vehicles, wearable devices, and immersive AR/VR applications, with particular attention to operating under battery, computing, or communication constraints. We invite contributions targeting energy efficiency in emerging multimedia technologies, computationally intensive AI models, multimodal video intelligence, and automated video processing. Papers on measurement methods, open tools, datasets, and negative results are welcome when they offer useful lessons for the community.

Topics of interest include (but are not limited to):

- **Content production & provisioning**
  - Energy-efficient content capture, encoding, transcoding, and multimedia production workflows
  - CO2-aware multimodal large language model inference allocation across collaborative computing infrastructure
  - Energy-efficient construction and processing of neural 3D representations, including NeRF and Gaussian splatting
- **Delivery and networking**
  - Energy-aware adaptive streaming and transport mechanisms for low-latency, live, and interactive multimedia, as well as caching, content distribution, and CDN operation
  - Semantic video communication and neural joint source-channel coding under energy constraints
  - Energy-efficient streaming of immersive and volumetric media, including Gaussian splats and neural scene representations
- **Consumption and quality of experience**
  - Energy usage analysis for decoding and displaying video on user devices
  - Energy-efficient video decoding techniques
  - AI approaches for energy efficiency in video decoding
- **Measurement and environmental assessment**
  - Reproducible energy and carbon benchmarks, datasets, measurement tools, and models
  - End-to-end energy and carbon assessment across multimedia systems and hardware platforms
  - Energy assessment of training and inference for multimedia AI models
  - Privacy-preserving analysis of telemetry data of streaming services, focusing on energy consumption
  - Regulatory requirements and compliance-aware orchestration of distributed multimedia services
- **Energy-aware multimedia operation and integration with energy systems**
  - Renewable-aware multimedia streaming, with local electricity generation and battery storage
  - Battery- and mobility-aware multimedia streaming for electric vehicles' passengers
  - Renewable- and electricity-price-aware execution of compute-intensive AI-based multimedia services

Organizing Committee

Samira Afzal, Texas A&M University-Corpus Christi, USA
Narges Mehran, Salzburg Research, Austria
Farzad Tashtarian, Alpen-Adria-Universität, Austria
Andrew C. Freeman, Baylor University, USA
Mehdi Sookhak, Texas A&M University-Corpus Christi, USA
Frank Pallas, University of Salzburg, Austria
Christian Timmerer, Alpen-Adria-Universität, Austria

Submission guidelines

- Full/research paper: 6 pages, with references
- Short/industry paper: 3 pages, with references
- Extended abstract: 2 pages, including references
- Papers should include author names for single-blind peer review, adhering to ACM format

Important dates

- Paper submission: January 11, 2027
- Notification: February 1, 2024
- Camera-ready: February 19, 2027
- Workshop date: April 2, 2027

https://cim-lab.vercel.app/gmsys-2027