



CALL FOR PAPERS FOR SPECIAL SESSION PROPOSAL

SPECIAL SESSION 12

Deployable Edge AI for Medical Imaging: Data-Efficient, Hardware-Aware, and Trustworthy Systems for Resource-Constrained Healthcare

Session description :

Most medical imaging AI models remain computationally intensive and data-intensive, limiting deployment to infrastructure-rich environments. Real-world clinical settings impose strict constraints on memory, latency, compute, and annotated data availability, constraints that current architectures are rarely designed to meet.

This special session explores deployability-driven AI, treating efficiency, data efficiency, and clinical trustworthiness as first-class design objectives. It brings together researchers, clinicians, and engineers across the full pipeline, from data-scarce learning to hardware-aware deployment. On the data side: few-shot and zero-shot learning, semi-supervised and self-supervised methods, active learning, and generative augmentation. On the systems side: pruning, quantization, knowledge distillation, NAS, and efficient inference on edge devices, FPGAs, and SoCs.

The session further covers federated learning, cross-modality domain adaptation (X-ray, MRI, CT, ECG, EEG, ultrasound), and explainable AI (XAI).

The goal: compact, generalizable, and interpretable medical imaging AI that bridges algorithmic innovation and practical clinical deployment.

Session chairs :

- **Wadie Kadri**, Sfax Univ., TN
- **Ali Athar**, The Catholic Univ., South Korea
- **Anass Garbaz**, Ibn Zohr Univ., Maroc

Topics of interest (not limited to) :

- Deployable Edge AI for Medical Imaging : real-time, low-latency, and energy-efficient inference on embedded systems, FPGAs, SoCs, and edge devices under strict memory and compute constraints;
- Data-Efficient Learning from limited, imbalanced, or noisy medical images data ;
- Model Compression and Efficient Architectures ;
- Cross-Domain Adaptation and Generalization across imaging modalities, acquisition protocols, and scanner types to ensure model robustness in heterogeneous clinical environments ;
- End-to-End Co-Design AI Systems: joint optimization of data, models, and hardware for constrained real-world deployment ;
- Federated, Robust, and Privacy-Preserving Learning ;
- Trustworthy and Multimodal Medical AI: explainable AI (XAI), uncertainty estimation, fairness, and multimodal learning across X-ray, MRI, CT, ultrasound, ECG, and EEG.

Important Dates



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