

ICMLBDA-2024 Special Session Proposal Template
**Deadline for Submission (05/02/2024) through email to :pankaj@nitkkr.ac.in,
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Important Note: Session Organizers are expected to have at least six papers accepted for their session with acceptance rate of 40% to 45%

Title	Emerging Computer Vision and Artificial Intelligence (AI) Solutions for Medical Imaging Challenges: A Special Session Chair Track
Session Organizer	Name: Dr Shailendra Tiwari, Dr Manju Khurana Email ID: shailendra@thapar.edu , manju.khurana@thapar.edu Affiliation: CSED, TIET, Patiala
Abstract (max 200 words)	<p>Medical imaging represents a cornerstone of modern healthcare, offering invaluable insights into the human body's inner workings and aiding in disease diagnosis, treatment planning, and monitoring. However, the interpretation of medical images poses substantial challenges, including variability in anatomy, pathology presentation, and the need for timely and accurate diagnosis. To address these challenges, there is a burgeoning interest in harnessing modern computer vision and emerging artificial intelligence (AI) solutions within the realm of medical imaging.</p> <p>This special session chair track, titled "Emerging Computer Vision and Artificial Intelligence Solutions for Medical Imaging Challenges," aims to delve into the intersection of computer vision, AI, and medical imaging. By bringing together researchers, clinicians, and industry experts, this session seeks to explore innovative methodologies, applications, and advancements in AI-driven medical imaging solutions.</p>
Background and Justification (max 300 words)	<p>In recent years, medical imaging has undergone a significant transformation, becoming an indispensable tool in the diagnosis, treatment, and monitoring of various medical conditions. From X-rays, and MRI to CT scans and ultrasounds, medical imaging modalities such as PET, SPECT, fMRIs etc. provide clinicians with detailed insights into the internal structures and functions of the human body. However, the interpretation of medical images remains a complex and labour-intensive task, often fraught with challenges such as variability in anatomical structures, subtle pathology detection, and the need for rapid and accurate diagnosis.</p> <p>To address these challenges and augment the capabilities of medical imaging systems, there has been a growing interest in harnessing advanced computer vision and artificial intelligence (AI) solutions. Computer vision techniques, which enable machines to interpret and analyze visual information, have advanced significantly with the advent of deep learning algorithms and convolutional neural networks (CNNs). Moreover, the integration of AI methodologies, including deep learning architectures, reinforcement learning, and generative adversarial networks (GANs), has further expanded the scope of possibilities in medical imaging analysis. Deep learning models, in particular, have shown promising results in image classification, disease diagnosis, and predictive modeling, leveraging large datasets to learn complex patterns and relationships within medical images.</p> <p>The justification for exploring advanced computer vision and AI solutions in the context of medical imaging challenges lies in the potential to revolutionize healthcare delivery and improve patient outcomes. By automating routine tasks, assisting clinicians in decision-making, and unlocking new insights from medical imaging data, AI-powered solutions have the capacity to enhance diagnostic accuracy, reduce interpretation time, and enable personalized treatment strategies.</p> <p>Furthermore, the integration of multi-modal imaging data, coupled with quantitative</p>

	imaging biomarkers and radiomics analysis, holds tremendous potential for precision medicine and tailored patient care. These advanced techniques enable the extraction of quantitative features from medical images, facilitating objective assessment of disease severity, treatment response, and prognosis.
Topics of interest	Automated Lesion Detection and Segmentation, Multi-Modal Image Fusion for Improved Diagnosis, Deep Learning-Based Image Reconstruction, Quantitative Image Analysis for Disease Characterization, Real-Time Image Analysis in Interventional Radiology, Cross-Modality Image Registration and Fusion, Automated Anomaly Detection in Screening Programs, Personalized Treatment Planning Using AI, Explainable AI in Medical Imaging Interpretation, Explainable AI in Imaging Analysis for Disease Monitoring, Deep Learning Architectures for Medical Imaging, and many more...
Expected Numbers of Submissions	20