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***Organized Jointly by** JAN WYZYKOWSKI UNIVERSITY, POLAND &PANIPAT INSTITUTE OF ENGINEERING & TECHNOLOGY, HARYANA, INDIA*

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*************** CALL FOR PAPERS ***************

SPECIAL SESSION ON
Object Detection in Medical Images using Image Segmentation and Deep Learning Techniques
SESSION ORGANIZERS:
Deepak Mane
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EDITORIAL BOARD: (Optional)
[Name, University or Organization, Country, e-mail]

SESSION DESCRIPTION:

Heart attack is mainly caused due to atherosclerosis. It is a coronary artery disease (CAD) and it is a leading cause of death worldwide. It occurs when the coronary artery that supplies blood and oxygen to the heart and different parts of the body becomes blocked or narrowed due to deposition of proteins, cholesterol and other fatty deposits in the inner wall of the coronary artery. This results in a heart attack or damage to the heart tissue. Existing techniques for detection of plaque are Magnetic Resonance Imaging (MRI), Electron Beam Computed Tomography (EBCT) and Angiography, among these existing techniques Angiography is widely used at present to detect and cure heart attack. The currently available techniques are expensive, beyond the reach of normal people, not easily available in remote areas and cannot detect deeply embedded plaque with accuracy at early stages. The plaque is only detected by these techniques when blockage in artery is more than 70%.

In order to remove the limitations of existing techniques Intravascular Ultrasound (IVUS) technique is proposed in our research work. This technique is based on application of image processing by using bio-markers and Marker Controlled Watershed Modified Image Segmentation Algorithm which better detects the Plaque deposits embedded deep inside the Coronary Artery wall that are undetectable by Angiography or other Cardiac test that are prone to rupture without warning sign. In addition to this technique Artificial Intelligence (Deep Learning) computing technique will also be used for image classification. The proposed technique has tendency to detect inner layer (foreground) i.e. object and outer layer (background) of the artery for better detection of Region of Interest (ROI), which is deeper region of soft non-calcified plaque. So, the result obtained using the proposed techniques is expected to play a

crucial role in the visualization of inner view of Coronary Artery containing Plaque with more accuracy and also expected to show the exact measurement of plaque location, size and quantification for pre-detection of heart attack.

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