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Detection and analysis of bone tumors using advanced medical image processing techniques**Baskaran. K¹, Shanmugam. B², Rajendrakumar³**¹Chennai Institute of Technology, India,²SMVEC, India³University of Tech and Applied Sciences-shines, Oman

The aim of the current work is the evaluation of Positron Emission Tomography (PET) utilizing 18F-Fluoro-2-Deoxy-Dglucose (FDG) when compared to volumetric as well as standard Magnetic Resonance Imaging (MRI) variables for assessing histological responses in bone sarcoma afflicted individuals. The generation of novel composite texture from combining FDG-PET as well as MRI data is examined to see if aggressive tumors could be better identified. For this particular objective, retrospective evaluation was performed on a group of 51 individuals in the same age group. All the patients had pre-treatment FDG-PET as well as MRIs consisting of T1-weighted as well as T2-weighted Fat-Suppression Sequences (T2FS). 8 non-textural features (SUV measures as well as shape attributes) as well as 42 textural features were extracted from the tumor area of distinct as well as fused scans. Extracting features was carried out by Gray Level Co-occurrence Matrix (GLCM), wavelet features. Selecting features was carried out by Correlation based Feature Selection (CFS) as well as Particle Swarm Optimization (PSO). Classification was carried out by K-Nearest Neighbor (KNN), J48 as well as Neural Network (NN). The suggested method attained best classification accuracy. Optimal Feature subset selection is shown to be Non Deterministic. To overcome this Particle Swarm Optimization with multiple objectives for fast convergence is proposed. PSO is a heuristic global optimization method. It is developed from swarm intelligence and is based on the research of bird and fish movement behavior. The PSO algorithm is easy to implement and has been successfully applied to solve a wide range of optimization problems in MRI, FDG-PET and medical image processing. PSO is an effective and efficient global search technique. It is a suitable algorithm to address feature selection problems due to its simplicity in its implementation.

Biography

Baskaran K has expertise in evaluation and passion in improving the health and wellbeing. He open and contextual evaluation model based on responsive constructivists creates new pathways for improving healthcare. He has built this model after years of experience in research, evaluation, teaching and administration both in Engineering and education institutions. The foundation is based on Research medical equipment like Biopac and IOT. This approach is responsive to all Young youths and dynamic thing and he have a different way of focusing.