SYMPTOM-DRIVEN EARLY DETECTION OF EMPHYSEMA EMPLOYING DEEP LEARNING TECHNIQUES

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Emphysema is a chronic and progressive pulmonary disorder characterized by irreversible destruction of alveolar structures, leading to impaired respiratory function and reduced quality of life. Early detection of emphysema is challenging because initial symptoms are often mild, nonspecific, and easily overlooked in routine clinical practice. Timely diagnosis, however, is crucial for initiating preventive interventions, slowing disease progression, and reducing morbidity and healthcare costs. This study presents a deep learning–based framework for the early detection of emphysema using symptom-level data, aiming to support clinicians in identifying high-risk individuals before the disease reaches advanced stages. The proposed approach utilizes a symptom-driven dataset comprising clinical indicators such as chronic cough, shortness of breath, wheezing, chest tightness, fatigue, smoking history, and demographic factors. After preprocessing steps including data normalization, missing-value handling, and feature encoding, the dataset is used to train a deep neural network (DNN). The model architecture consists of multiple hidden layers with nonlinear activation functions, enabling it to capture complex relationships between symptoms and underlying disease patterns. To enhance robustness and reduce over fitting, techniques such as dropout regularization and early stopping are applied during training. Model performance is evaluated using standard metrics including accuracy, precision, recall, F1-score, and area under the receiver operating characteristic curve (AUC). Experimental results demonstrate that the deep learning model outperforms traditional machine learning classifiers in predicting early-stage emphysema, achieving high sensitivity and specificity. The findings indicate that symptom-based deep learning models can effectively identify subtle patterns that may not be apparent through conventional diagnostic methods. This study highlights the potential of deep learning algorithms as cost-effective, noninvasive decision-support tools for early emphysema detection. Integrating such models into primary healthcare and telemedicine systems could facilitate early screening, personalized risk assessment, and improved clinical outcomes.

CNN MODEL WITH FPGA FOR EYE DISORDERS PREDICTION

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Health disorders increases day by day throughout the world. Liver cancer, skin disorder, kidney diseases, heart diseases and eye disorders are the most dangerous diseases on human health being. Early monitoring of these diseases can save human health. Proposed research uses deep learning models such as convolutional neural network CNN on Field programmable Gate Array FPGA for ocular diseases such as eye disorders prediction. CNN model shows highly accurate than machine learning algorithms. This research creates awareness on human eye disorders such as cataract, myopia and other diabetic eye diseases.