Prediction of Lung Cancer Patients Survival Time using Regression Analysis and Image Processing Techniques

**Abstract**

In recent time Lung cancer becomes one of the fatal and common disease in the world. The prediction of survival time will improve the care of patients. In this era of Artificial Intelligence, computer aided detection system can be helpful to estimate more precisely the patient’s survival time. Inspired by the ongoing advances in image processing and machine learning in the bio-medical area, we have developed a model for predicting the survival period in tentative patients utilizing regression analysis and image processing techniques to assist doctors with historical data. Our proposed approach involves image acquisition, pre-processing, feature extraction and finally regression analysis to anticipate the survival time. Comparison analysis of three feature extraction techniques namely–Gray level co-occurrence matrix (GLCM) approach, Statistical Parametric approach and Hybrid approach which is the ensemble of both GLCM and Statistical Parametric approach have been performed. For predicting patient’s survival time three different regression analysis algorithms have been used and have got best result using Support Vector Regression (SVR) with the lowest Mean Absolute Error (MAE) of 12.44 and Root Mean Square Error of 16.35 for Statistical Parametric approach.
References


Index Terms

Computer Science Image Processing
Keywords

Survival time, Computer tomography, Segmentation, Morphological opening, Machine learning