

Taylor-Based Mean Poisson Loss for Lung Cancer Detection

Harsha G

Research Scholar, Department of Electronics and Communication Engineering, Sri Siddhartha Academy of Higher Education, Tumkur, Karnataka, India

Suresh M

Professor, Department of Electronics and Communication Engineering, Sri Siddhartha Institute of Technology, Tumkur, Karnataka, India

Abstract

Lung cancer is the most typical disease, leading to death around the globe; thus, timely diagnosis is vital to decrease the mortality rate. Deep Learning (DL) techniques have been typically exploited to assess Computed Tomography (CT) scans automatically, which helps radiologists in identifying cancerous cells. Nevertheless, classical DL schemes failed to maintain the accuracy rate because of overfitting risks and false detections, thereby decreasing the overall performance during the detection process. Hence, a novel scheme termed Taylor Mean Poisson EfficientNetB7 (TMPENetB7) is developed to identify lung cancer. In addition, the attained features are forwarded to the diagnosis phase, where the lung cancer is identified by applying the TMPENetB7 and is established by advancing the learning rule of EfficientNetB7 with Taylor-based Mean Poisson Loss (TMPoL).

Keywords

Lung cancer, Computed Tomography, Gabor filter, Multi-Window Uncertainty-Guided Segmentation Network, Deep Learning.