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Pyramid-Knet: Pyramid Kroneckernet based Lung Cancer Detection using Computed Tomography Images

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Abstract:	<p>Lung Cancer (LC) is one of the most important lives affecting cancer all over the world. Earlier detection and treatment are crucial for the recovery of patients. Clinical professionals employ histopathological images of biopsied tissue from probably infected areas of lungs for diagnosis. Usually, diagnosing the LC types is error-prone and time-consuming. Here, Pyramid-KNet is developed for detecting LC employing Computed Tomography (CT) images. Firstly, the CT images are subjected to image enhancement, where the process is conducted using the Histogram equalization. Afterwards, lung lobe segmentation is conducted by Psi-Net. Then, the lung nodule identification is conducted by employing the grid based strategy. Moreover, feature extraction is conducted for extracting features like Weber local descriptor (WLD), Texton, Median Robust Extended Local Binary Pattern with Discrete Cosine Transform (MRELBP with DCT), statistical features and Gray-Level Co-occurrence Matrix (GLCM) features. Lastly, LC detection is executed employing hybrid Pyramid KroneckerNet (Pyramid-KNet), which is the integration of PyramidNet and Deep Kronecker Network (DKN), where layers are modified using Taylor concept. It can be identified that Pyramid-KNet gained extreme accuracy of 93%, 92% for precision and 94% for F-measure.</p>
Suggested Reviewers:	