Evolutionary RNN framework for Precise Lung Nodule detection from CT scans

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Abstract: *Radiologists find it challenging and time-consuming to recognize and evaluate nodules of lung using CT scans that are malignant. Because of this, early lung growth prediction is necessary for the inquiry technique, which raises the likelihood that the treatment will be successful. Computer-aided diagnostic (CAD) tools have been used to help with this issue. The primary goal of the work is to identify if the nodules are cancerous or not and to deliver more accurate results. The RNN [Recurrent] which is a type of neural network model that includes a feedback loop. In this paper, evolutionary algorithms are examined using the MATLAB Tool, including the Grey Wolf Optimization Algorithm and Recurrent Neural Network (RNN) Techniques. Additionally, statistical characteristics are generated and examined in comparison to other RNNs using Particle Swarm Optimization (PSO) and Genetic Algorithm (GA) combinations. Comparing the suggested approach to other state-of-the-art techniques, it yielded results with extremely high accuracy, sensitivity, specificity, and precision. In the past few years, there has been a substantial increase for evolutionary algorithms in the field of feature selection due to their simplicity and potential for global search capabilities. The suggested solutions have outperformed classical approaches employed across various fields, showing excellent results. Determining whether lung nodules will become malignant or not will be made easier with early identification.*

Keywords: Optical Character Recognition (OCR), Classification, Digital Image Processing.

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