# Lung Cancer Classification Using Hybrid Machine Learning Algorithm

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## ABSTRACT

**Automated classification of lung cancer using chest CT scans is an important topic, which serves as a support tool for doctors, and the more efficient these systems are, the more effective they will be in saving people's lives. This research aims to design a hybrid classification model for lung cancer types based on the Chest CT Scan model, where the EfficientNet-B3 model is Fine-tuned to extract features from images, a machine learning model is used to make the classification decision, and to ensure the effectiveness of the machine learning model, its hyperparameters are optimized using Bayes Optimizer. An accuracy of 95.34%, sensitivity of 95%, recall of 97%, and F1-score of 96% were achieved on the Chest CT-Scan images Dataset using the proposed model.**

***Keywords: Lung Cancer, EfficientNet, Machine Learning, Chest CT-Scans, Hybrid Model, Bayesian Optimizer.***

***Bahrain Med Bull 2026; 48 (2): 3079-3083***

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