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## Patent Search

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**Abstract:**

The proposed invention is a Deep Neural Network (DNN)-based AI model designed for accurate lung cancer detection and classification. Utilizing convolutional neural network, the model processes CT scan images to distinguish between malignant and benign nodules. It features a continuous learning mechanism to update its accuracy with new data and integrates with electronic health records (EHR) for comprehensive patient diagnostics. The AI model operates on multiple platforms, ensuring flexible deployment, and includes robust security protocols to protect patient data. Designed to assist healthcare professionals, the model generates detailed diagnostic reports with visual representations, improving decision-making and patient outcomes. This invention significantly enhances the accuracy, efficiency, and reliability of lung cancer diagnostics, providing a transformative tool in medical technology.

**Complete Specification**

**Description:**The field of invention relates to medical diagnostics and artificial intelligence, specifically the development of a Deep Neural Network (DNN)-based AI model designed for the accurate detection and classification of lung cancer. This innovative system integrates advanced machine learning techniques to analyze medical imaging data, enabling precise identification of malignant and benign lung nodules. By leveraging convolutional neural networks (CNNs) and other deep learning architectures, the proposed model enhances the diagnostic accuracy, potentially surpassing traditional methods. This invention addresses critical needs in early cancer detection, aiming to improve patient outcomes through timely and accurate diagnoses. It also contributes to the field of medical informatics by offering a scalable, reliable, and efficient tool for healthcare professionals, thereby aiding in the reduction of diagnostic errors and optimizing treatment plans. The system's capability to handle large datasets and learn from diverse imaging modalities further exemplifies its potential to revolutionize lung cancer diagnostics.

**Background of the proposed invention:**

Lung cancer remains one of the leading causes of cancer-related deaths worldwide, underscoring the urgent need for effective and early detection methods. Traditional diagnostic techniques, including chest X-rays, CT scans, and biopsies, often present challenges in terms of accuracy, invasiveness, and accessibility. Misdiagnosis or late detection significantly hampers treatment outcomes, making it imperative to explore advanced technologies that can offer more reliable and timely diagnoses. Recent advancements in artificial intelligence (AI) and machine learning have shown immense potential in transforming the field of medical diagnostics, particularly through the use of deep neural networks (DNNs) which excel in image recognition and classification tasks.

The proposed invention leverages these advancements to develop a DNN-based AI model specifically designed for lung cancer detection and classification. This system aims to address the limitations of current diagnostic methods by providing a more accurate, non-invasive, and efficient solution. Deep learning, a subset of machine learning,

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