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(57) Abstract :
The invention discloses an AI-enabled system (100) for automated lung cancer screening comprising an image acquisition unit (101), preprocessing module (102), AI detection engine (103), malignancy risk analyzer (104), reporting interface (105), cloud integration module (106), and feedback learning loop (107). The system employs deep learning algorithms for detecting pulmonary nodules, stratifying malignancy risk, and generating structured diagnostic reports. It reduces diagnostic workload, enhances accuracy, and ensures timely intervention. The invention provides a scalable, secure, and globally adaptable solution for early detection and effective management of lung cancer.

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