



# Automated lung Segmentation in CT Images

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# INTRODUCTION

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- A medical image dataset is crucial for education and development of health science. Further, to develop fully automated imaging tools/techniques, such as Computer-Aided Detection (CADe), Computer-Aided Diagnosis (CADx), and Research & Development (R&D), they require fairly large amount of data, including their corresponding annotations, which we sometime call, gold standard. for any CADe and CADx research, such data collection is not only the primary requirement to develop, train, and evaluate machinelearning models but also the common input source to compare the CADe & CADx models, [Digital Imaging and Communications in Medicine\(dicom\)](#)

# **Problem Statement**



The human lung has complex anatomical structures, including blood vessels, bronchi, and lung parenchyma. Developing an algorithm that can accurately distinguish between these structures is a challenging task.

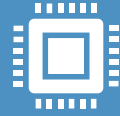


CT images may vary in quality due to differences in imaging devices, protocols, and patient conditions. The proposed algorithm should be robust enough to handle variations in image resolution, noise, and artifacts.



Training an accurate model requires a large and diverse dataset. Developing algorithms that can efficiently process large datasets and provide real-time or near-real-time segmentation results is crucial for clinical workflow integration.

# **requirement**



The system must perform image preprocessing to enhance the quality and standardize the input CT images. This includes noise reduction, contrast adjustment, and normalization.



Implement a machine learning model that can learn and generalize from a diverse dataset to accurately segment lung structures in CT images.



Design the system to be scalable, allowing it to handle large datasets efficiently during both training and inference phases.



Huge Dataset

# Progress of work

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THINKING ON THE  
DESIGN AND UI OF  
THE SOFTWARE.



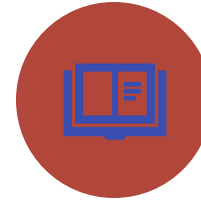
READING  
SOME LITERATURE RES  
EARCH PAPERS AND  
REVIEW ON THIS  
WHAT KIND OF WORK  
DONE ON THIS  
PROJECT IN PAST



GETTING SOME IDEAS  
FROM GOOGLE  
SCHOLAR FOR READ  
SOME REVIEW AND  
RESEARCH PAPERS



TAKING SOME HELP  
FROM FACULTY



READING  
SOME BOOKS ABOUT  
MACHINE LEARNING



READING SOME CT  
SCAN RELATED  
PAPERS

# **References**

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# Q&A





# Thank You

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