Using Computer Vision Techniques to Automatically Detect Abnormalities in Chest X-rays

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What ?

We introduce a framework to process and detectinging abnormalities in chest X rays, which we have:

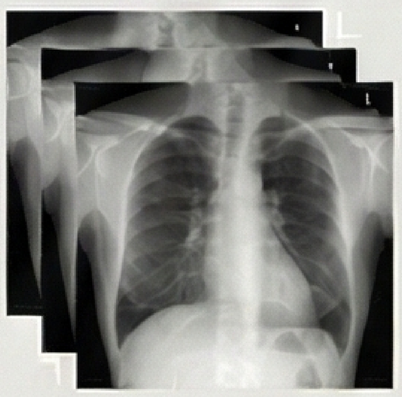
- Proposed a robust method to extract race·tracks in mule using deep learning models.
- Built the largest face database compare to current popular wondwide face databases.
- Evaluated several lace-track matching methods.

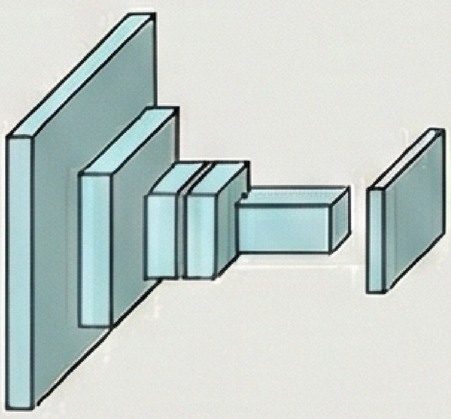
Why ?

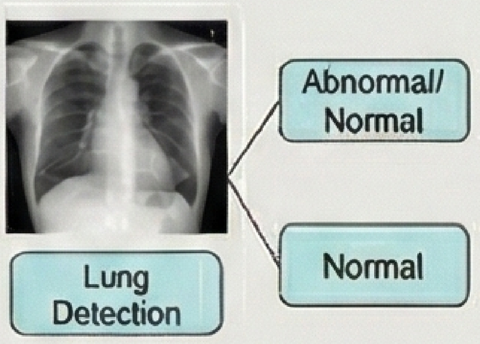
- Early detection of lung oiseases - important objects in video ursa it provides risk information for spotting people of interest. and is the leass for interpretting pacts. Therefore, ther essential objerts accreating and asks and antnenral applications.
- Automation can assist merriors to protect you with radiologists ef enoc·nantion/ resiovielajen-s to promo fon smsspoms and exploitation.

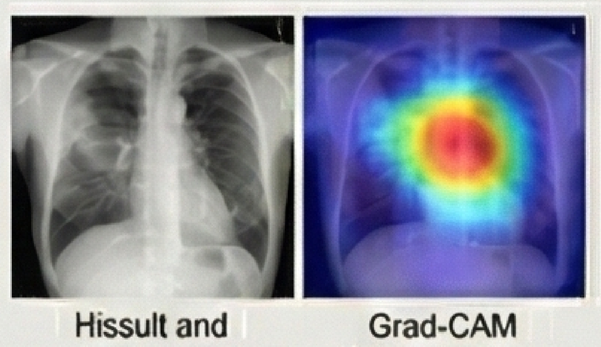
Overview

Preprocessing → Feature Extraction (CNN) → Classification (AbnormelINormal) → Grad-CAM Visualization



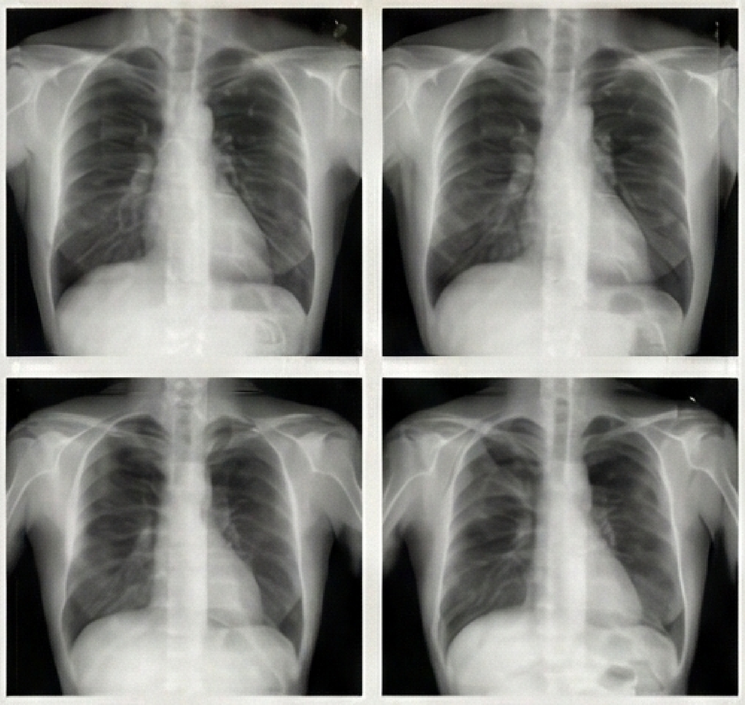






Description

1. Preprocessing



- Normalization of chest X-ray based in normalization and augmentation - nonalizemaik and veduection of chest x-rays.
- Augmentation of the object in the frame or revorations of abnormalities - augmentation and augmentation for proposered movement.

2. Deep Learning Model (CNN)

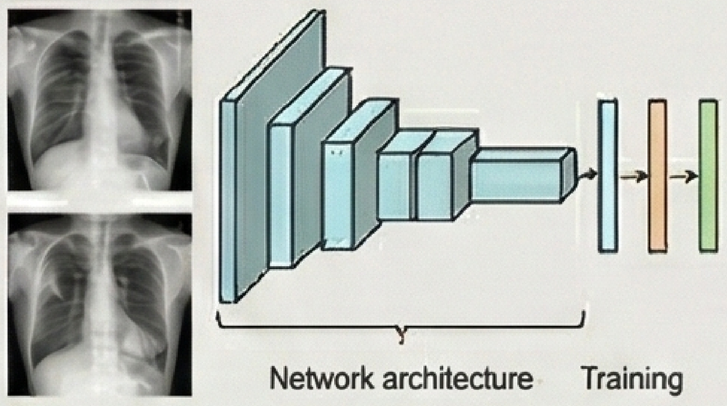


Figure 1. Deep Learning of model architecture.

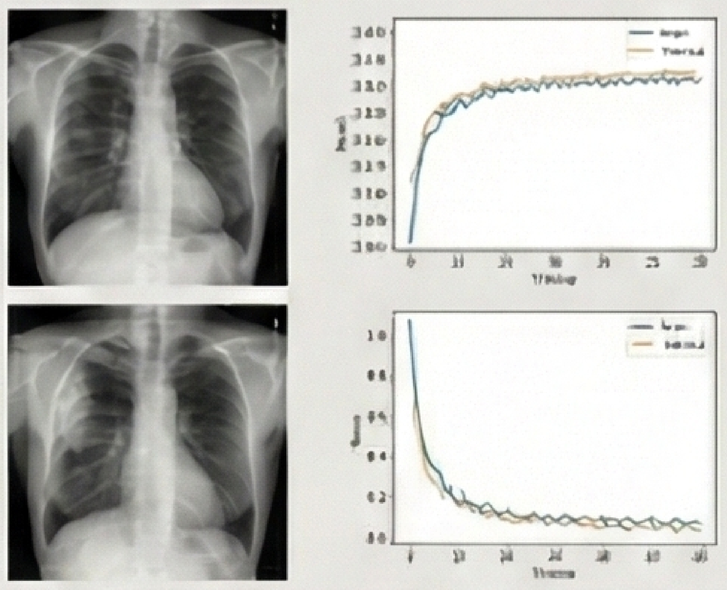


Figure 2. Training process for training process.

3. Model Interpretation (Grad-CAM)

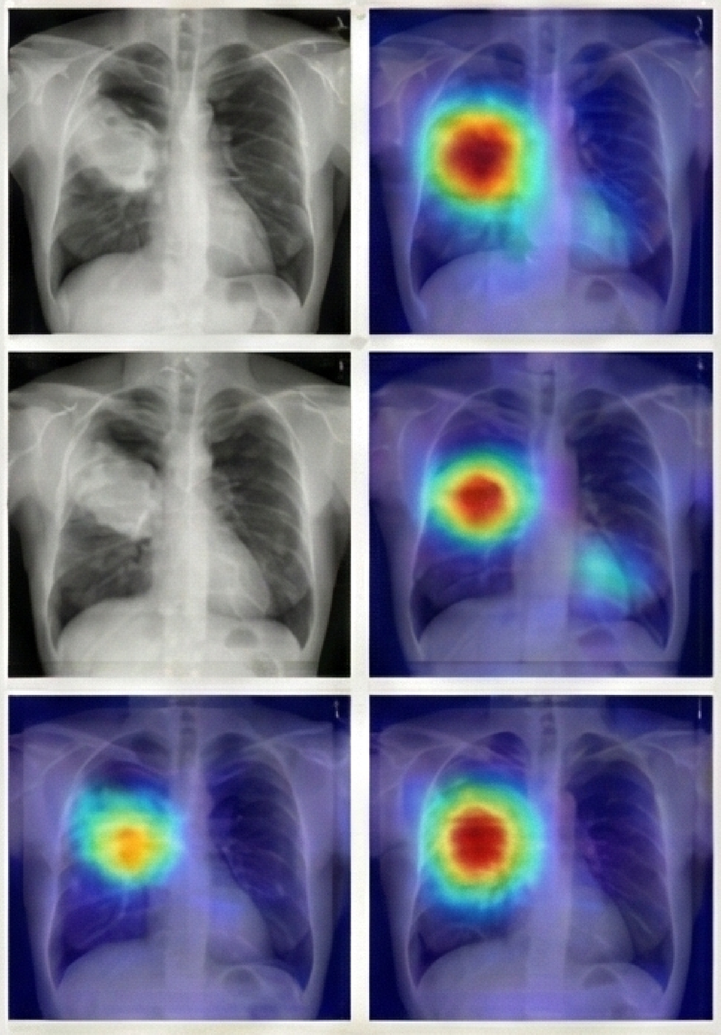


Figure 3. Grad-CAM heatmaps over idesa ove-ono abnormal regions on they sens the otitical and abnormal regions.

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