Novel Approach for Thorax Disease Classification using Deep Learning

Sudarshan Adhav[1], Rohit Borse[2], Riya Gujarathi[3], Madhuri Kubade[4], Prof. Priyanka Khalate[5]

Students, Department of Computer Engineering[1,2,3,4]

Professor, Department of Computer Engineering[5]

Smt. Kashibai Navale College of Engineering, Vadgaon (Bk.), Pune, Maharashtra, India

Affiliated to Savitribai Phule Pune University

Abstract: *The task of thorax disease diagnosis on chest X-ray (CXR) pictures is discussed in this work. The majority of available approaches learn a network using global images as input. Thorax disease, on the other hand, frequently occurs in disease-specific (small) localized areas. As a result, the (excessive) irrelevant noisy areas may impact CNN training utilizing a global image. Furthermore, the presence of uneven borders hampered network performance due to poor alignment of some CXR pictures. In this research, we suggest using two-branch architecture called ConsultNet to train discriminative features and satisfy both of these goals at the same time. ConsultNet is made up of two parts. 1) a feature selector bound by an information bottleneck retrieves key disease-specific features based on their relevance. 2) a feature integrator based on spatial and channel encoding improves the latent semantic dependencies in the feature space. ConsultNet combines these distinguishing characteristics to improve thoracic illness categorization in CXRs. Experiments on the ChestX-ray14 and CheXpert datasets have shown that the proposed strategy is effective.*

Keywords: CXR image classification, x-rays, image classification

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