BVRIT HYDERABAD
College of Engineering for Women
Department of Information Technology
Major Project - Academic Year 2016-20

TEAM 13

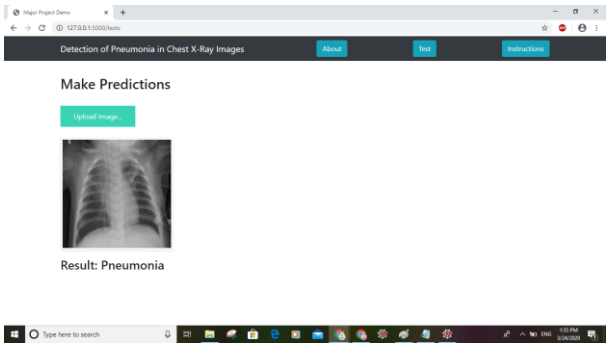
Detection of Pneumonia in Chest X-Ray Images

Abstract

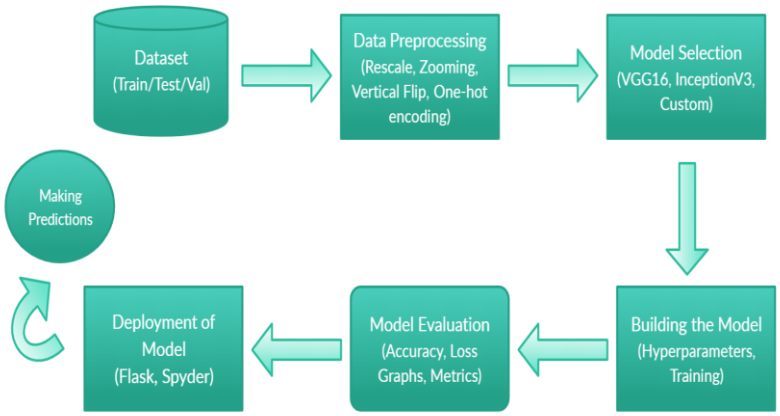
Pneumonia is a disease which is caused by a bacterial infection that spreads in the lungs area of a human body. Early diagnosis is an important factor in terms of the successful treatment process. Chest X-rays are currently the best available method for diagnosing pneumonia, playing a crucial role in clinical care and epidemiological studies. Computer-aided diagnosis systems are needed to guide the clinicians to diagnose with accuracy and efficiency. Convolutional Neural Network (CNN) architectures achieve human-level performance on several image-processing tasks, including classification, segmentation, and object detection and therefore can be used to automatically detect pneumonia from chest X-rays at a level exceeding practicing radiologists.

Modules

Data Preparation
Model Building
Training and Results
Deployment of Model



Architecture



Tools and Technologies

- **Python 3.6**
- **Jupyter Notebook**
- **Tensorflow, Keras, Numpy**
- **Spyder IDE**
- **Flask Web Framework**

Conclusion and Future Scope

In this project, we produced competitive results on detecting Pneumonia from Chest X-Ray images using Convolutional Neural Network architectures such as Vgg16 and Inceptionv3 by transfer learning, and custom model with accuracy of 88.9%, 82.05% and 90.2% respectively. In the future, this system may be used by medical professionals to reduce the amount of workload for identifying pneumonia in patients and this project will be extended to detect and classify X-ray images consisting of lung cancer and pneumonia.

Guide

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