AAKASH REASERCH LAB

MACHINE LEARNING

AIM: Pneumonia Detection

STATUS: Completed

COMPONENTS: Python and dataset

DESCRIPTION: Chest X-ray images (anterior-posterior) were selected from retrospective cohorts of paediatric patients of one to five years old from Guangzhou Women and Children's Medical Centre, Guangzhou. The chest X-ray imaging was performed as part of patients' routine clinical care.

For the analysis of chest x-ray images, all chest radiographs were initially screened for quality control by removing all low quality or unreadable scans. The diagnoses for the images were then graded by two expert physicians before being cleared for training the AI system. In order to account for any grading errors, the evaluation set was also checked by a third expert.

The process of detecting Pneumonia from chest scans can be classified into four different categories: Pre-Processing, data augmentation, training & Optimization and Prediction. The model is coded using python language and various machine learning libraries like keras, CNN and Tensor flow. Supervised learning will be used to train the Convolutional neural network. The final results show the presence or absence of the said disease.

The entire project will be hosted in a web server which holds a weighted model for optimal prediction and can be used on any smart device by uploading the patients scan to the website which will make it accessible in any location with internet connectivity.The web server hosting the application makes the detection process lightweight and much faster than loading a model on a system while providing access to such useful resource to places with lack of medical personals. It can process through X-ray scans to filter out possible tumor patients.

-Hritik Rao