Chest X-ray classification using Keras

Presentation for the stakeholders.

Advanced Data Science Capstone Project.

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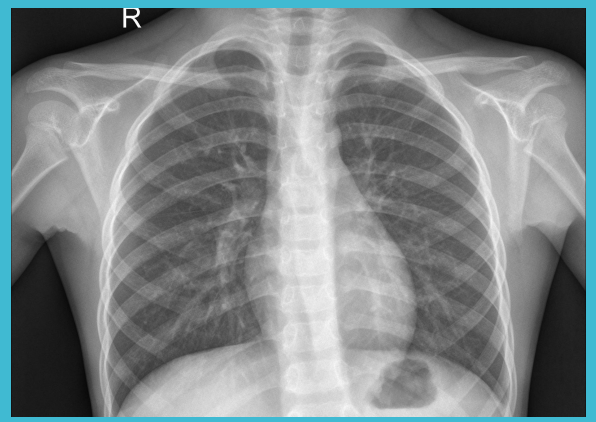
The data set

The dataset contains subfolders for each image category (Pneumonia/Normal). There are 5,800+ X-Ray images (jpeg) and 2 classes (Pneumonia/Normal).
Chest X-ray images (anterior-posterior) were selected from retrospective cohorts of pediatric patients of one to five years old from Guangzhou Women and Children's Medical Center, Guangzhou, 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. In order to account for any grading errors, the evaluation set was also checked by a third expert.

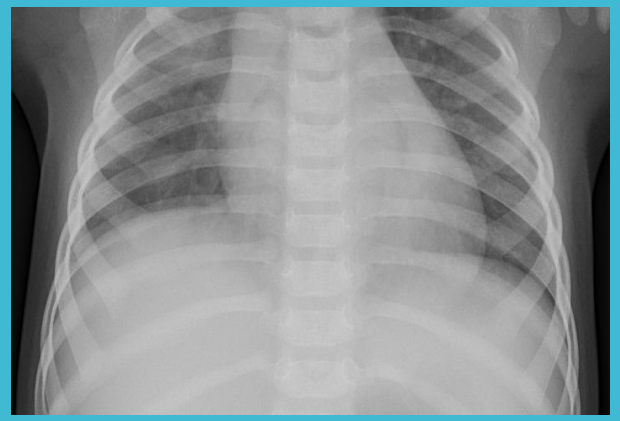
https://www.kaggle.com/paultimothymooney/chest-xray-pneumonia

The use case

We want to classify each image as 'normal' or affected by 'pneumonia', and we want to assign a probablity to each class. We want to exceed a 95% accuracy.



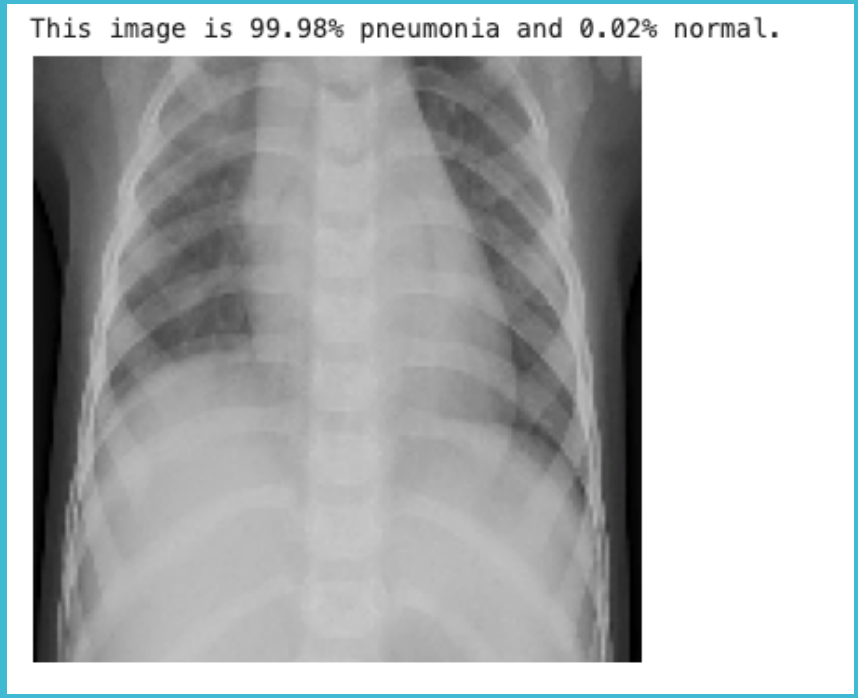
normal



pneumonia

The solution

I have implemented a Deep Learning neural network using Keras, which will process each image and assign a probability for a diagnosis which accuracy is above 95%.



Thank you!

Acknowledgements:

Data: https://data.mendeley.com/datasets/rscbjbr9sj/2

Citation: http://www.cell.com/cell/fulltext/S0092-8674(18)30154-5