

Project Requirement and Specification
On
Covid-19 Detection using Chest X-rays
w/CNN

(CSE 6th Semester Mini Project)

(2023-23)



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1. INTRODUCTION

The COVID-19 pandemic has presented unprecedented challenges to global healthcare systems, requiring innovative solutions to contain and manage its spread. Chest X-rays have emerged as a valuable diagnostic tool in detecting COVID-19 pneumonia, aiding in early identification and prompt treatment of affected individuals.

In this project, we leverage the power of Convolutional Neural Networks (CNN) to develop a robust and accurate COVID-19 detection system using chest X-ray images.

By employing advanced deep learning techniques, we aim to enhance the diagnostic process, reduce manual effort, and provide an efficient and reliable tool for frontline healthcare workers.

2. REQUIREMENTS OF THE PROJECT

a. Software requirements:-

- Jupyter Notebook
- Latest version on Python
- Tensorflow, Keras, Matplotlib, seaborn

b. Hardware used:-

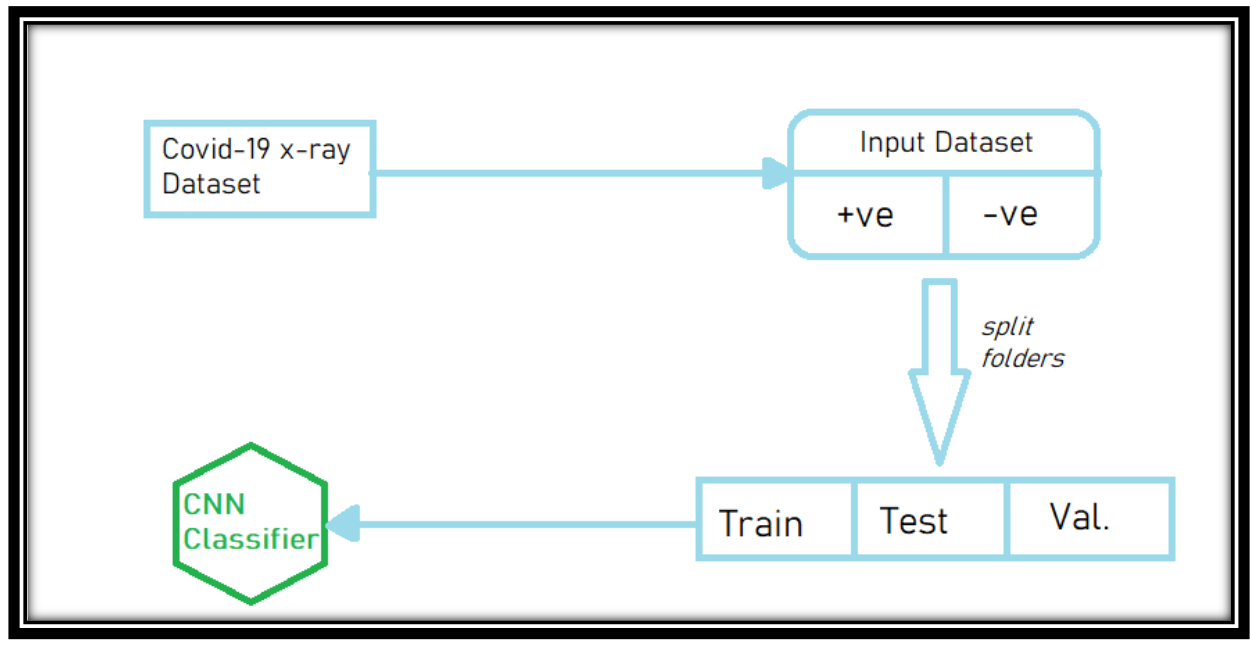
- AMD Ryzen 5 3500U (15W TDP)
- 12GB DDR4 CL16 RAM

c. Dataset:-

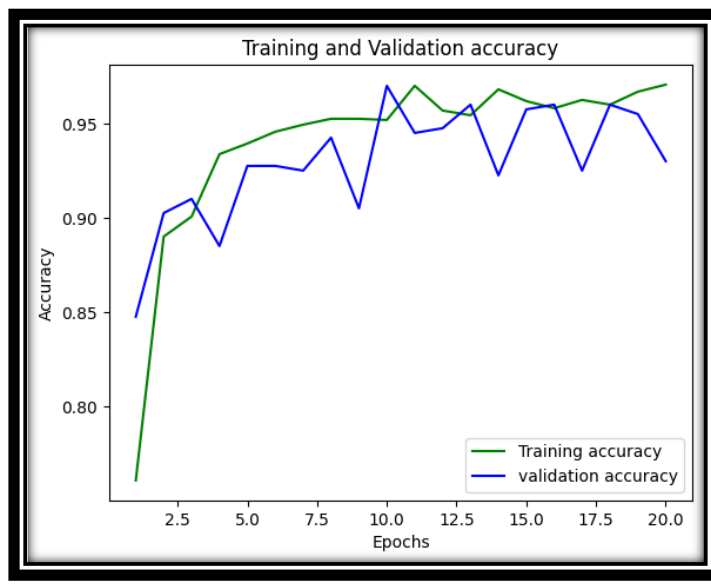
To train our CNN model, we have compiled a diverse and well-curated dataset of chest X-ray images. The dataset includes a substantial number of COVID-19 positive cases, obtained from various reliable sources. Additionally, we have incorporated non-COVID pneumonia cases and normal lung images to ensure a comprehensive and balanced training set.

Link: <https://www.kaggle.com/datasets/mr3suvhro/covid-19-xray-image-dataset-with-huge-samples>

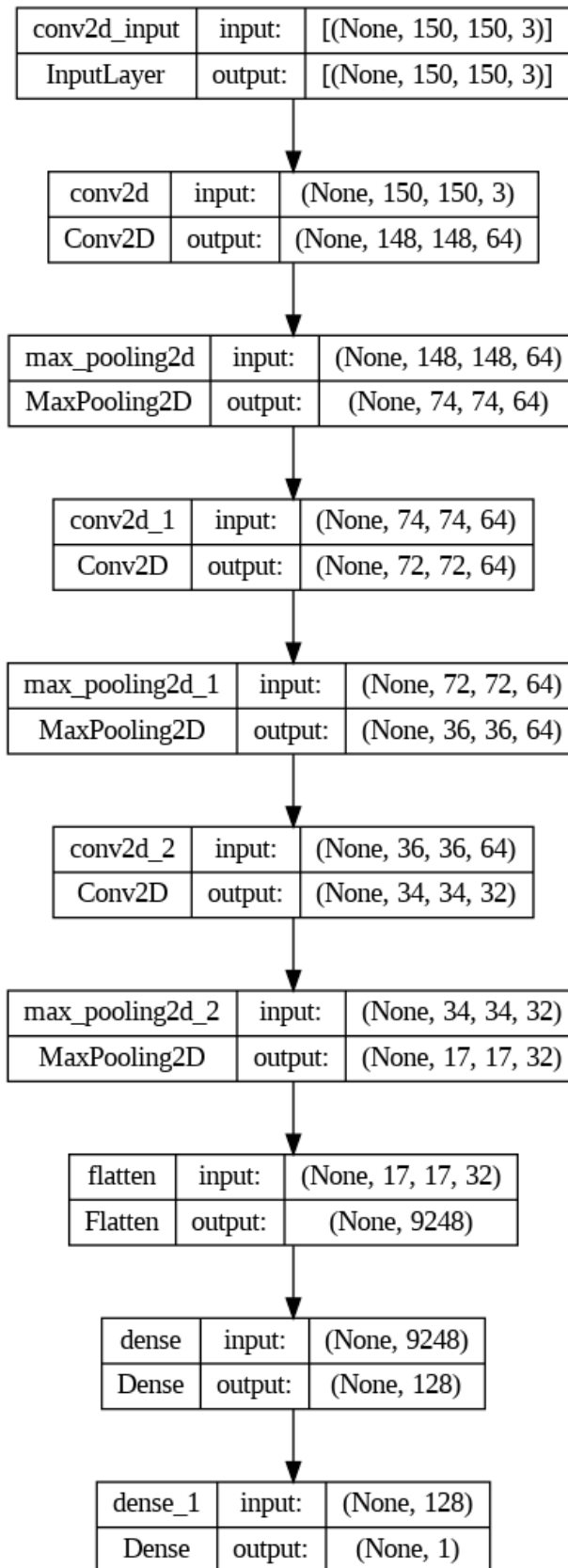
3. OVERVIEW



4. RESULTS



5. ARCHITECTURE OF THE MODEL



6. CONCLUSION

The integration of advanced deep learning techniques, particularly Convolutional Neural Networks (CNN), into the field of medical image analysis holds tremendous promise in improving COVID-19 diagnostics.

Our project developed a robust and accurate COVID-19 detection system using chest X-ray images, with the aim of aiding healthcare professionals in the fight against the pandemic. By harnessing the power of artificial intelligence, we aspire to make a significant impact in global healthcare, ultimately leading to better outcomes for patients and communities worldwide.

Ultimately a model with an accuracy of 96.70% was obtained.

7. REFERENCES

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