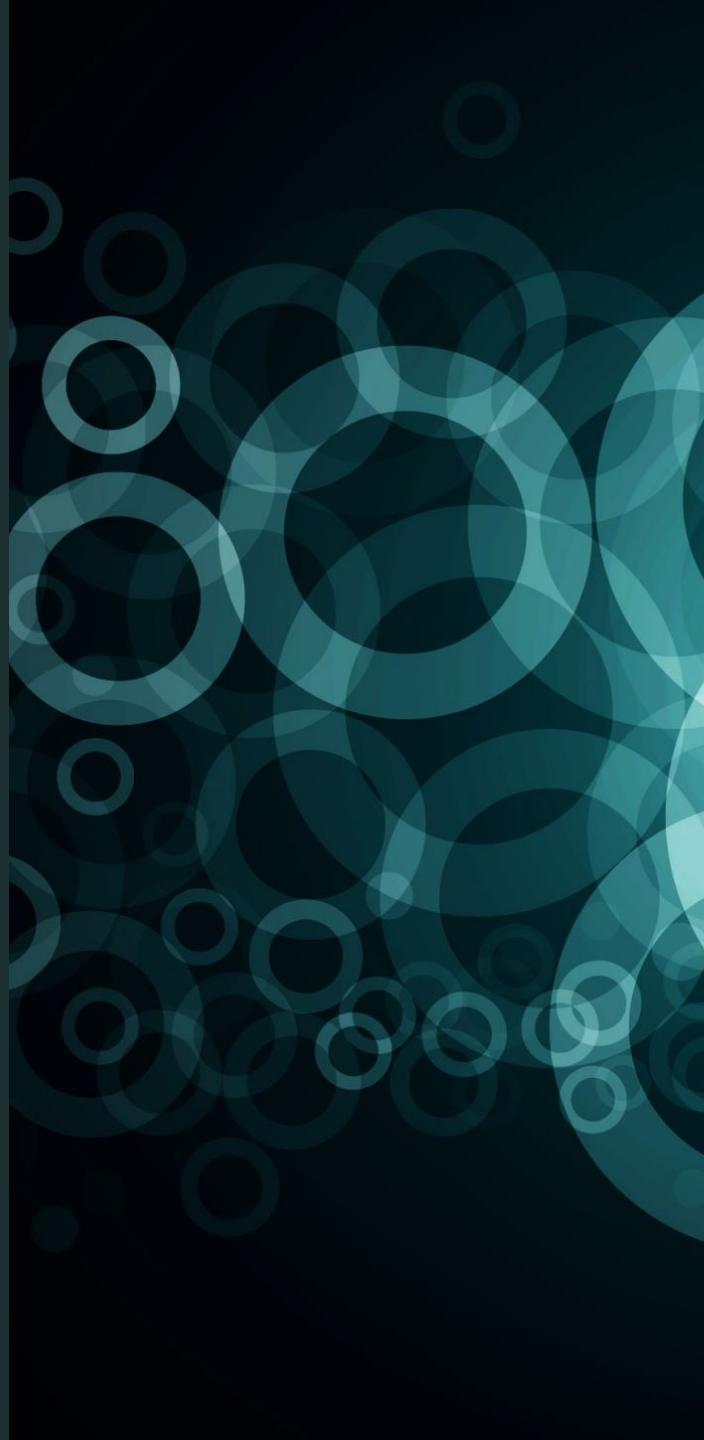


PNEUMONIA DETECTION USING CONVOLUTIONAL NEURAL NETWORKS

Chi Bui - 07/2021



OVERVIEW

- o Inflammatory
- o Infection
 - ✓ Virus
 - ✓ Bacteria
- o Chest Radiograph

BUSINESS PROBLEM

- Morbidity
- Mortality
- Early Diagnosis Improves Outcomes
- Computer-aided Detection

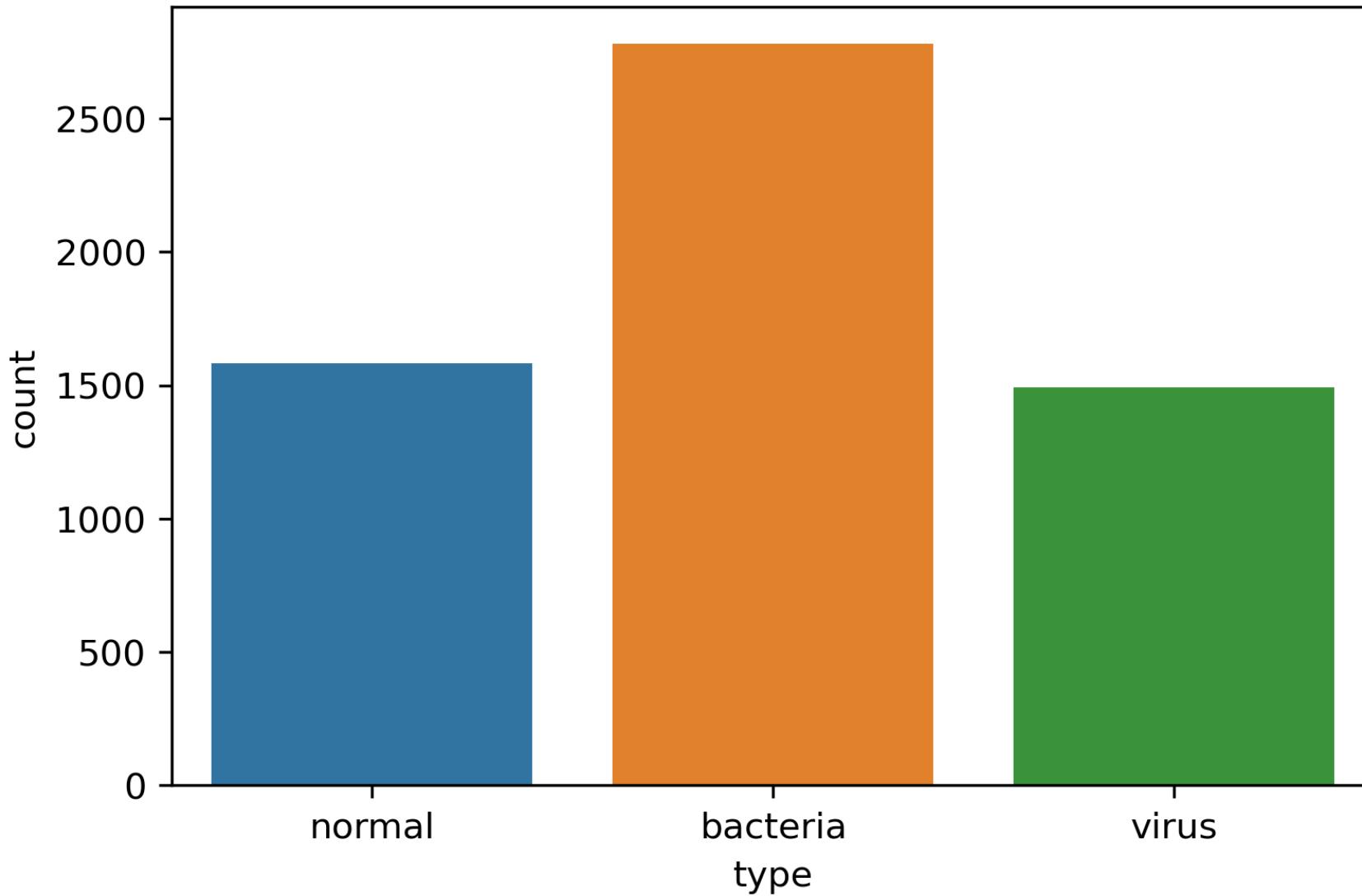


DATASET

Guangzhou Women and
Children's Medical
Center (Guangzhou, China)
pediatric patients of 1 to 5 years
old

- 5232 Chest X-ray Images:
 - PNEUMONIA
 - NORMAL
- 

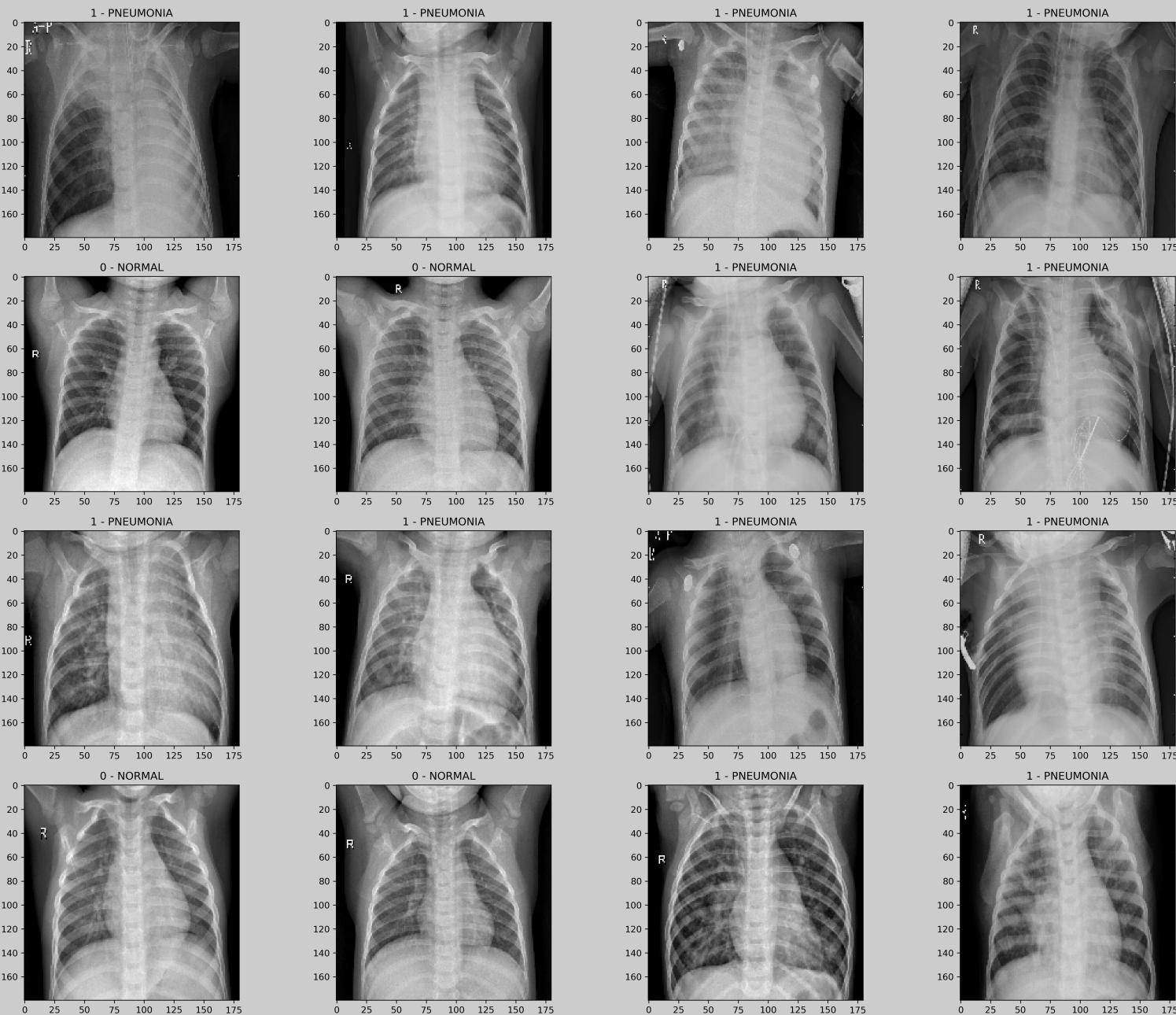
CLASS COMPOSITION



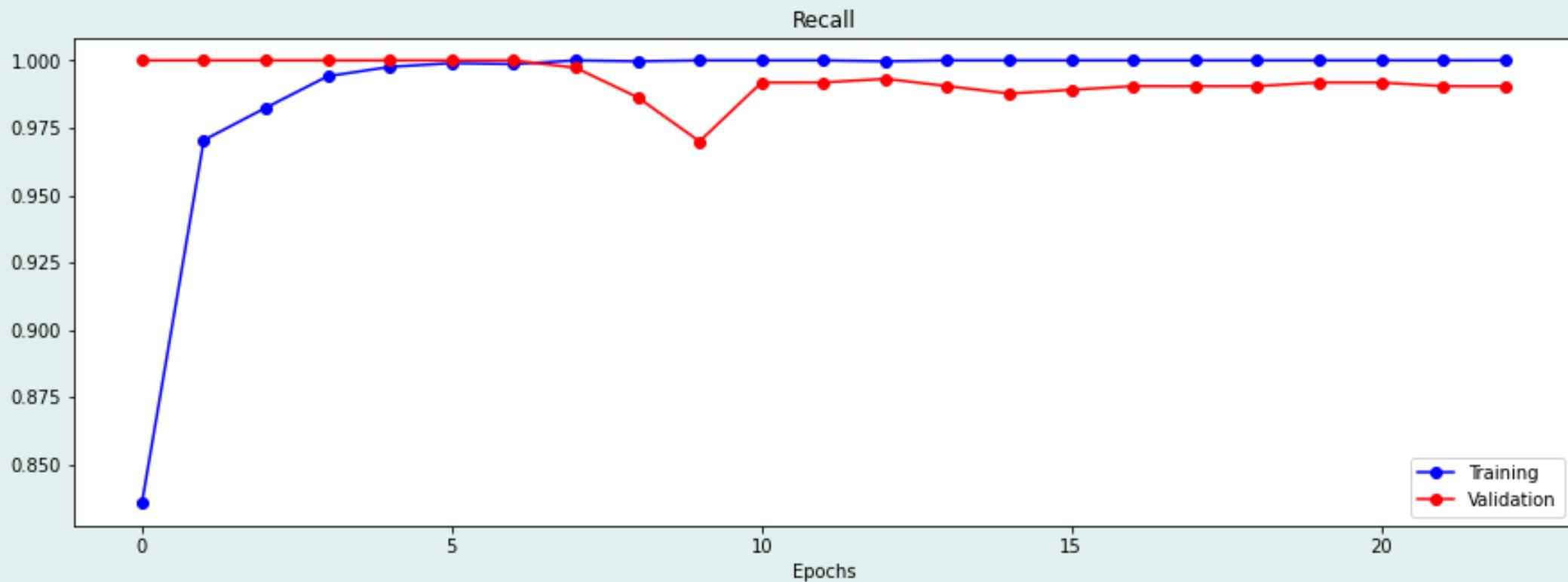
DATA VISUALIZATION

1 - PNEUMONIA

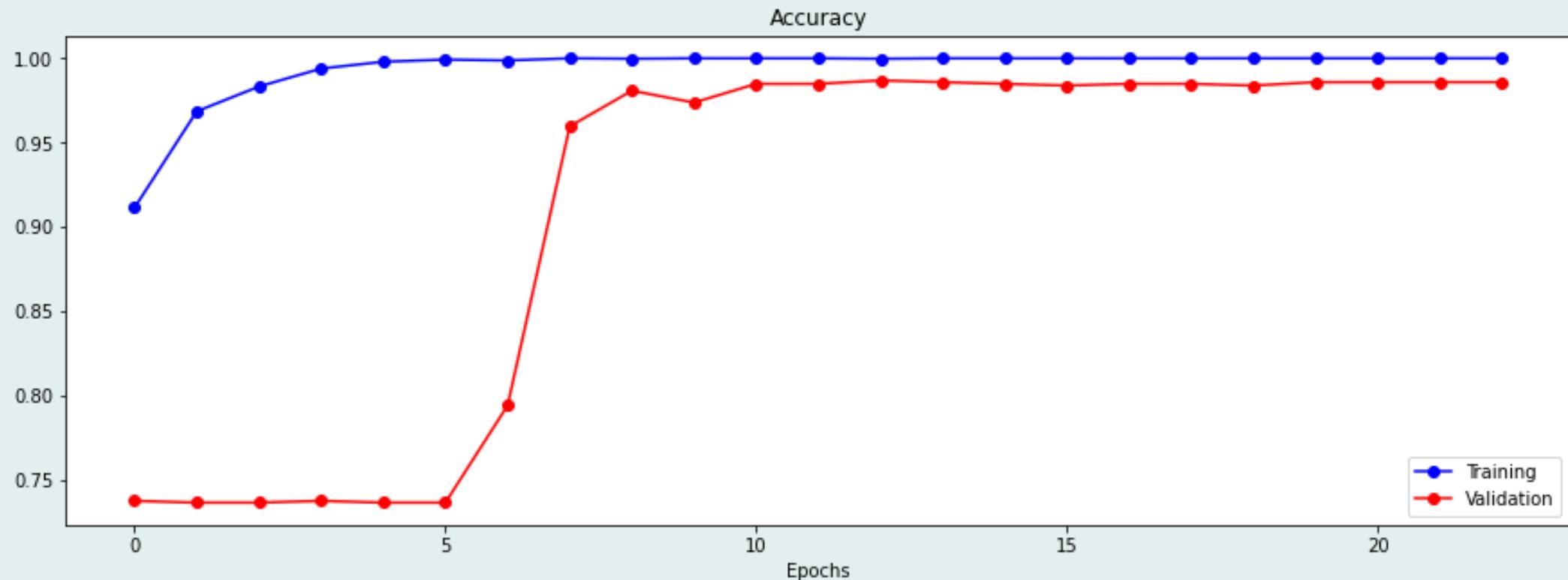
0 - NORMAL



RECALL

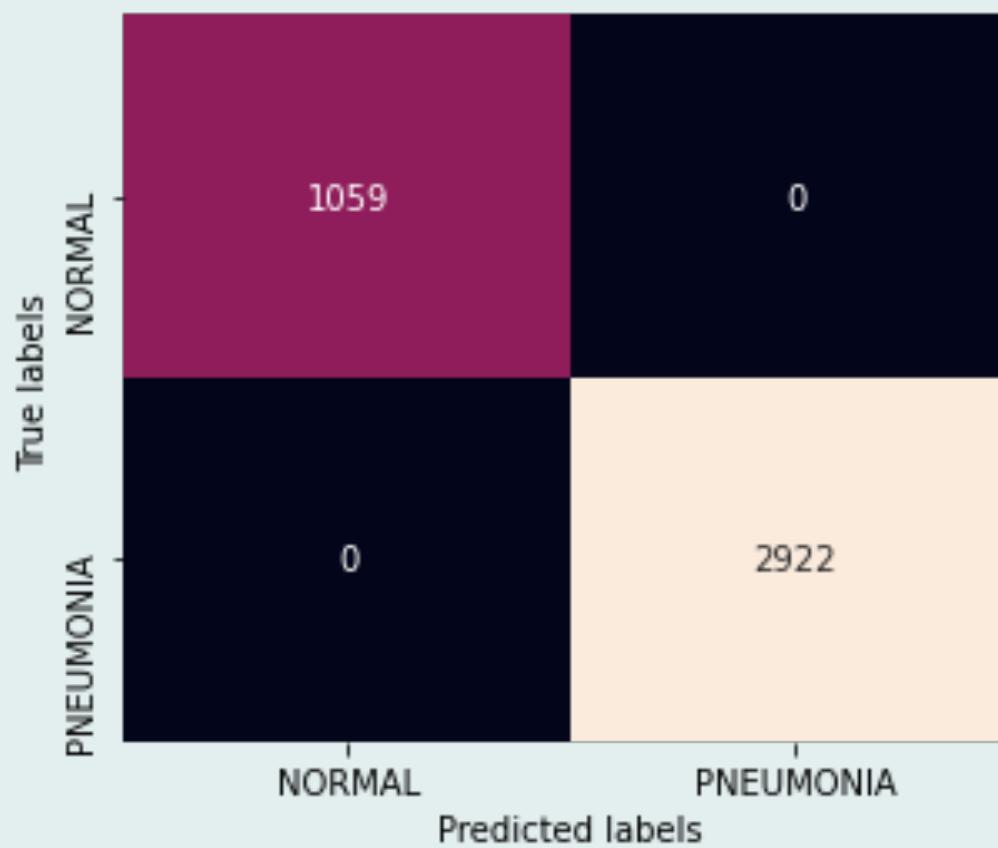


ACCURACY

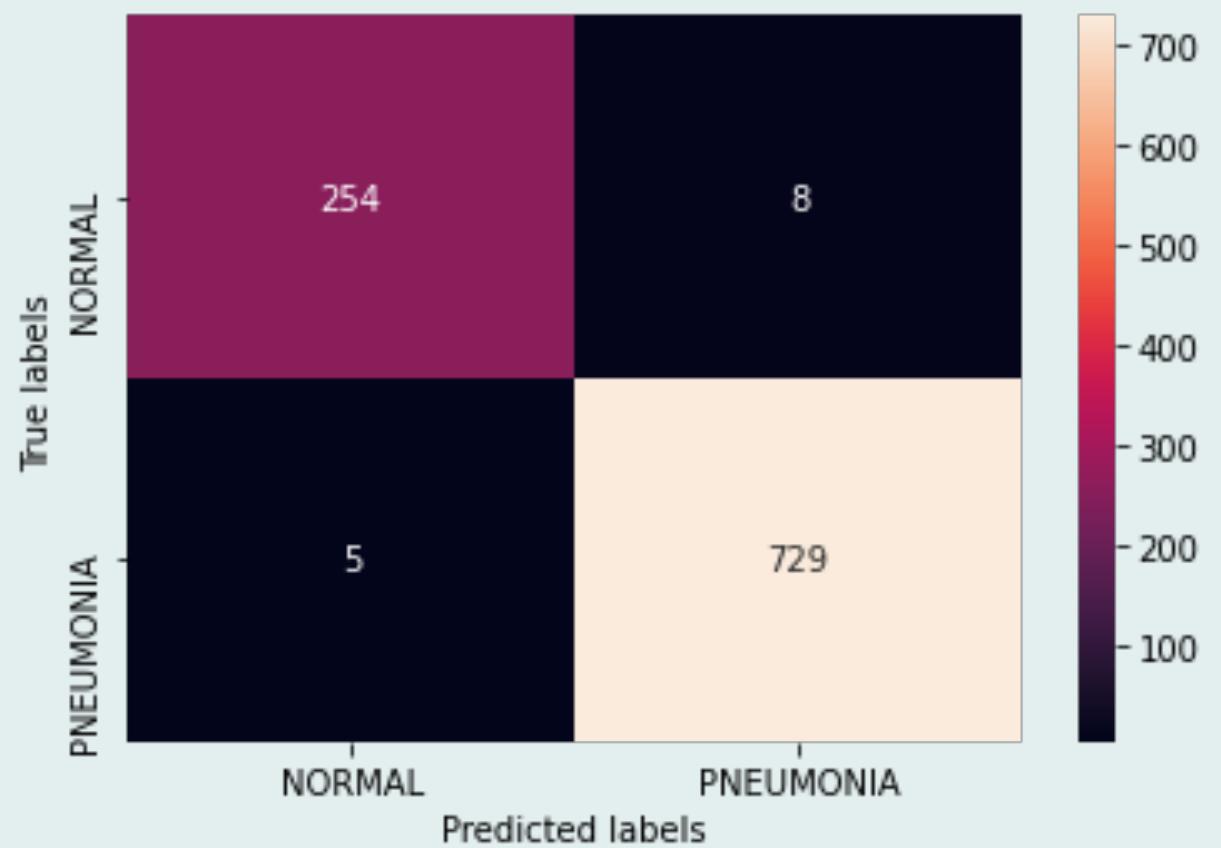


CONFUSION MATRICES

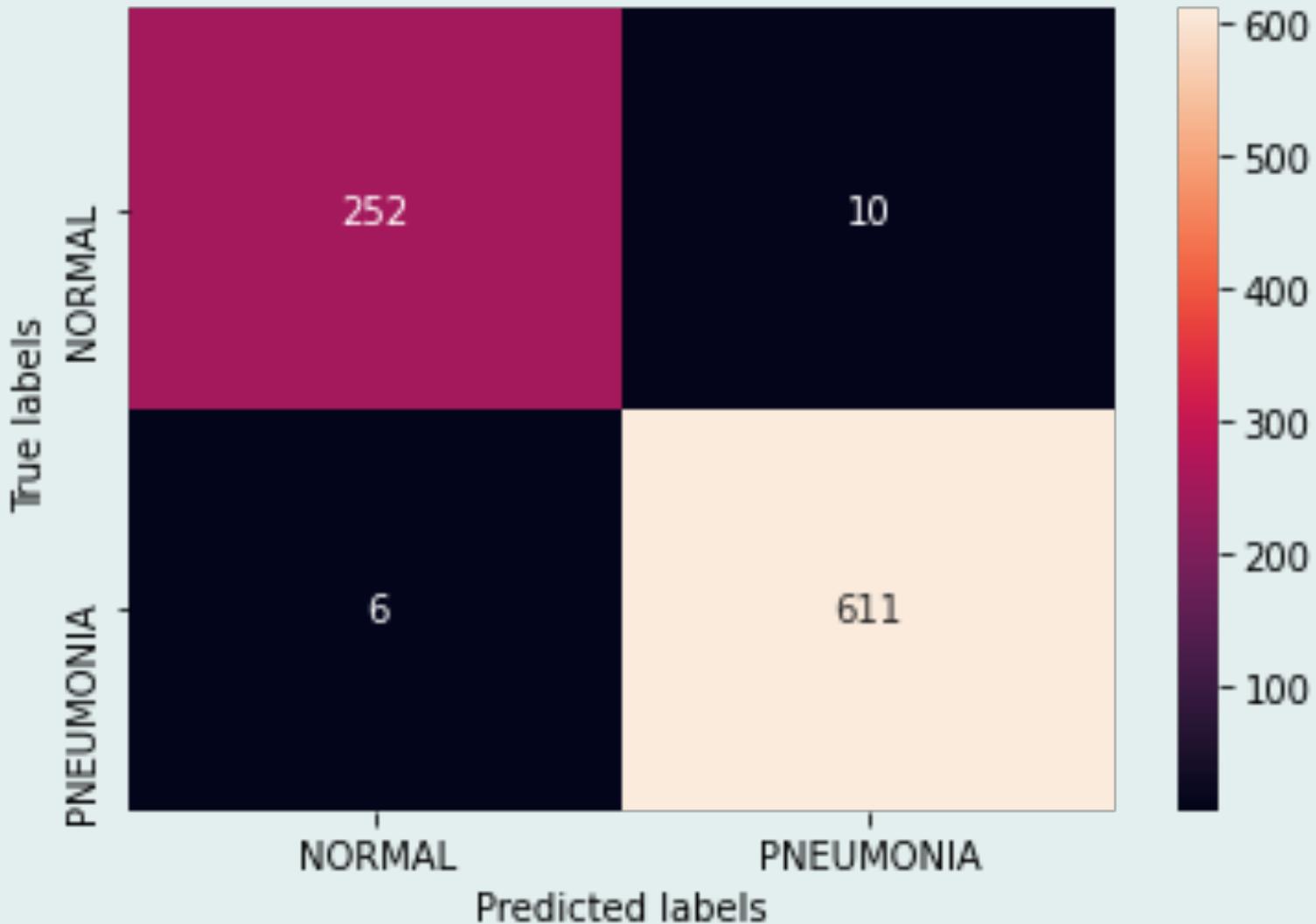
Confusion Matrix for TRAINING SET

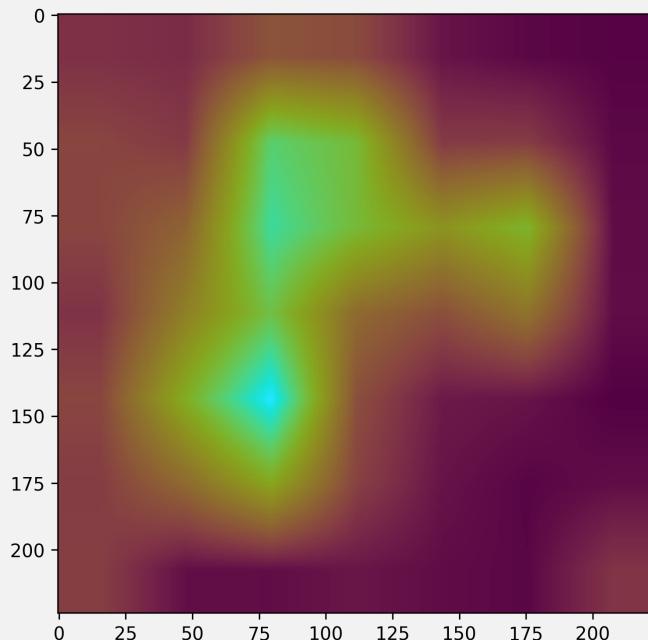


Confusion Matrix for VALIDATION SET

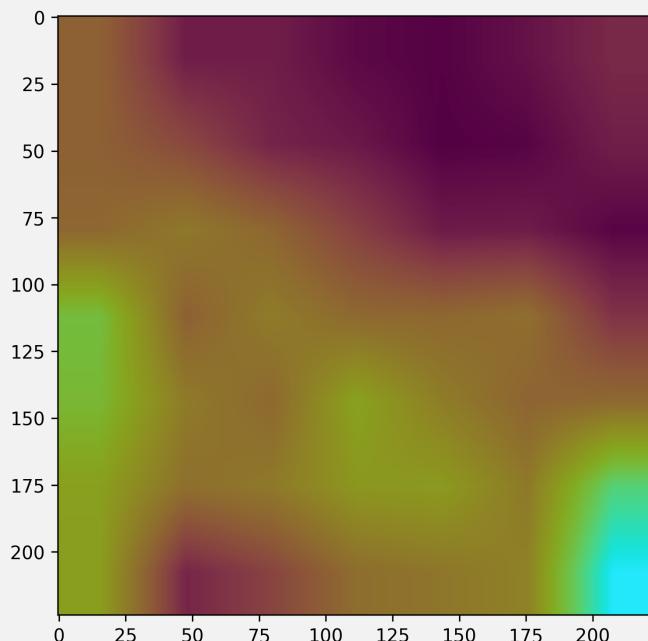
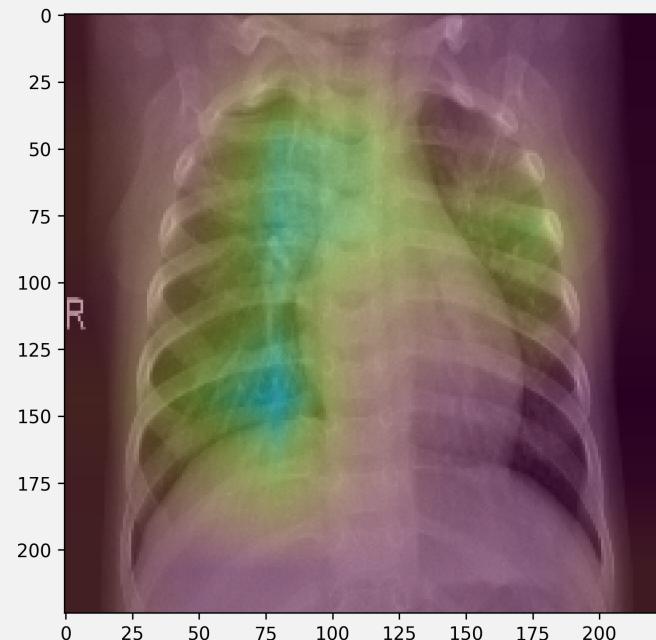
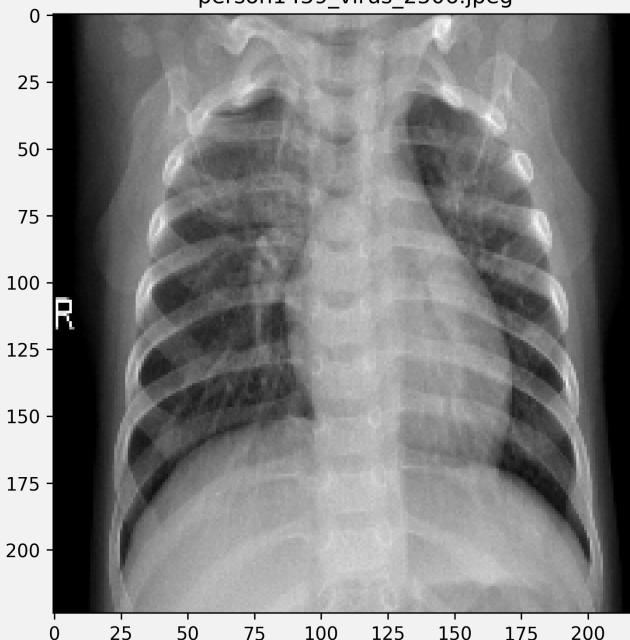


Confusion Matrix for TEST SET

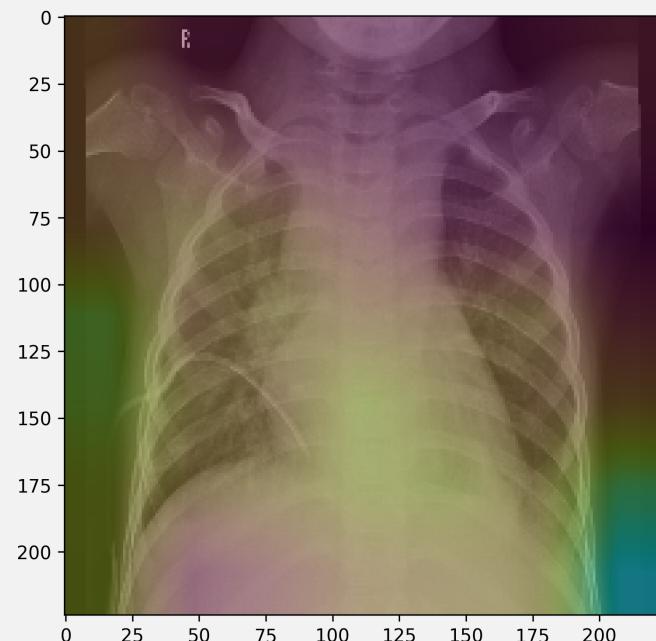
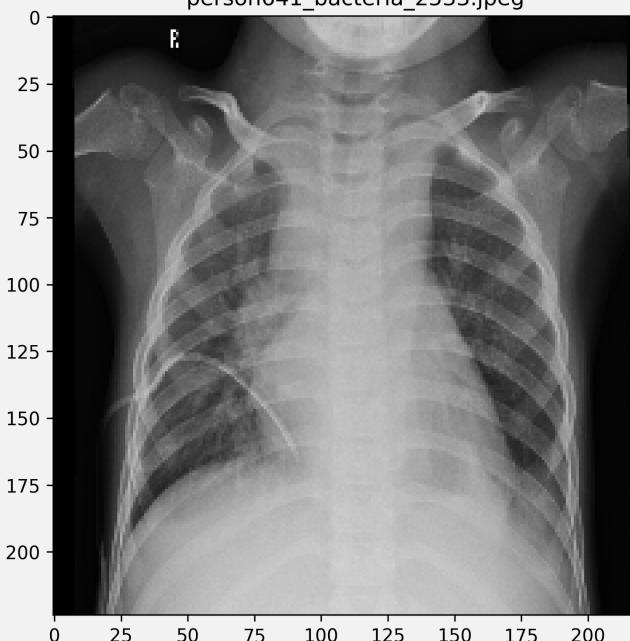


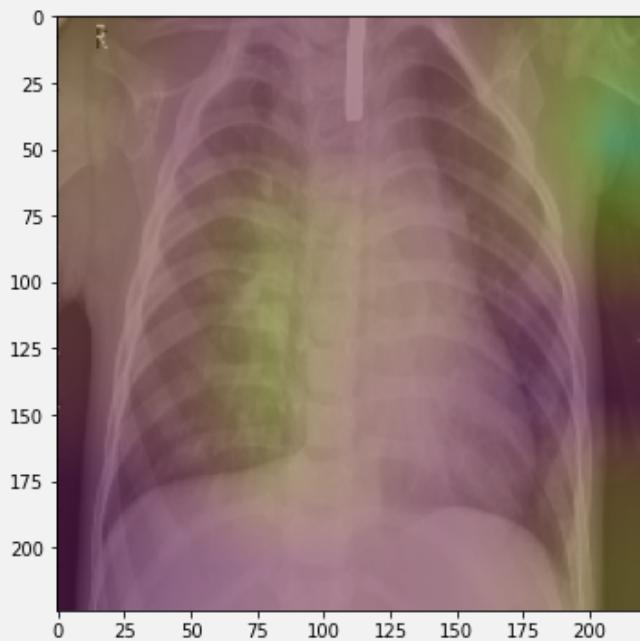
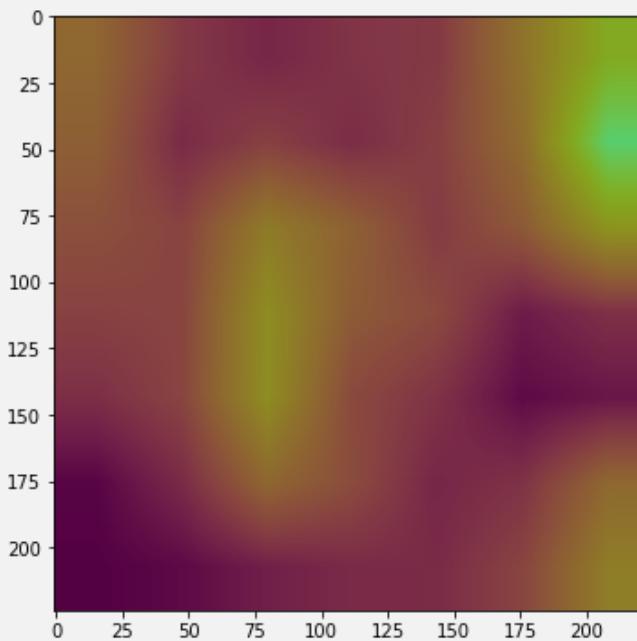
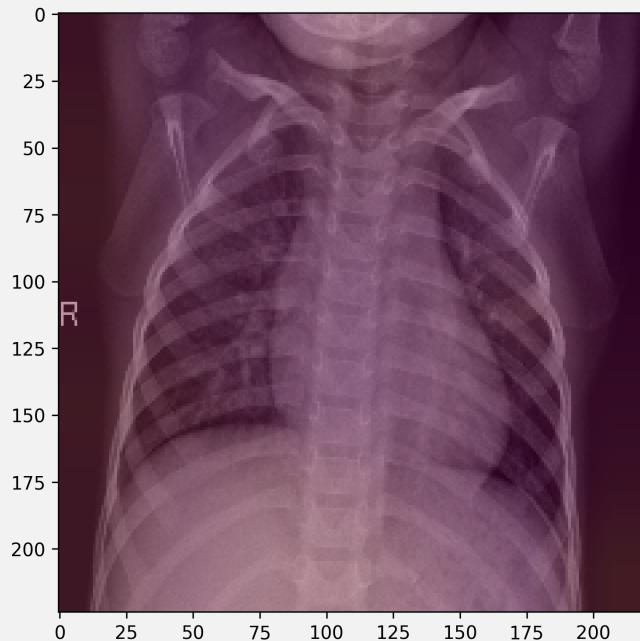
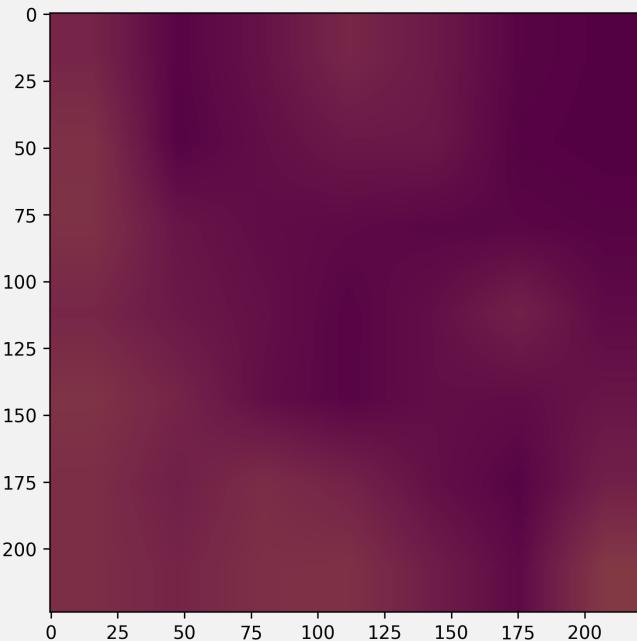


[PNEUMONIA]
person1459_virus_2506.jpeg



[PNEUMONIA]
person641_bacteria_2533.jpeg







CONCLUSION

- Computer Aided Diagnosis
&
○ Expert Domain Knowledge



NEXT STEPS

- Object Detection
- Localization



THANK
YOU

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