



## Main Idea

### **Problem Statement**

Pneumonia is a serious lung infection that can be diagnosed through chest X-ray imaging. In this project, you will build an AI model capable of detecting pneumonia from X-ray images using deep learning. The aim is to explore how computer vision techniques can assist radiologists in diagnosing pneumonia accurately and efficiently.

## **Model Development**

**Custom CNN**: A scratch-built convolutional network **Transfer Learning**: Using ResNet50 as a base model





# Results and Evaluation

## **Challenges & Lessons:**

Remember to always check the shape of the data and work accordingly



Custom CNN Evaluation							
	precision	recall	f1-score	support			
NORMAL	0.95	0.71	0.81	234			
PNEUMONIA	0.85	0.98	0.91	390			
accuracy macro avg weighted avg	0.90 0.89	0.85 0.88	0.88 0.86 0.87	624 624 624			
Confusion Matr [[167 67] [ 9 381]] 20/20	ix:	<b>– 14s</b> 518	ms/step				

ResNet50 <b>Eval</b>	<u>uation</u>			
	precision	recall	f1-score	support
NORMAL	0.81	0.79	0.80	234
PNEUMONIA	0.88	0.89	0.88	390
accuracy			0.85	624
macro avg	0.85	0.84	0.84	624
weighted avg	0.85	0.85	0.85	624

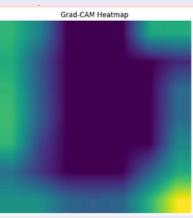
Confusion Matrix: [[185 49] [ 42 348]]

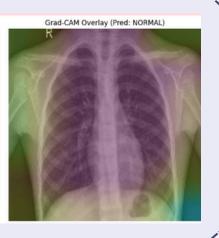


## \* Uisual Examples \* \*\*\*

## Example 1



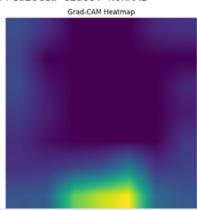




## Example 2

Image 8 - True Class: NORMAL, Predicted Class: NORMAL

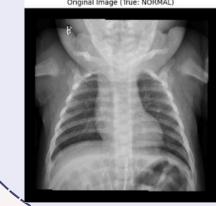


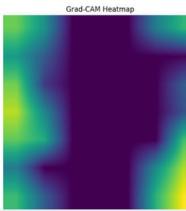


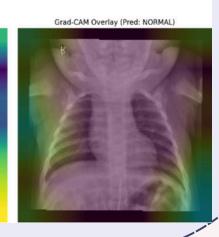


## Example 3

Image 4 - True Class: NORMAL, Predicted Class: NORMAL







## Example 4

Image 5 - True Class: NORMAL, Predicted Class: PNEUMONIA



