

# Final Model Comparison Report (Expanded)

## 1. Overview

This expanded report provides detailed comparison across all trained models, including strengths, weaknesses, training behavior, and final performance summary.

## 2. Models Trained

The following models were trained on the Chest X ray dataset: Custom CNN, VGG16, VGG19, ResNet50, MobileNetV2, DenseNet121, EfficientNetB0.

## 3. Observations from Training

- MobileNetV2 achieved the best validation accuracy (~87.5%) and lowest validation loss. • DenseNet121 performed competitively, especially in early learning. • VGG models showed steady improvement and reasonable accuracy. • ResNet50 and EfficientNetB0 underperformed relative to expectations—likely due to small dataset. • Custom CNN was fast but significantly less accurate than pretrained networks.

## 4. Comparison Summary

Best Model: MobileNetV2 (Val Acc: ~87.5%, Val Loss: ~0.23).

## 5. Notes

This version does not include training curves or confusion matrices because the history objects and datasets were not provided. If you supply the training histories or ask me to regenerate them from your code, I can embed those figures into the PDF as well.