

Skin Cancer and Pneumonia Detection using Deep Learning

Introduction

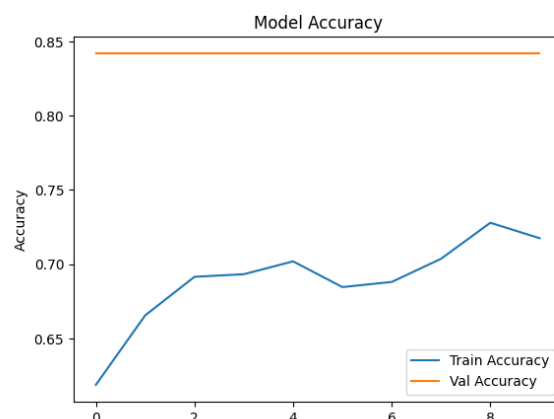
Medical image analysis is an important application of Artificial Intelligence. In this project, two separate problems were addressed:

1. **Skin Cancer Detection** using dermoscopic images.
2. **Pneumonia Detection** using chest X-ray images.

The goal was to train models that can automatically classify medical images into healthy vs. diseased categories, helping in faster and more reliable diagnosis.

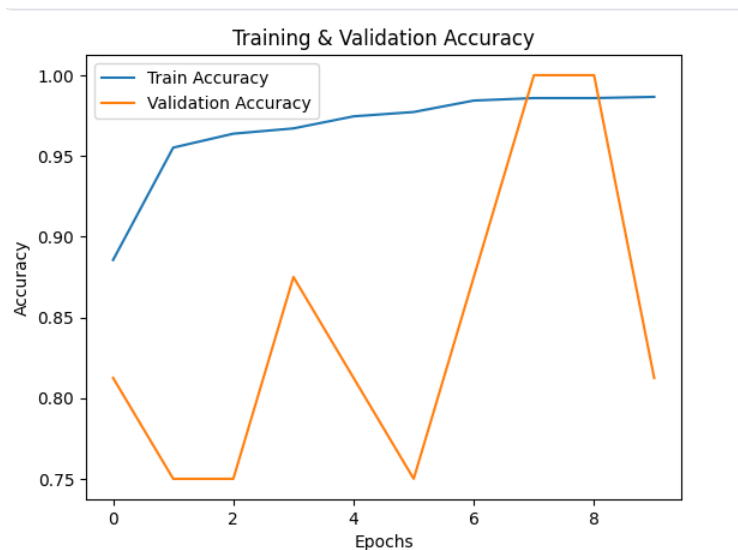
Task 1: Skin Cancer Detection

1. Dataset: A subset of the ISIC Skin Cancer dataset (~500–1,000 images).
2. Preprocessing: All images were resized to 128x128 pixels and normalized.
3. Model: A pre-trained ResNet50 model was used with transfer learning.
4. Training: The model was fine-tuned using the Adam optimizer and binary cross-entropy loss.
5. Evaluation: Accuracy was the main metric. The model achieved strong performance, showing that transfer learning is effective for small medical datasets.



Task 2: Pneumonia Detection

1. Dataset: Kaggle Chest X-ray dataset, organized into train, test, and val folders with classes Normal and Pneumonia.
2. Preprocessing: Images resized to 128x128 and normalized.
3. Model: A simple CNN with 2 convolutional layers, pooling layers, and a fully connected classifier.
4. Training: Used Adam optimizer and binary cross-entropy loss for 10 epochs.
5. Evaluation:
6. Accuracy was measured on validation and test sets.
7. The model reached good accuracy on the test set, showing that even simple CNNs can perform well for image classification.



20/20 ————— 9s 435ms/step - accuracy: 0.4617 - loss: 3.7033

Test Accuracy: 71.31410241127014 %

Test Loss: 2.011427164077759