Mobile Cam Neonatal Jaundice Classifier

Aim: Binary classification of neonates as either jaundiced or normal.
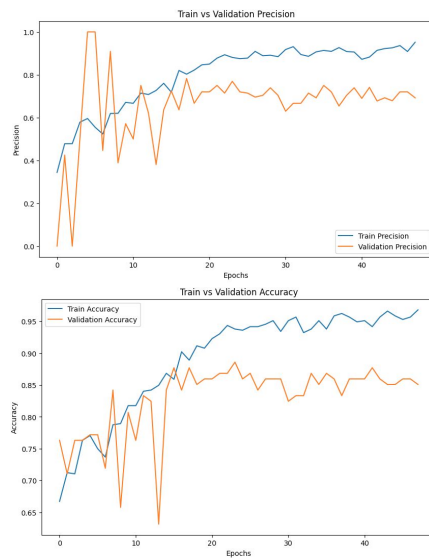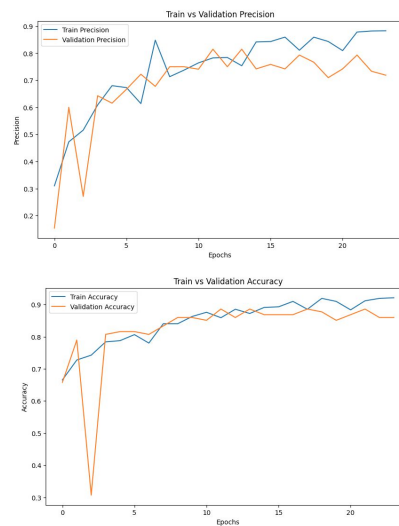
Dr. Ajavindu
M.B.B.S

Methods

- Models: Resnet50 and GoogLeNet (Trained from scratch)
- Computing Resources: Laptop RTX 3060
- Model Details: -

    -ResNet50: Parameters: 23,555,098   FLOPS: 4100300288

    - GoogLeNet: Parameters: 10,317,139   FLOPS: 157817732

Results

GoogLeNet (Test: 85.96%)

ResNet50(Test: 86.84%)

Inferences

- In an experiment to quantify agreement between healthcare providers in diagnosing neonatal jaundice, there was only a 23% inter-observer agreement.
- This model uses images from a mobile camera taken in different lighting conditions, with babies connected to various medical tubing, wires and eye-patches.
- This model can increase clinical jaundice detection and screen out patients to get heel prick bilirubin. It could be deployable on a mobile phone and could be a useful bedside tool.
- More Training data can further increase model accuracy (750 images were used)
- Pytorch V2 image transformations with Z score normalisation increased model accuracy.