README.md

Image classification using CNN for Diabetic Retinopathy

Background

Diabetic Retinopathy is disease of the eyes -caused by high blood sugar -Affects blood vessels -Causes Loss of Vision - Measured by Disease Proliferation

Affects individuals with diabetes

Found in 4.1 million people -Roughly 1/29 diabetics -1/3 are African-American and Mexican-American

Business Problem

We are building a deep learning model to detect the various levels of diabetic retinopathy

Why?

Medical misdiagnosis caused by varying legels of knowledge and experience

Ensuring proper diagnosis for medical professional

Data

Data is created by TensorFlow

Contains images of 35,000+ images of different levels of Diabetic Retinopathy

Methods

Images imported from directory

Baseline model created for comparison

Model evalution

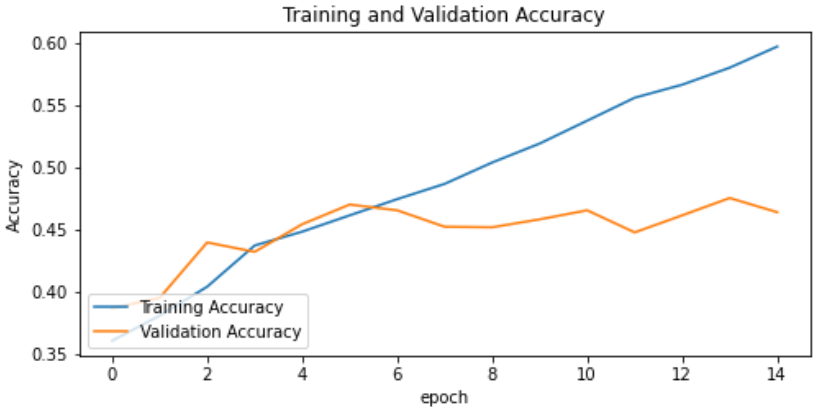
Using Tranfer Learning, instantiating pre-trained model as base

Adding the base model to final model

Model Evaluation

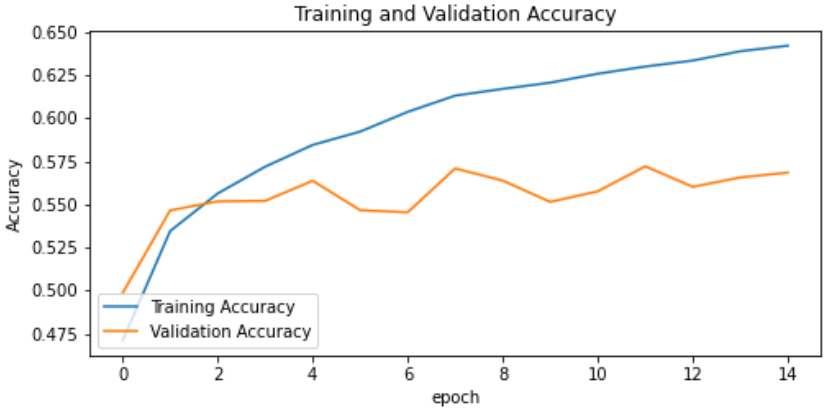
Results

Data Visualization for initial model accuracy

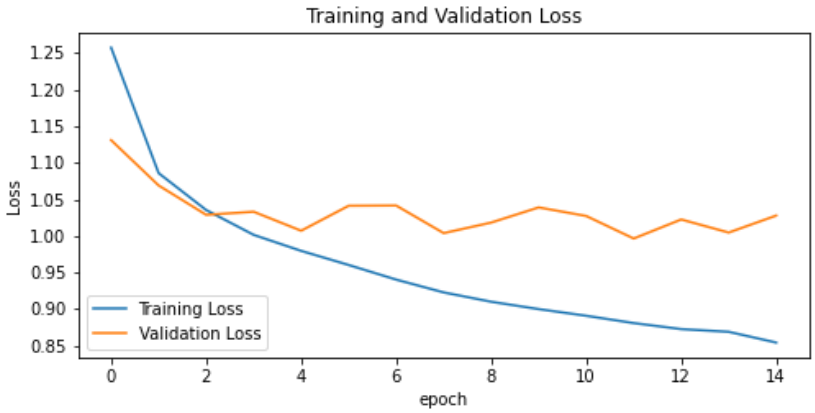


Data Visualization for initial model loss

Data Visualization of model with transfer learning performance accuracy



Data Visualization of model with transfer learning performance loss



Conclusions / Summary of Findings

The model evaluation shows 68% Accuracy

Overfitting occus in both models

Transfer learning greatly improves model performance

Next Steps...

1. Build Deep Learning models to other ocular diseases (e.g., Diabetic Macular Edema)
2. Pursue other areas of medicine, where we can track disease progression. (e.g., Cancer metastasis)
3. Use Deep learning to build models for disease detection (e.g., Pneumonia)

├── dataset : data used for modeling

├── images : images used in PPT and readme

├── README.md : project information and repository structure

├── dsc-phase-5-project-presentation.pptx : (Presentation for Stakeholders)

└── Diabetic Retinopathy Image Classification.ipynb (jupyter notebook used for modeling)

Releases

No releases published
Create a new release

Packages

No packages published
Publish your first package

Languages

- **Jupyter Notebook** 100.0%