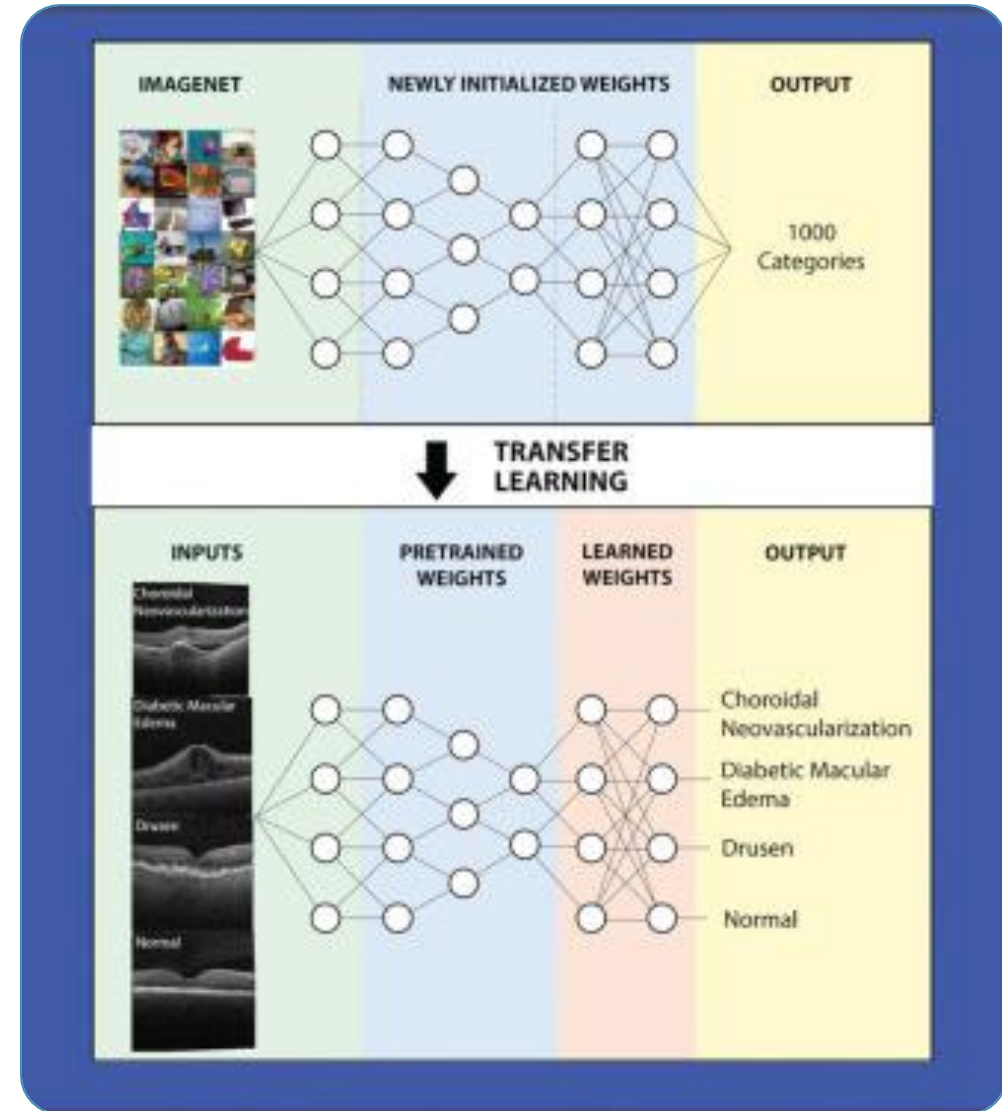


# module 5 final project

ASAD RAHMAN

# PROJECT AIMS

Apply transfer learning techniques to improve model accuracy and efficiency to improve diagnosis of retinal diseases



# METHODOLOGY



DATASET: 84,484 OCT  
Retinal Images

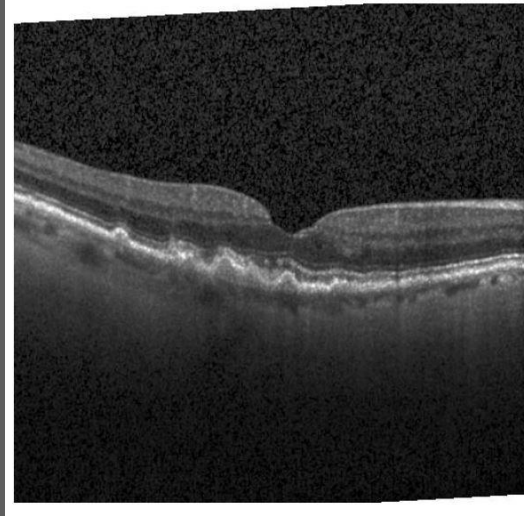


CREATE and TEST MODEL

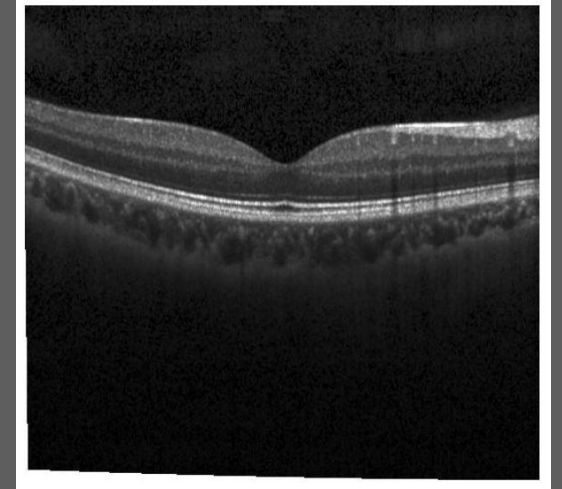


IMPROVE MODEL with  
TRANSFER LEARNING

Drusen



Choroidal Neovascularization

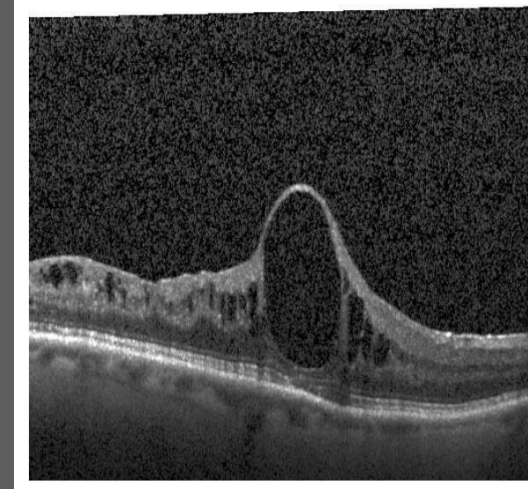
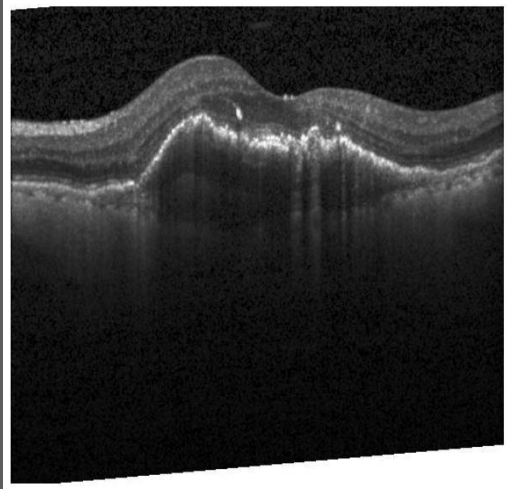


Normal

# THE DATA

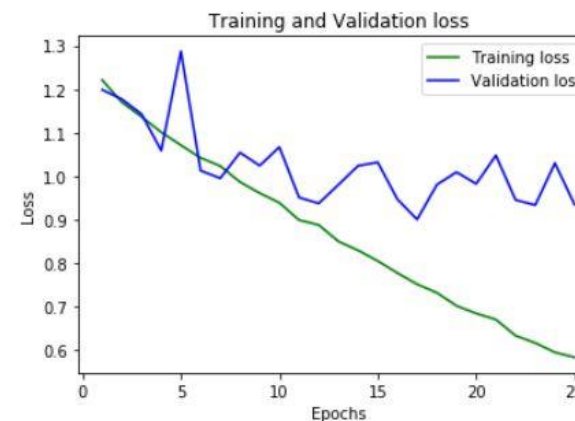
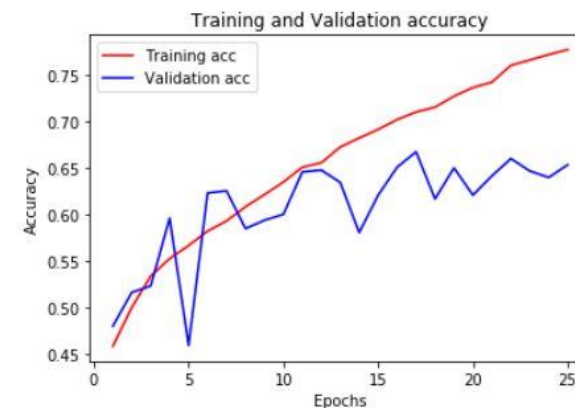
Diabetic Macular Edema

- Optical Coherence Tomography
- Images of the Retina
- 4 Classifications of retinal state



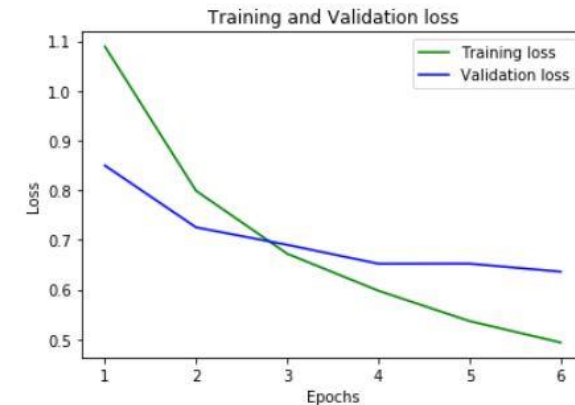
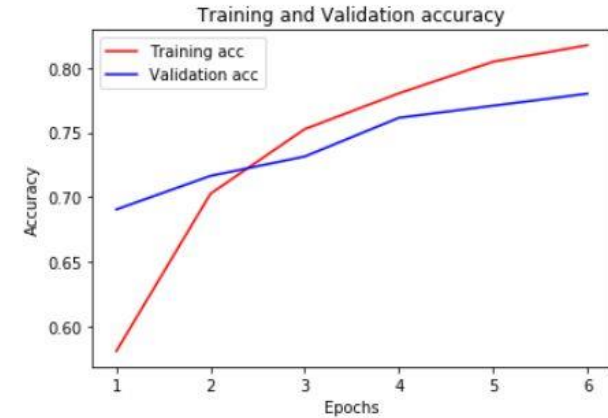
# NEURAL NETWORK: BASELINE MODEL

- Base Keras model obtained 83% accuracy on training images
- Only 47% accuracy on testing images



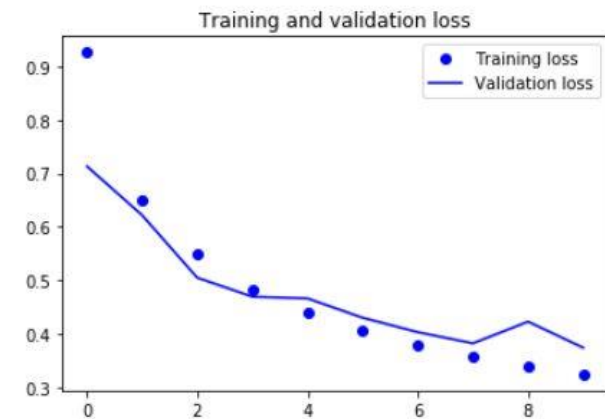
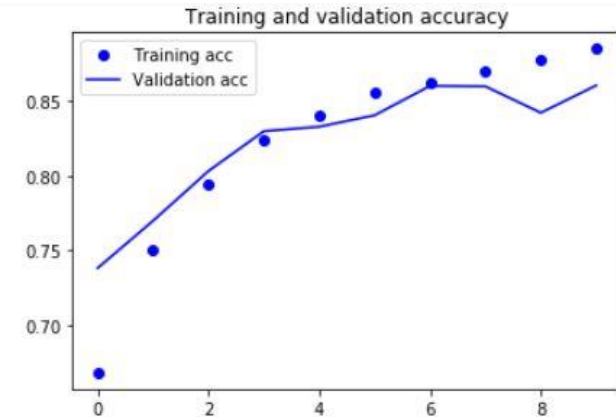
# Convolutional Neural Network

- Testing image accuracy 69%
  - 22% increase on individual subtleties
- Greater usability with newer images



# Pretrained Network

- VGG19
- Obtained 88% accuracy on training set
- Massive improvement on testing set – 78% accuracy
  - 31% increase from baseline model



# Future Recommendations



MORE REFINED PREPROCESSING  
OF IMAGES COULD RESULT IN  
MORE EFFICIENT MODEL



ATTEMPT TRANSFER LEARNING  
WITH A DIFFERENT NETWORK



INTRODUCE BOTTLENECK  
FEATURES TO REDUCE RUNTIME



# Thank You

Questions?