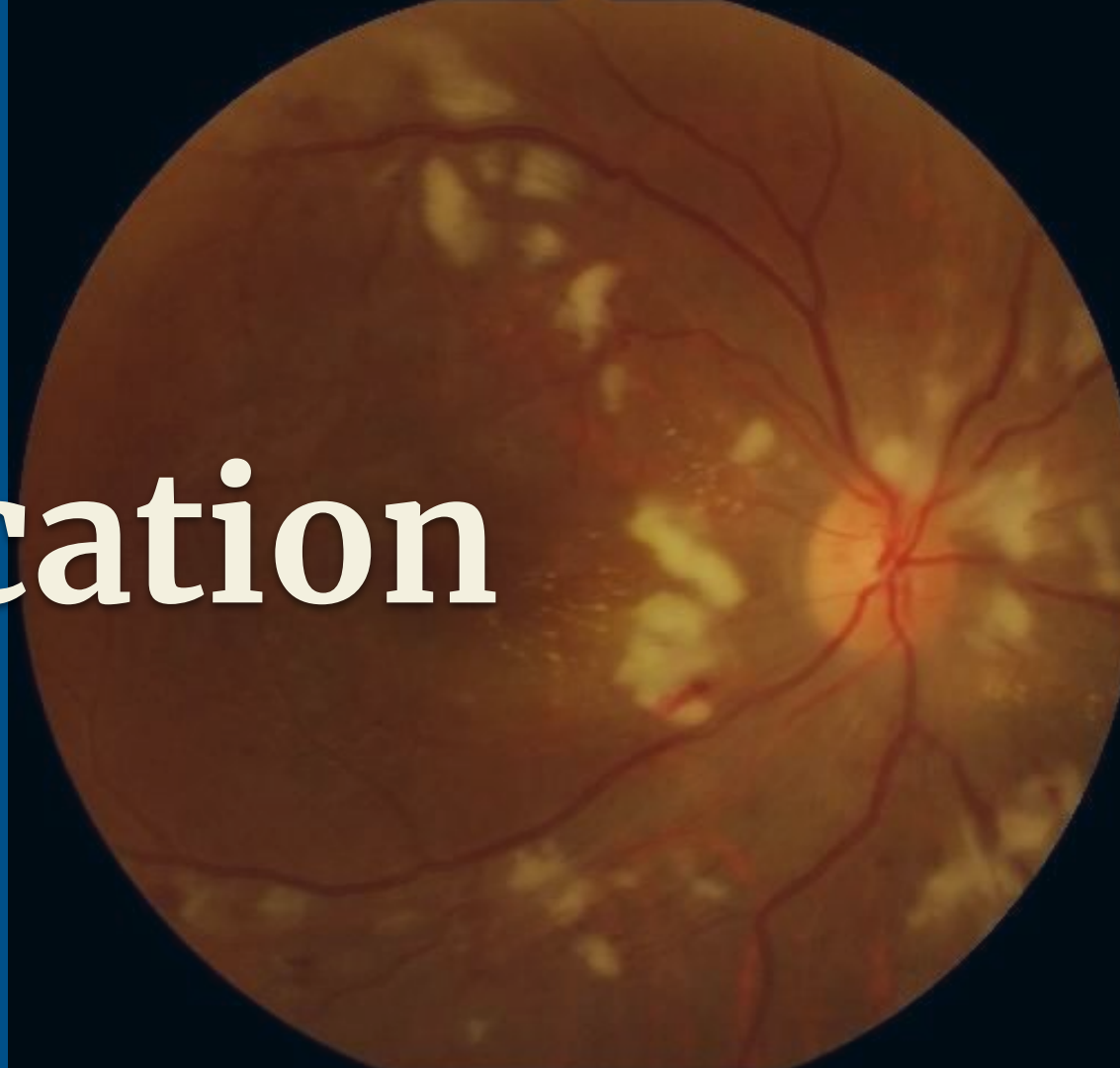
# Retinal Disease Classification



Kristen Cramer
Data Scientist

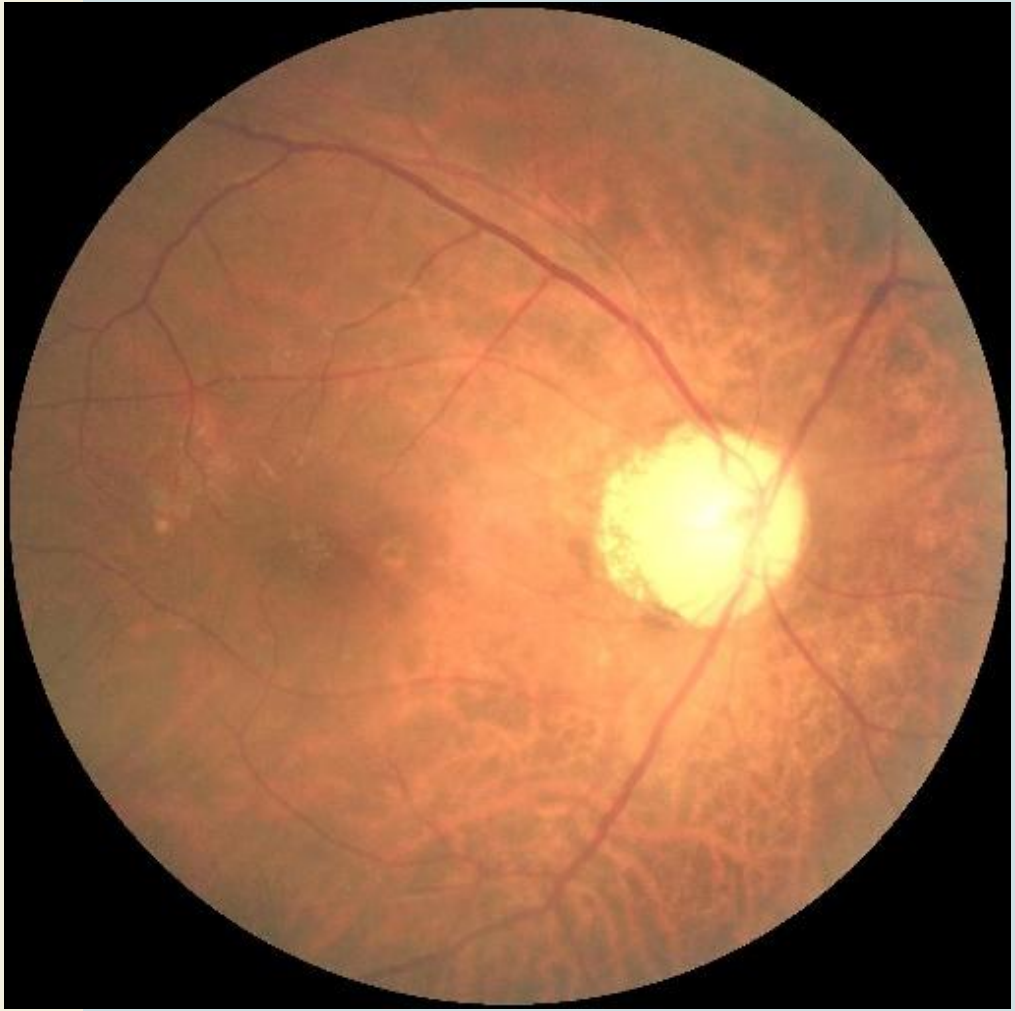
# Defining the Problem

## Early Detection

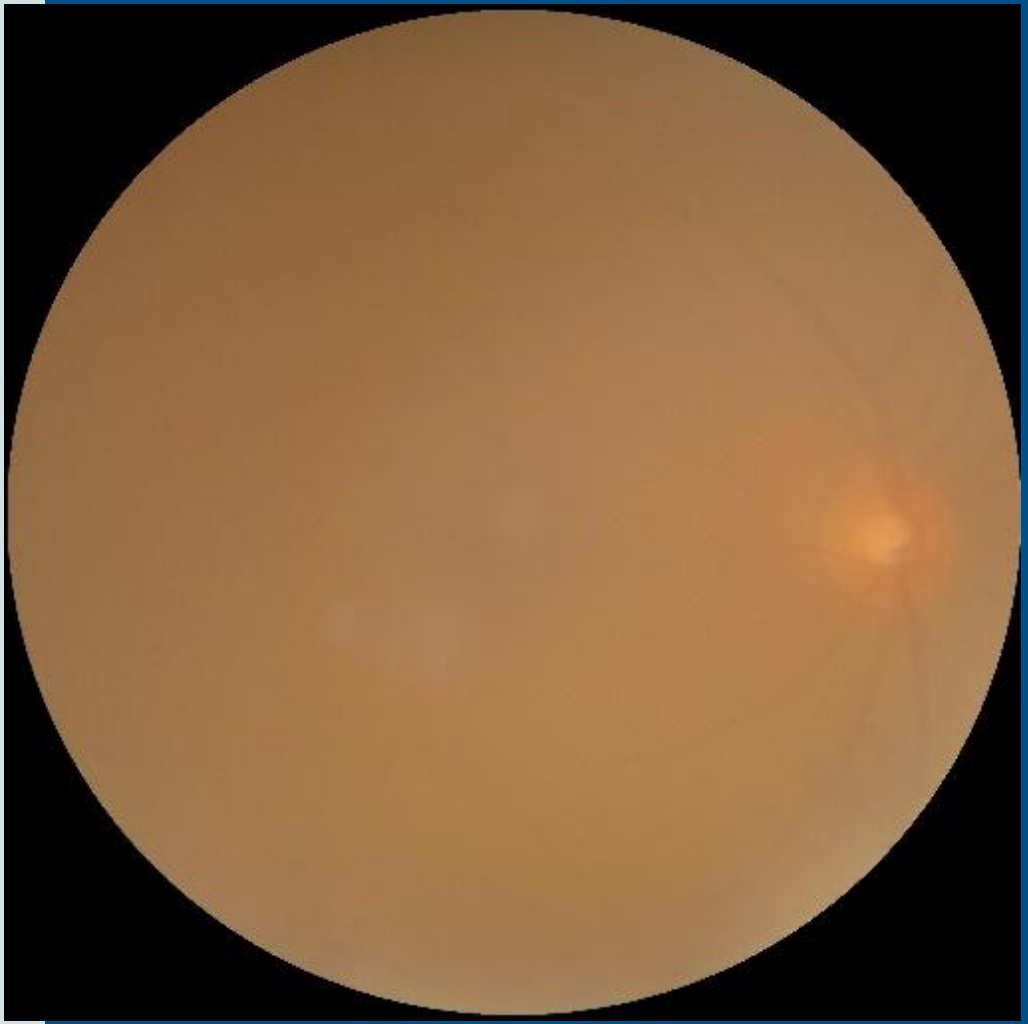
# Data Analysis

# Diabetes

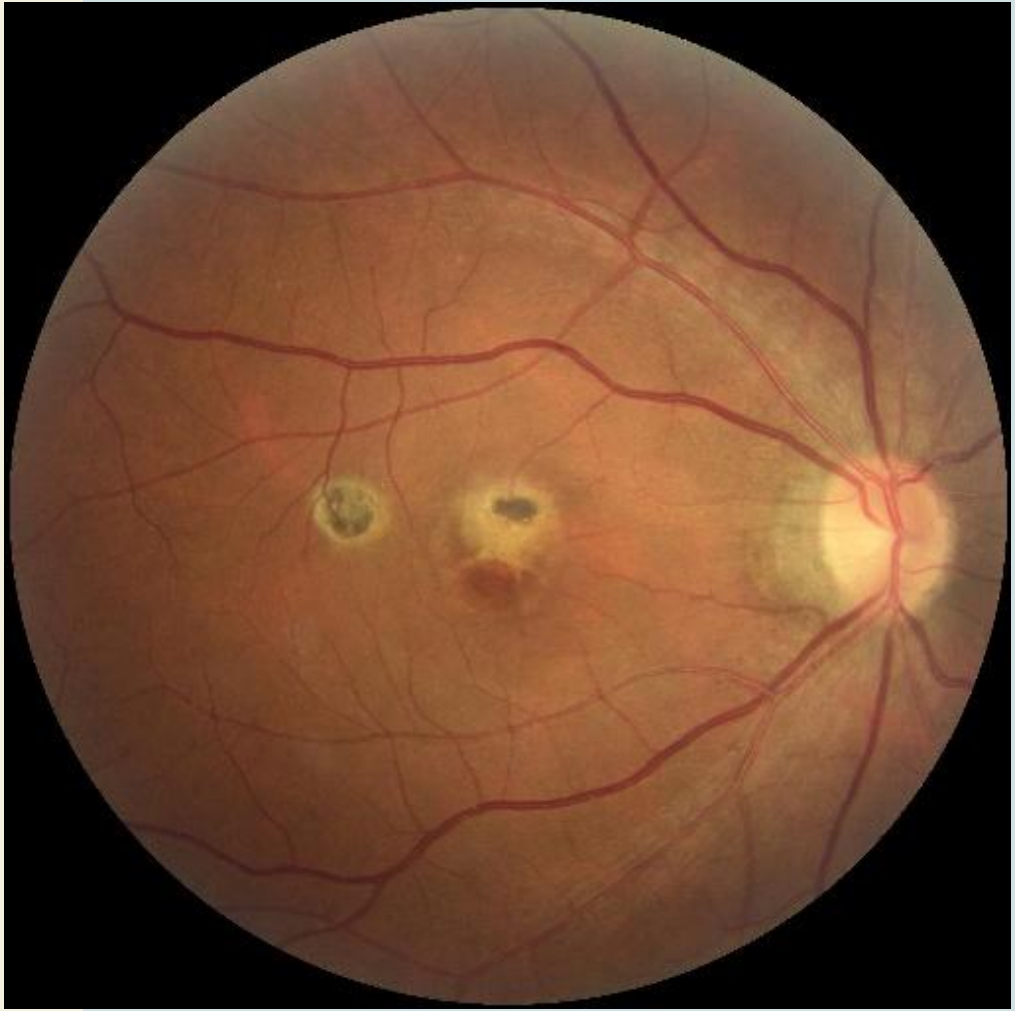
# Glaucoma



# Cataract

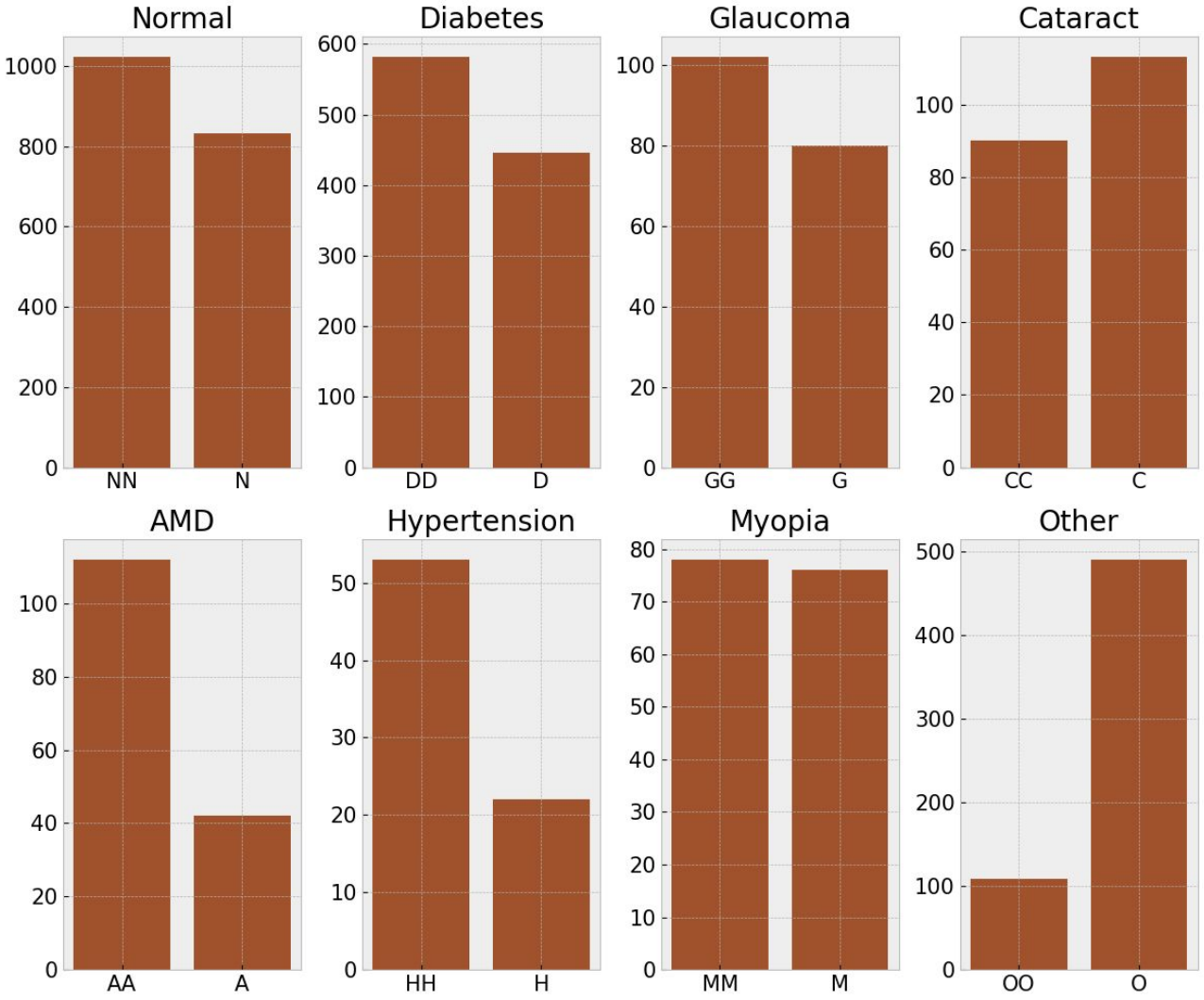


# Age Related Macular Degeneration

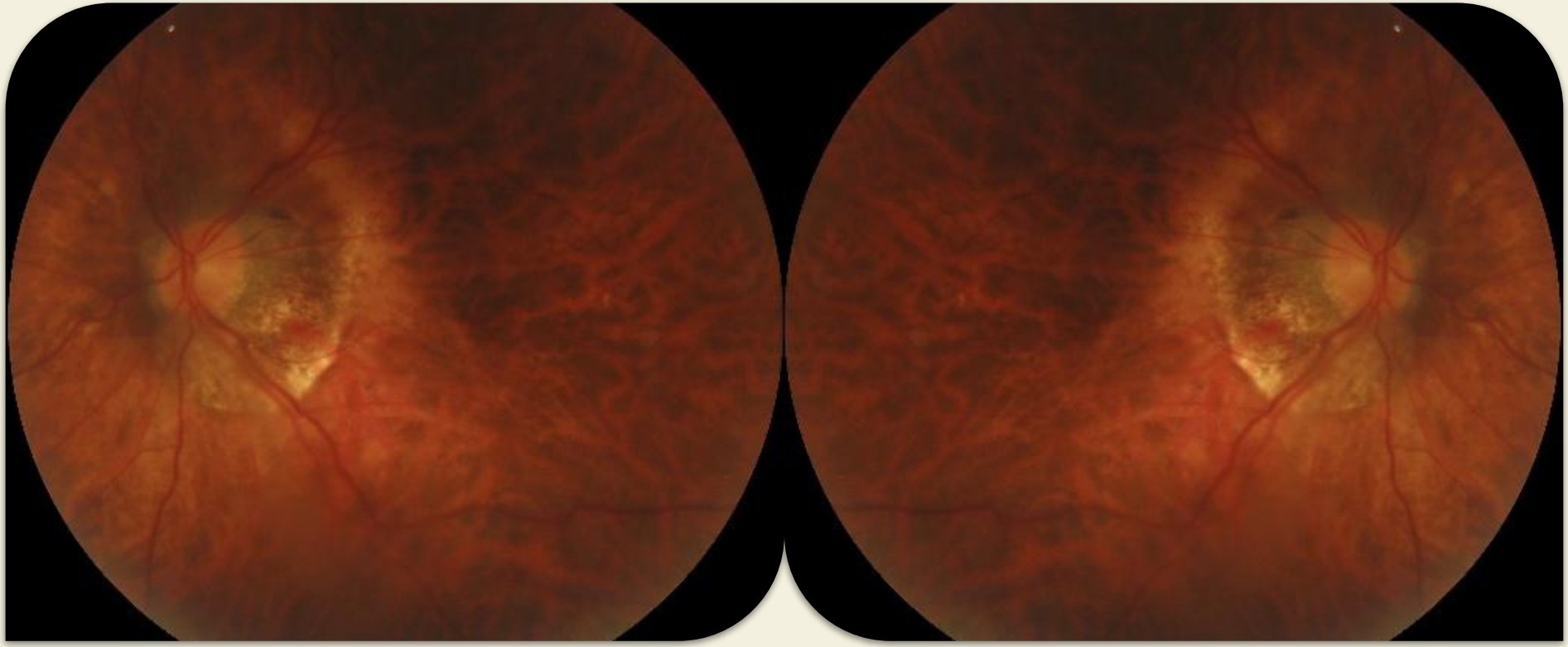


# Hypertension

# Pathological Myopia

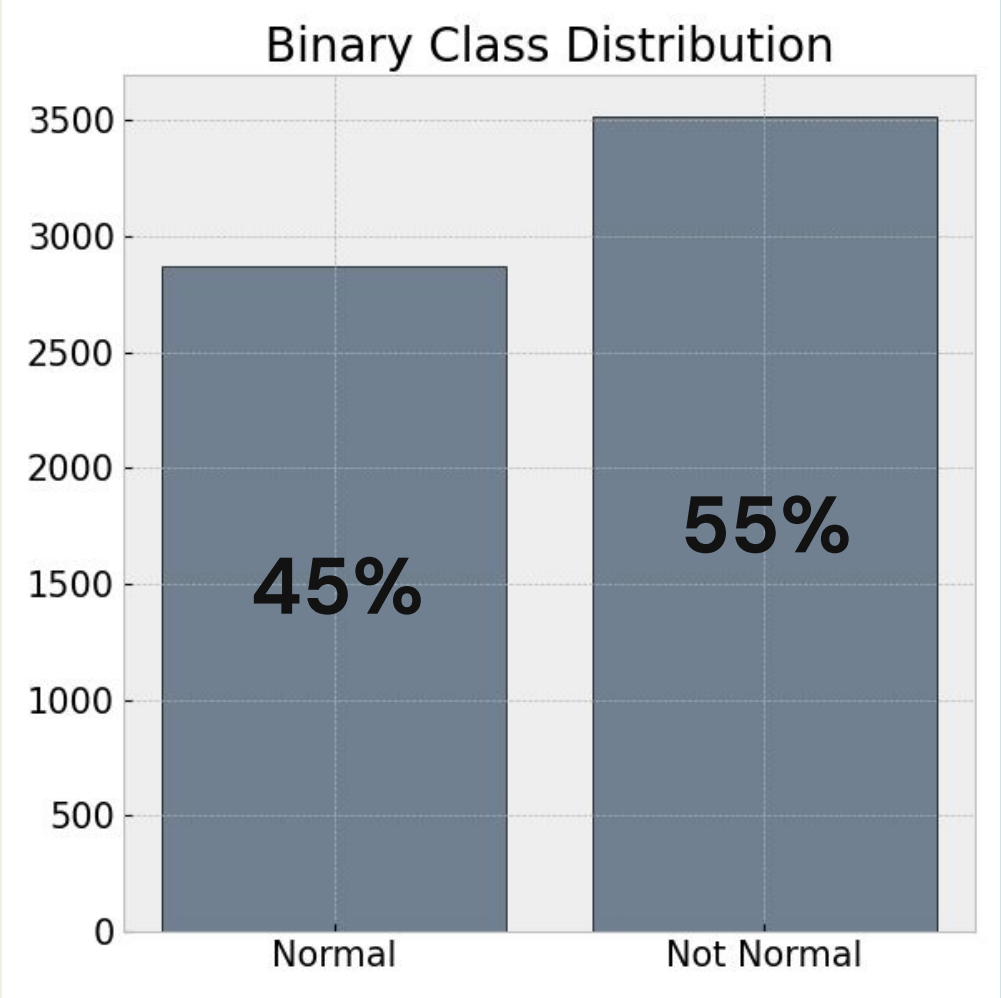

Normal
1000
800
600
400
200
0
NN
N
Diabetes
600
500
400
300
200
100
0
DD
D
Glaucoma
100
80
60
40
20
0
GG
G
Cataract
100
80
60
40
20
0
CC
C
AMD
100
80
60
40
20
0
AA
A
Hypertension
50
40
30
20
10
0
HH
H
Myopia
80
70
60
50
40
30
20
10
0
MM
M
Other
500
400
300
200
100
0
OO
O

# Augmentation



# Modeling

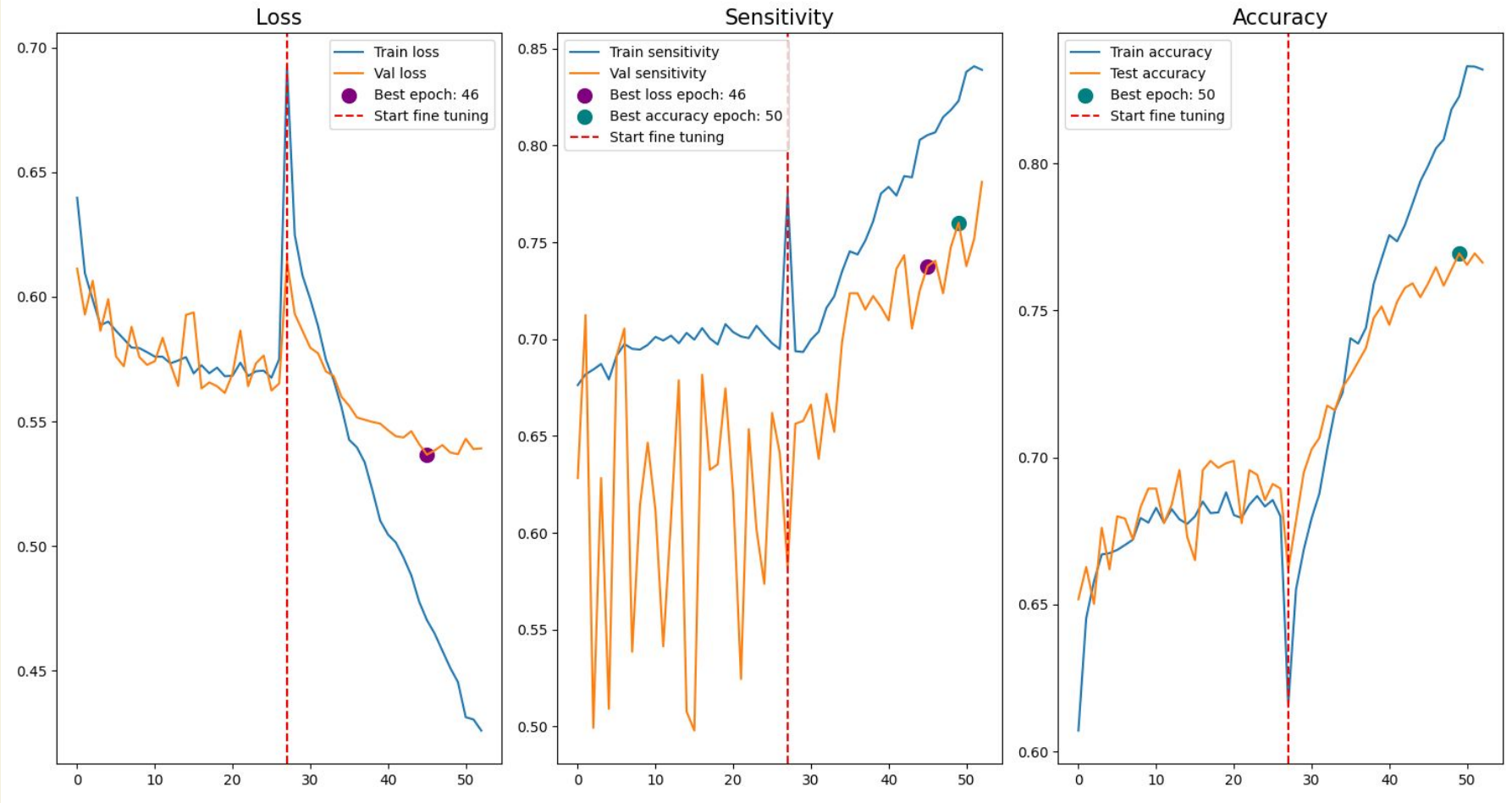
# Baseline Model



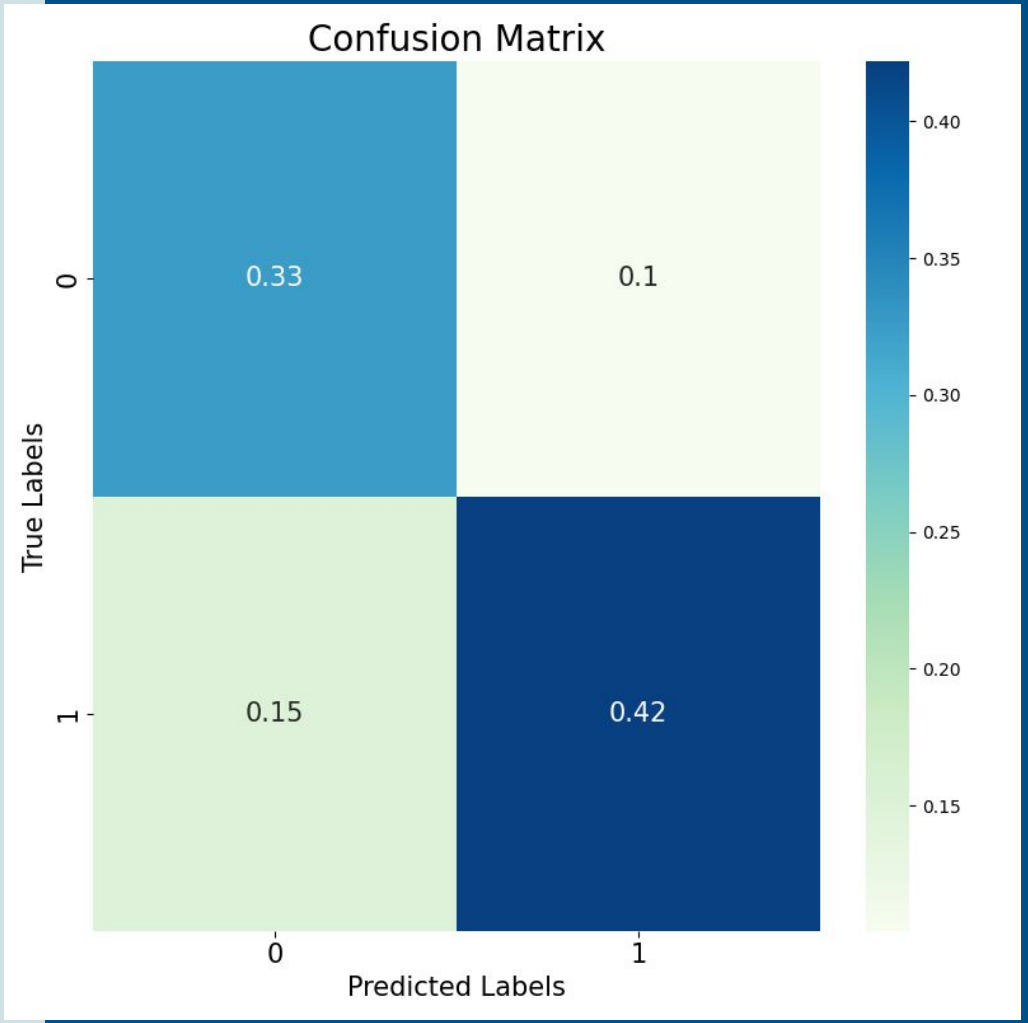
# The Models

- CNN from scratch
- ResNet152V2
- Xception

# Xception Performance

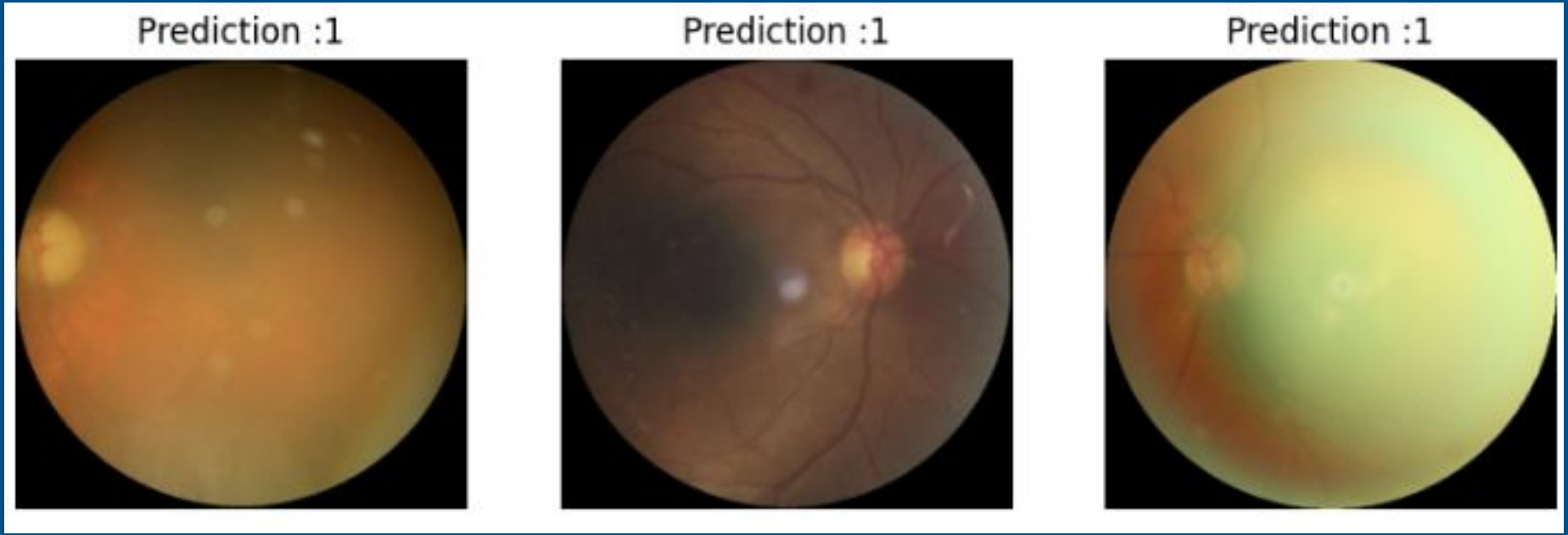


- Test Accuracy 74.77%
- Test Sensitivity 74.02%

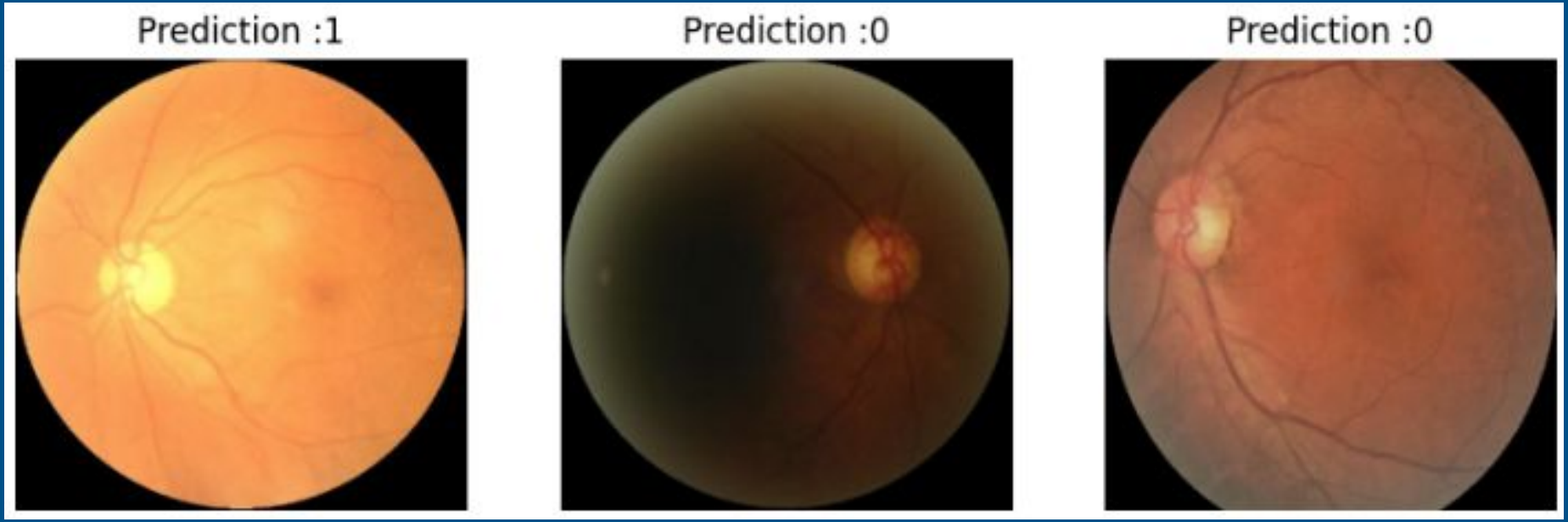


# Accurate Predictions

# False Positives



# False Negatives



# Conclusion

# Next Steps

- Ensemble pretrained models
- Preprocessing techniques
- Hyperparameter tuning
- Additional augmentation