

# Predicting Alzheimer's stages using CNN

Hunter Owen



# OVERVIEW

## 1. Background

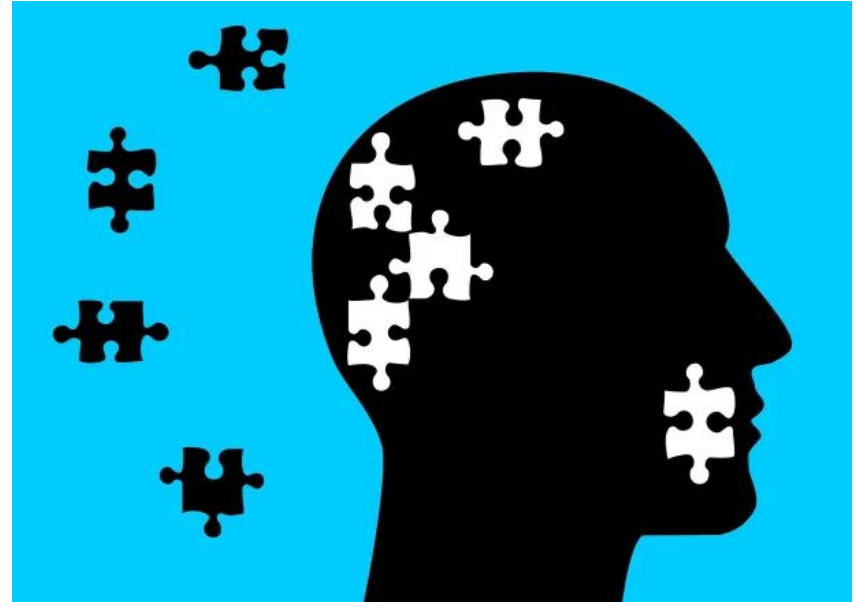
- a. More than 5 million Americans
- b. One in 10 people age 65 and older

## 2. Goal

- a. Model that helps diagnose Alzheimer's
- b. Uses MRI photos

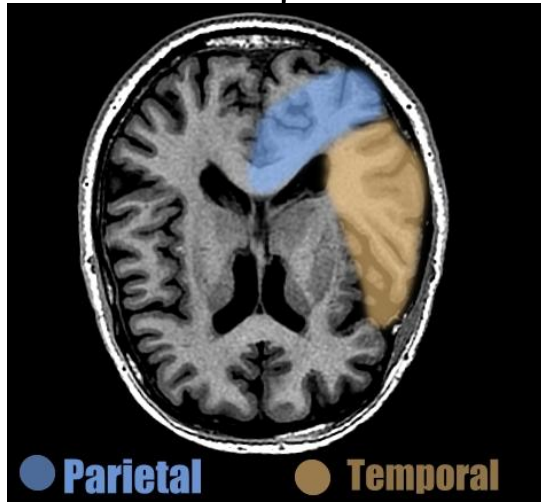
## 3. Data

- a. Dataset from Kaggle

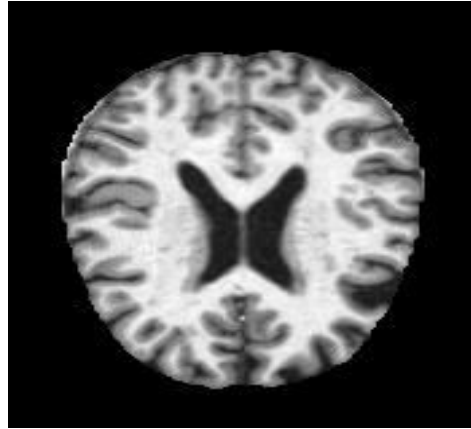


# Classes

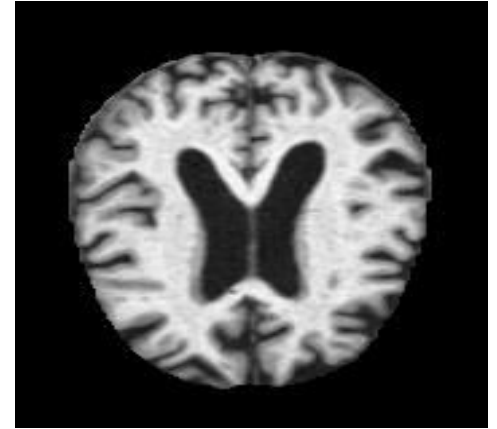
## Areas of Focus



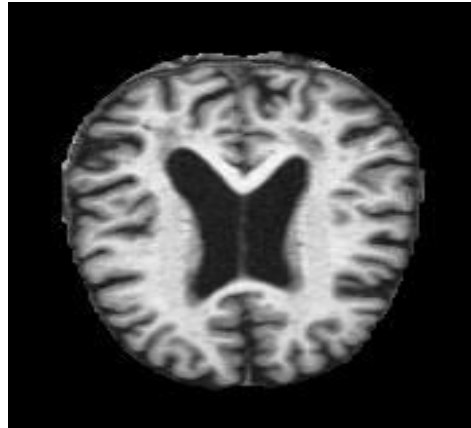
Normal Brain



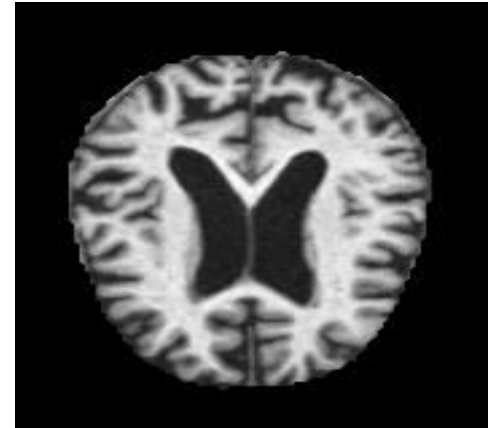
Very Mild Alzheimer's



Mild Alzheimer's

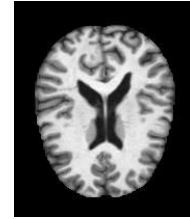
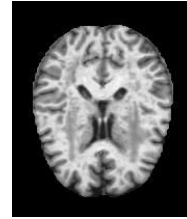
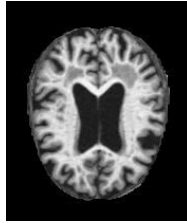
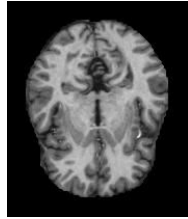


Moderate Alzheimer's

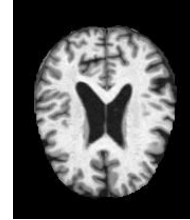
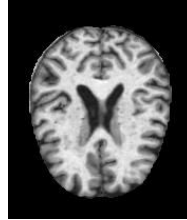
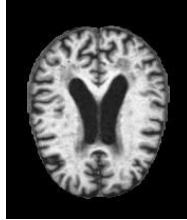
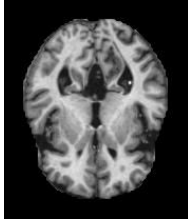


# Classes

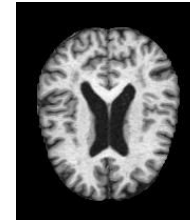
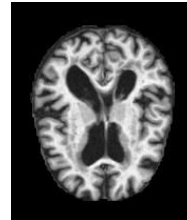
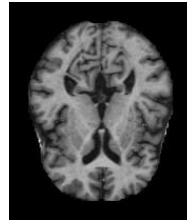
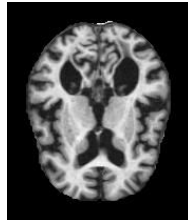
**Normal  
Brain**



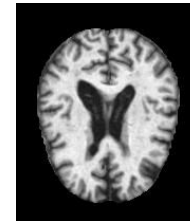
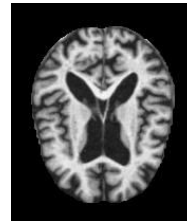
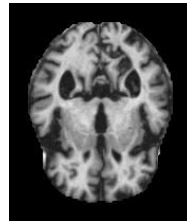
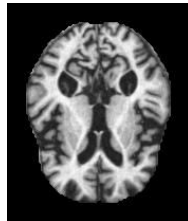
**Very Mild  
Alzheimer's**



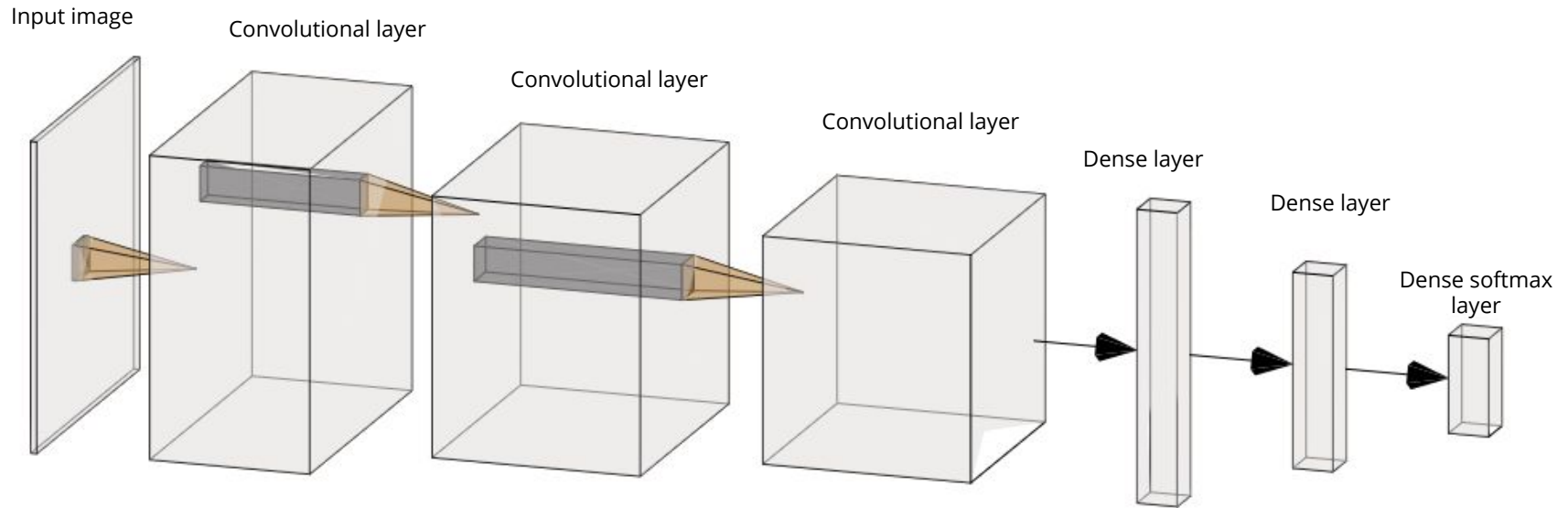
**Mild  
Alzheimer's**



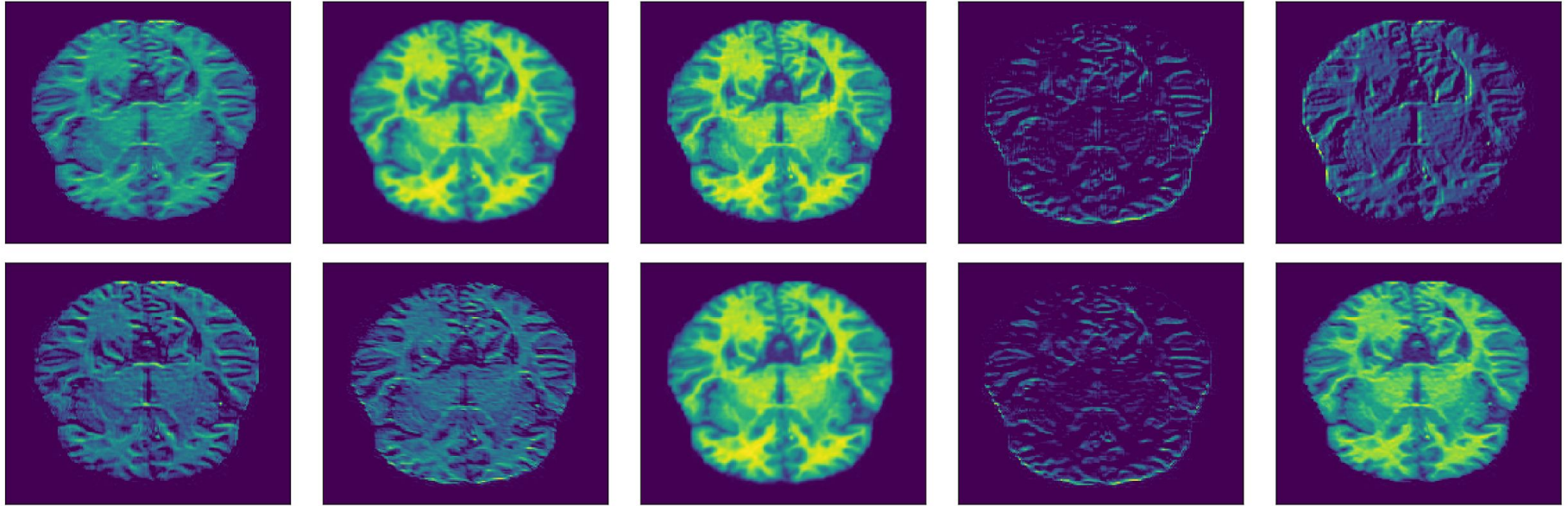
**Moderate  
Alzheimer's**



# CNN Architecture



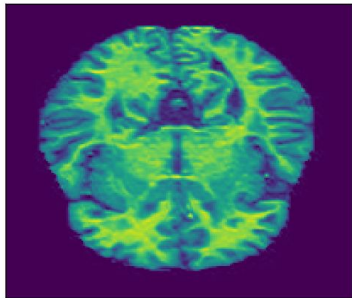
# Filters on first layer



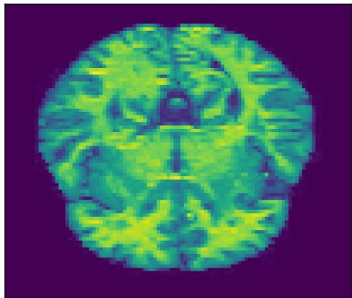
# CNN layers

Convolutional and Pooling Layers

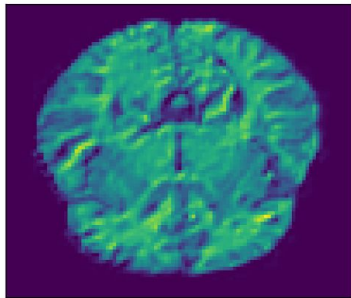
Conv2D



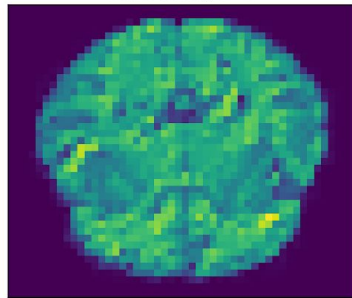
Max Pooling2D



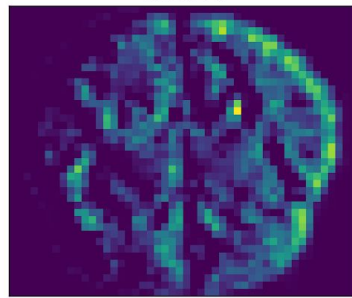
Conv2D 1



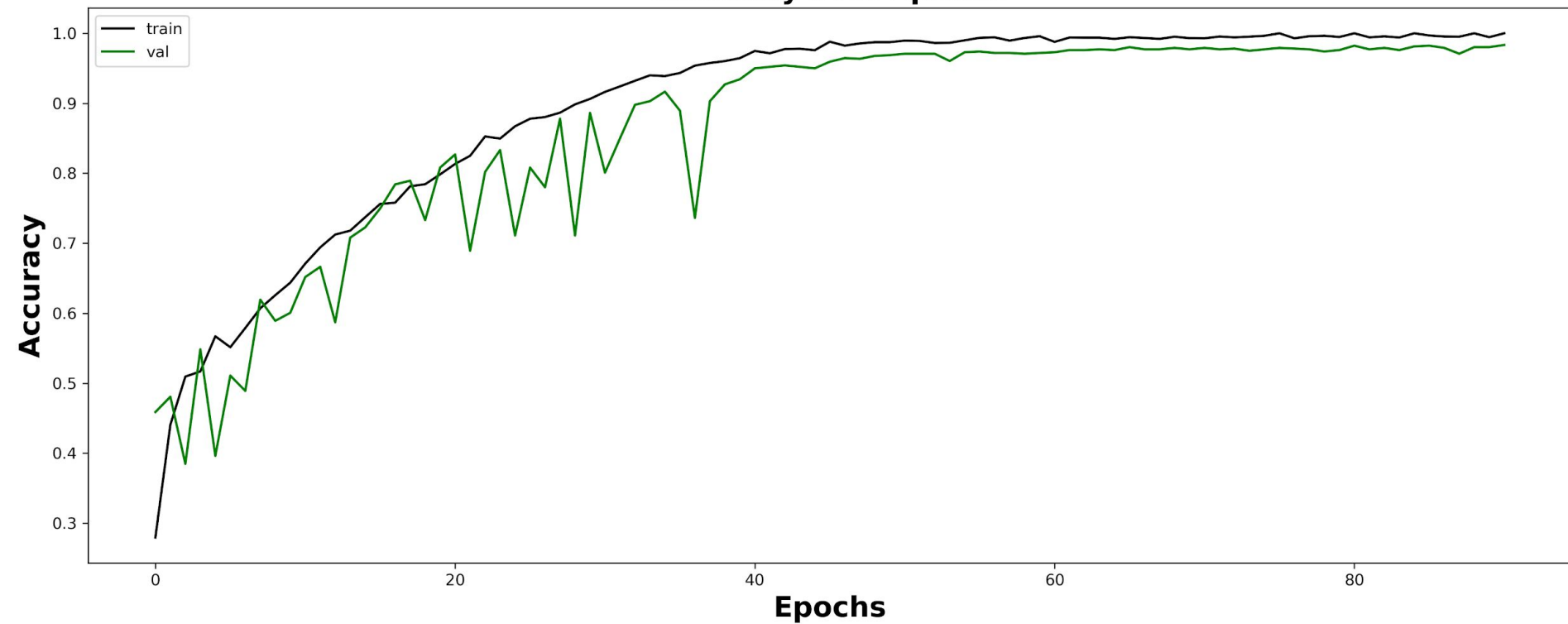
Max Pooling2D 1



Conv2D 2

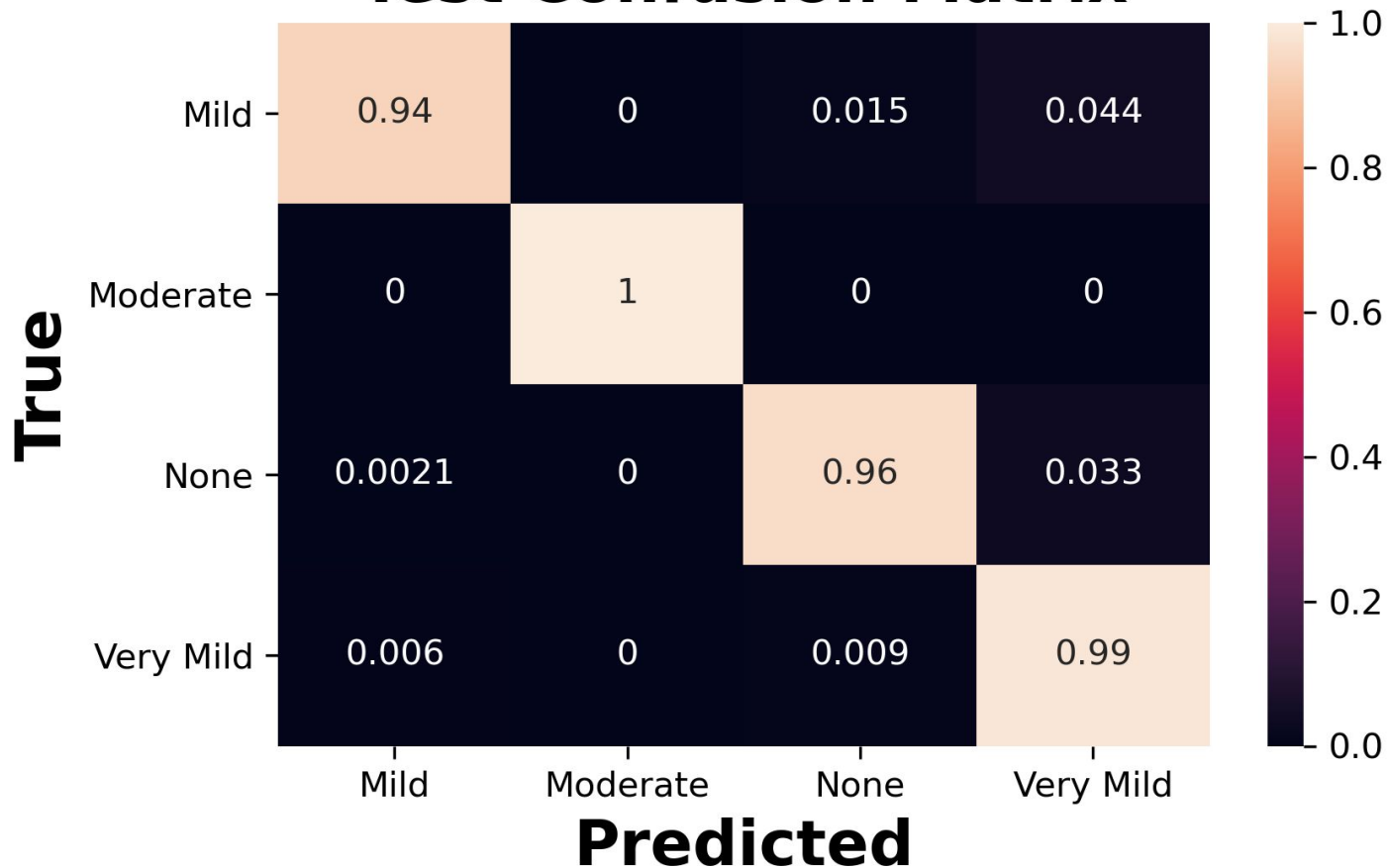


# Accuracy over Epochs

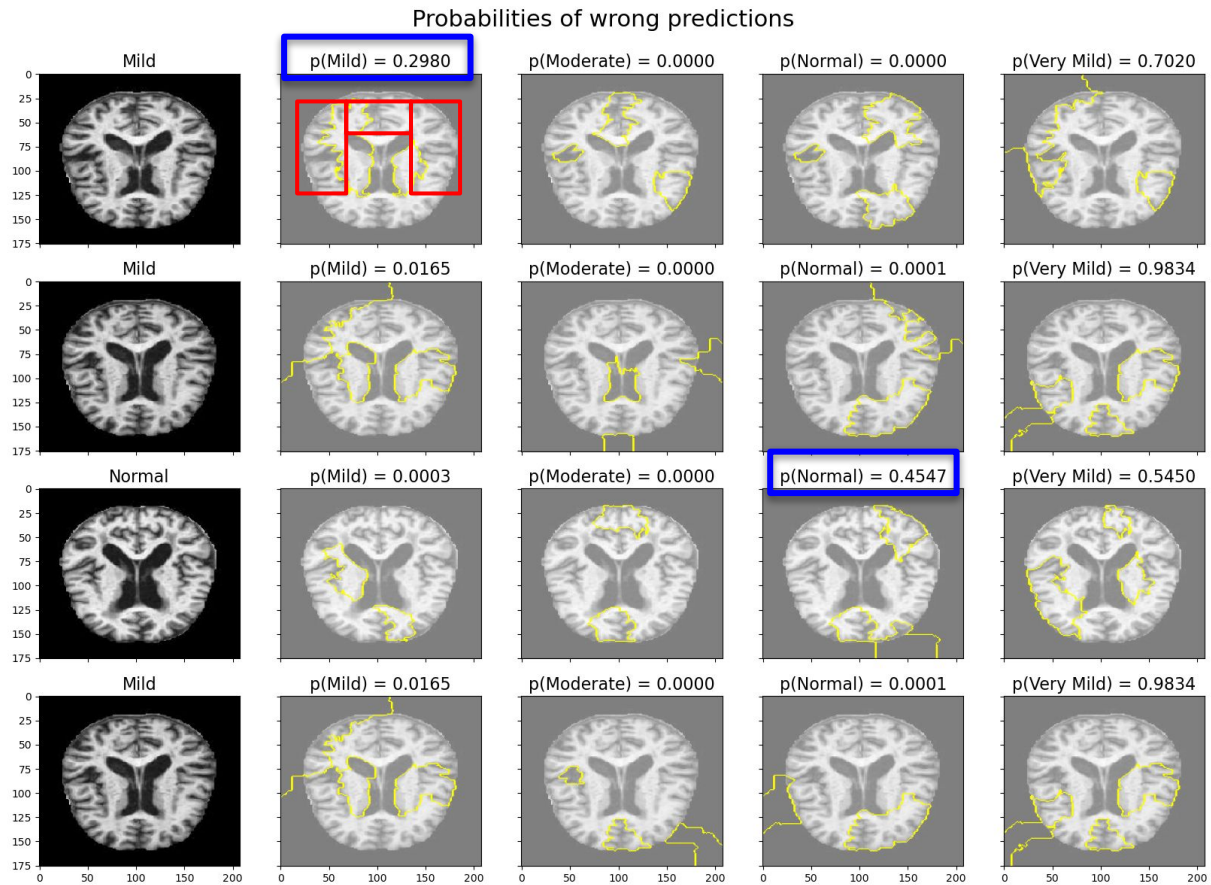




# Test Confusion Matrix



# Incorrect Predictions



# Next Steps

-Updating online  
application with Flask



# Flask

web development,  
one drop at a time

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