

# **Brain Tumor Classification**

using medical data(NIFTI Images)

01

# Technology Perspective

Topic: Brain Tumor Classification

Software: Python

Packages: Keras, Pytorch, NiBabel

# Data Perspective

## Input:

- The input data consists of medical imaging files in the NIfTI format (.nii)
- Each .nii file contains a 3D array of voxel intensities representing the brain's structure in various slices. (155 images in 1 .nii file)

## Output:

- The model outputs the predictions indicating the class of the input slice.



# Customer Perspective

## **Customer Type:**

- >Medical Institutions/Professionals
- >Research Institutions

## **Services provided:**

- >Medical/MRI systems
- >Pre-trained model for tumor classification
- >Automation
- >Medical Research

Services provided could be incorporated local or global

# Business Perspective

## Strengths

- >Innovative Technology
- >Scalable Model

## Weakness

- >Complex Integration
- >Reliance on Data

## Opportunities

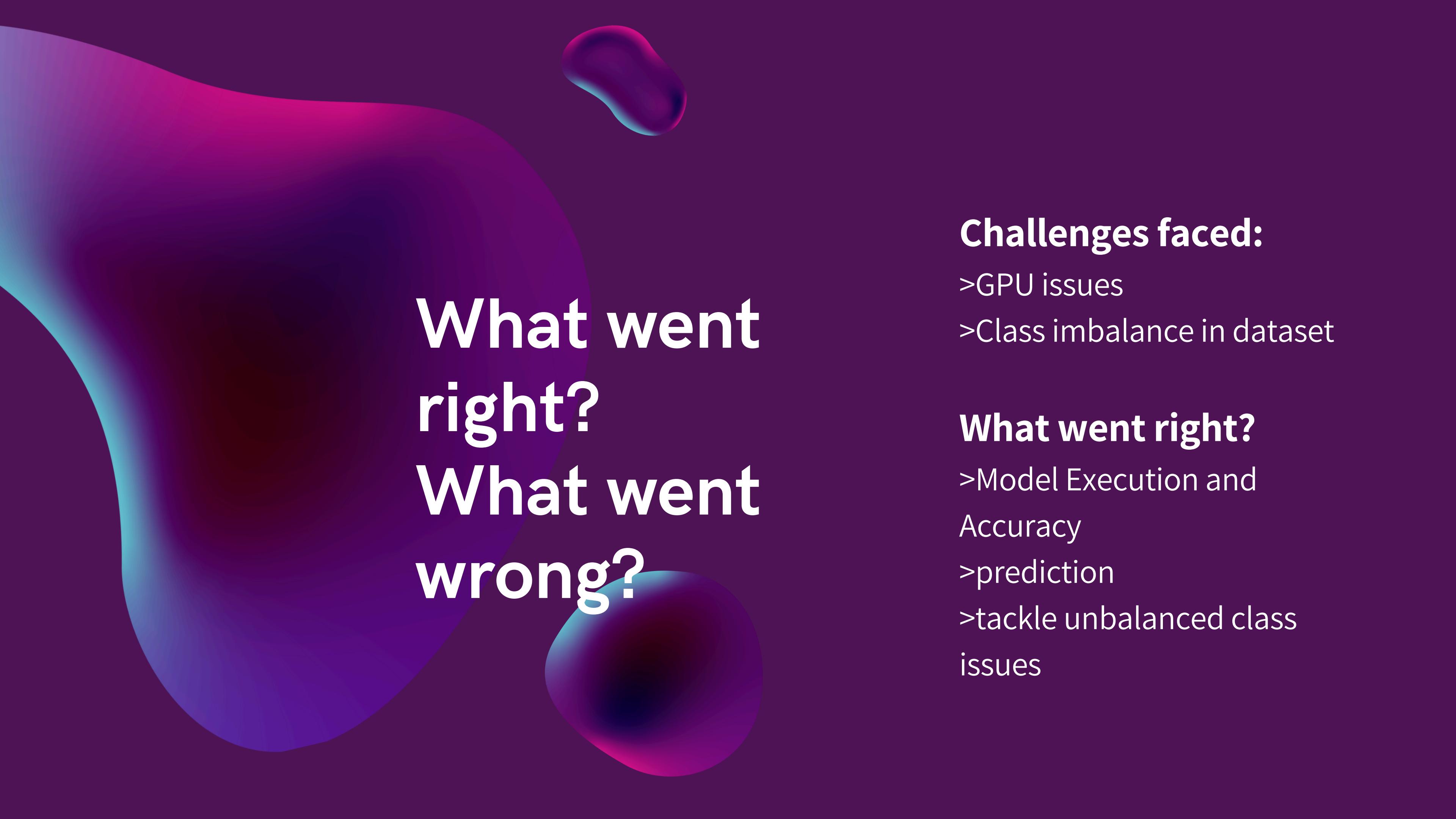
- >Growing Demand
- >Global Expansion

## Threats

- >Competition
- >Data Security

# Project Overview

- >Data Collection
- >Model Building
- >Classification



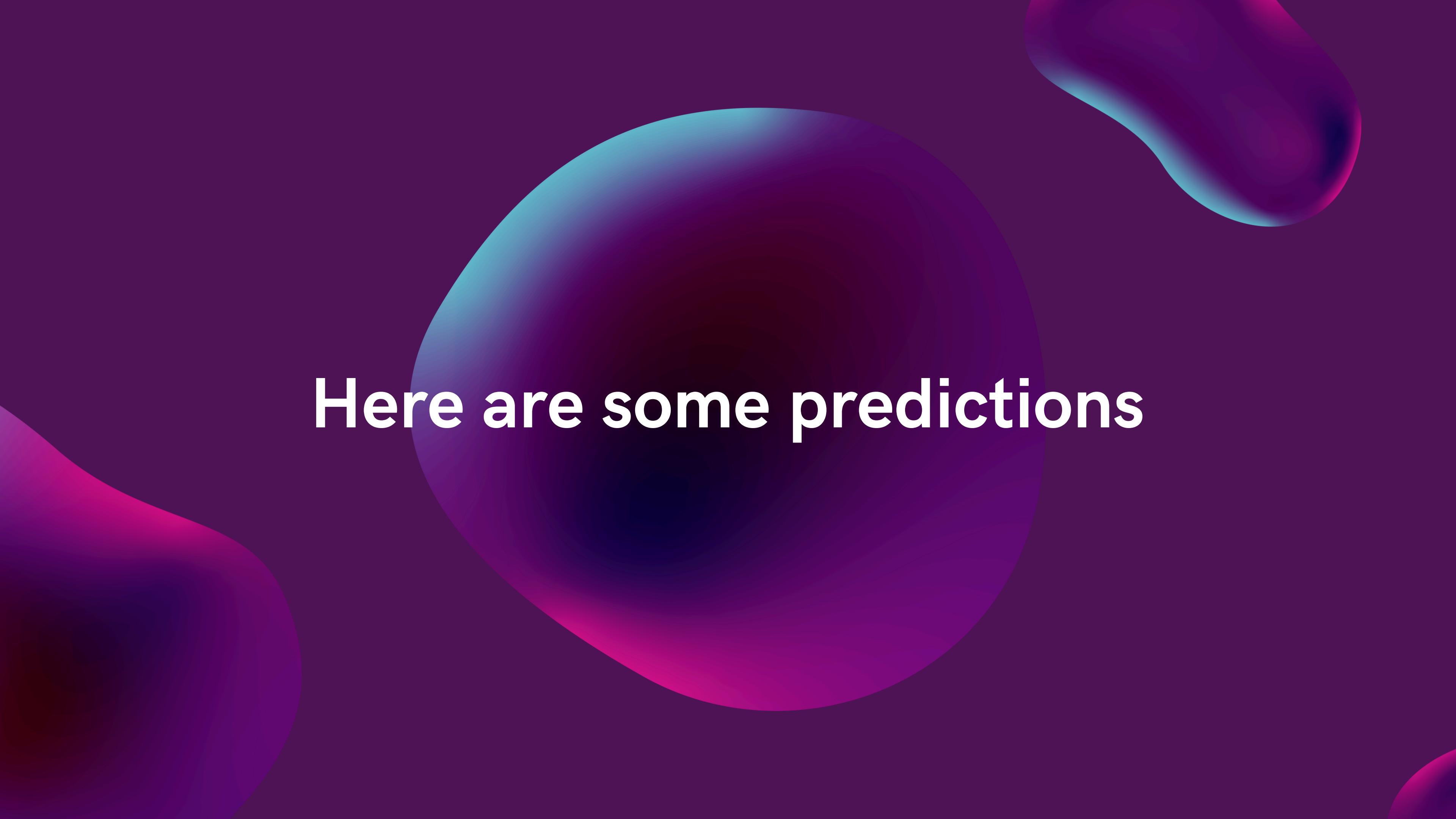
# **What went right? What went wrong?**

## **Challenges faced:**

- >GPU issues
- >Class imbalance in dataset

## **What went right?**

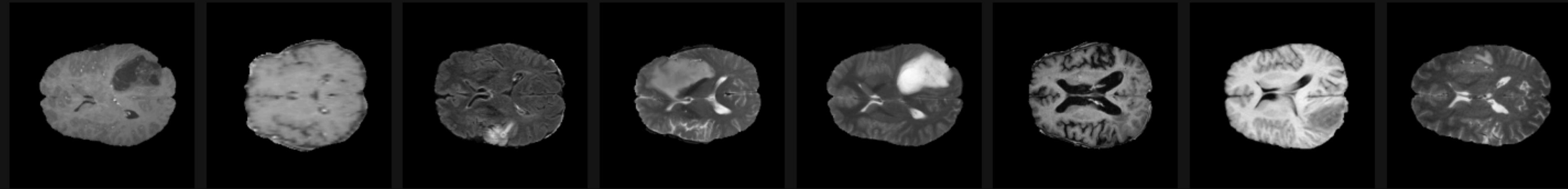
- >Model Execution and Accuracy
- >prediction
- >tackle unbalanced class issues

The background features a dark purple gradient with three large, semi-transparent overlapping circles. One circle is light blue at the top and magenta at the bottom. Another is magenta at the top and light blue at the bottom. A third, smaller circle is located in the bottom right corner, partially cut off by the frame.

Here are some predictions

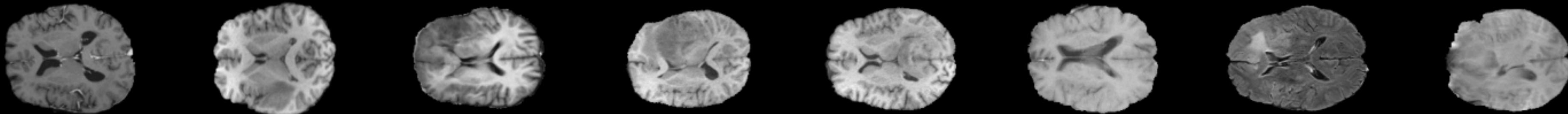
# UNet

Predicted: 0.0, True: 0.0 Predicted: 1.0, True: 0.0 Predicted: 1.0, True: 1.0 Predicted: 1.0, True: 0.0 Predicted: 1.0, True: 0.0 Predicted: 1.0, True: 1.0 Predicted: 0.0, True: 1.0 Predicted: 1.0, True: 1.0



# GoogleNet

Predicted: [1], True: 1.0 Predicted: [1], True: 0.0 Predicted: [0], True: 0.0 Predicted: [1], True: 1.0 Predicted: [1], True: 1.0 Predicted: [1], True: 1.0 Predicted: [1], True: 1.0 Predicted: [0], True: 0.0



# THANK YOU