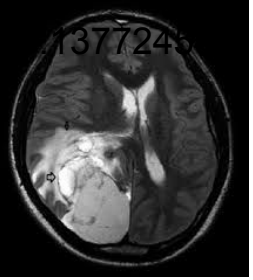
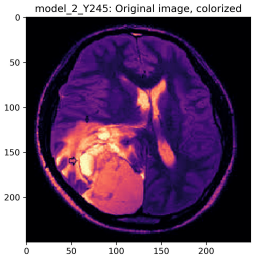
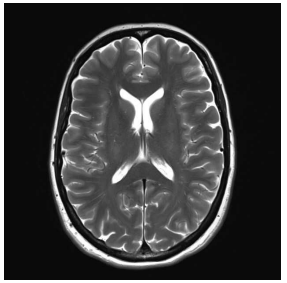
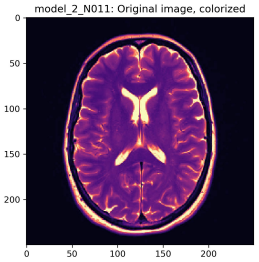




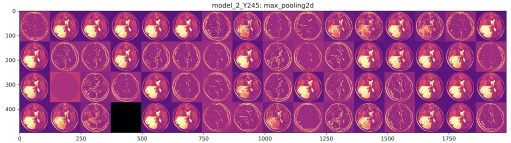
Brain Tumor Detection





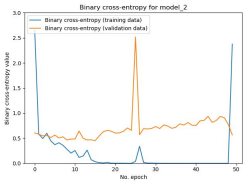
Can CV be used for MRI's?

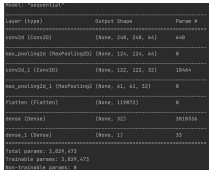
Machine diagnosis is becoming a reality, but the brain is a complicated organ. To determine the feasibility of diagnosing brain conditions I first trained a model to detect the presence of abnormalities in the brain. If the model can accurately identify the presence of tumors, a new algorithm may be able to identify the type of tumor.



Procedure

The best model, model 2, was a CNN with 2 convolutional layers, 2 pooling layers, a hidden layer with 32 nodes and a single node sigmoid output. It was trained for 50 epochs, and the best version was saved using call backs. Compiled with RMSprop(0.001) and Binary cross entropy as the loss function.





Results

My model was able to identify the presence of tumors with an accuracy of 92.31%. Gathering more data to train with would be the best way to improve the model.

Data

The data set contained 253 images of MRI scans. 155 of these images were of a brain with a tumor. The other 98 brain scans didn't show a tumor. The images come from a Kaggle dataset compiled by Navoneel Chakrabarty. The images came in a variety of sizes and formats, so I converted them all into grayscale PIL images that were 250x250 pixels.