I first want to explain the process that I used to obtain the prediction results using ResNet-50.

ResNet-50 classification process:

Step 1: I generate the pretrained model, removing the top layers (the fully connected layers which includes a global average pooling layer and the dense layer).

Step 2: Using this model, I obtain the predictions where the output feature vector is shape (7, 7, 2048).

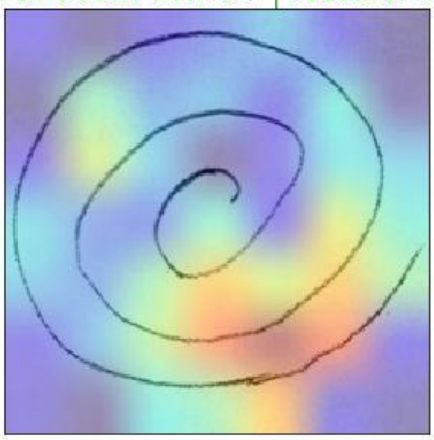
Step 3: To perform the classification using ResNet-50, I create another model that takes input size (7,7,2048), and it consists of a global average pooling layer and a dense layer (using softmax activation function)

Step 4: I then fit the features (obtained in step 2) on this model. So I believe here is where I am actually training a "new model", and this here is what gets me the output predictions of either healthy or Parkinson's.

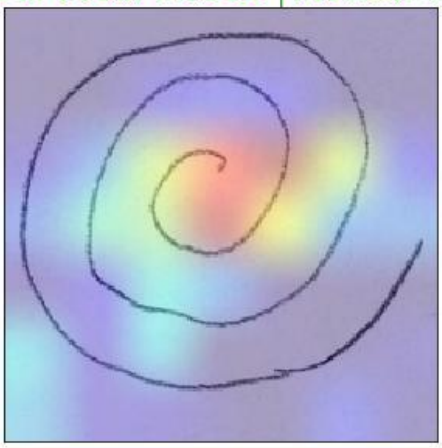
Now I want to explain the process that I took to get the grad-CAM results. I don't think this is an equivalent process though to the above since I performed some training to do the classification.

In order to do grad-CAM, you need all the content from each layer of the model (this includes both the feature maps and the gradients from back-propagation). To get the gradients from back-propagation, you need to have made a prediction, so I need the full ResNet-50 pretrained model (including the top layers). Therefore, the below grad-CAM results are using the predictions made from the full model.

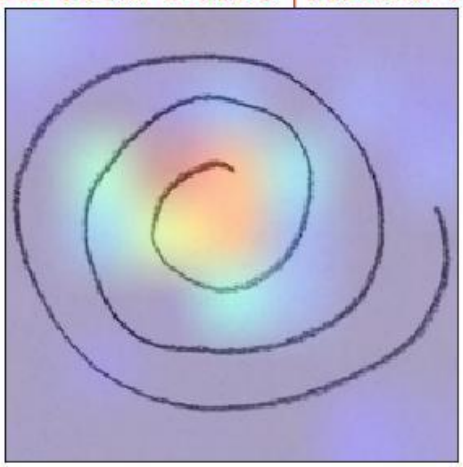
PD Pred: 0.1437 | Actual: 0



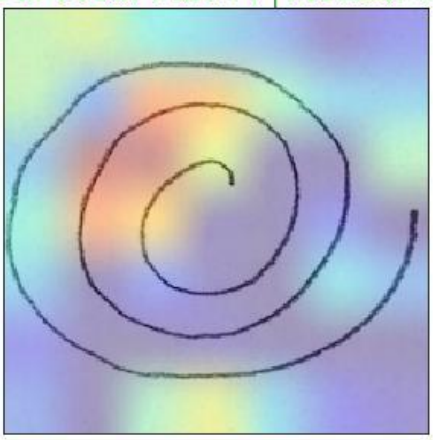
PD Pred: 0.3559 | Actual: 0



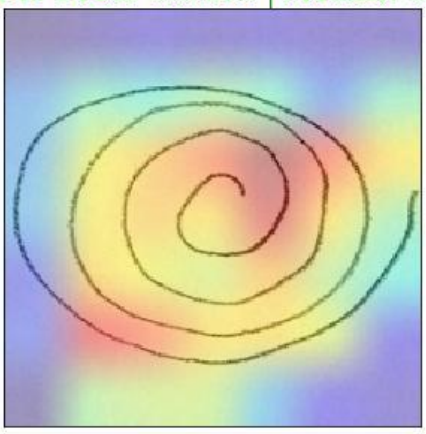
PD Pred: 0.6093 | Actual: 0



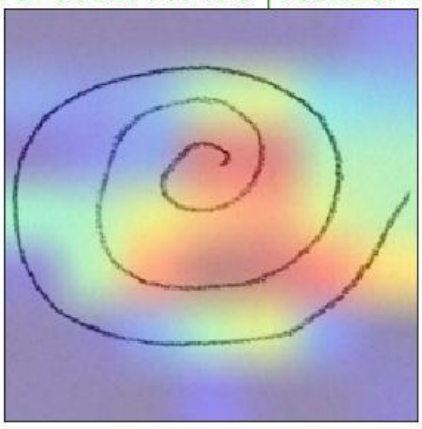
PD Pred: 0.2644 | Actual: 0



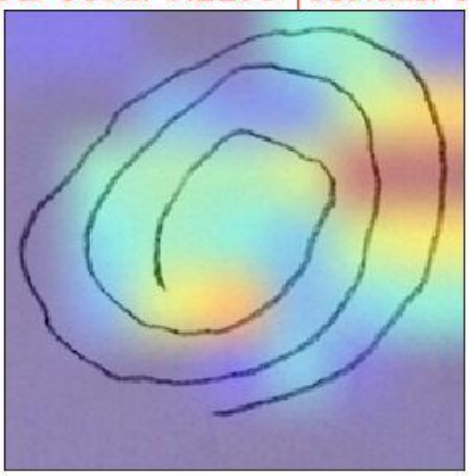
PD Pred: 0.0118 | Actual: 0



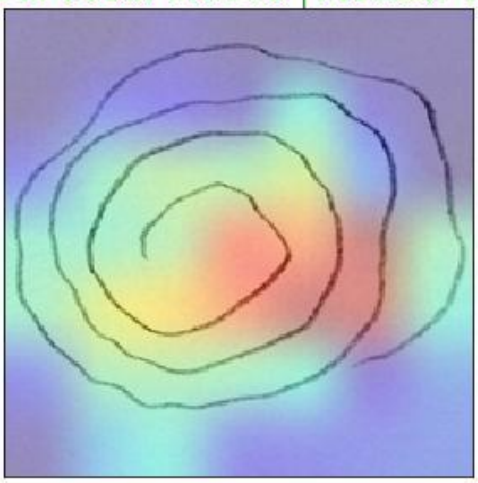
PD Pred: 0.1456 | Actual: 0



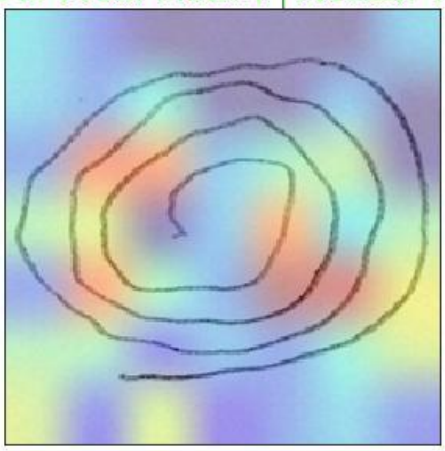
PD Pred: 0.2295 | Actual: 1



PD Pred: 0.8106 | Actual: 1



PD Pred: 0.8271 | Actual: 1



PD Pred: 0.0291 | Actual: 1