imds = imageDatastore('//MATLAB Drive/224x224/fhpsi/', 'IncludeSubfolders', true, 'LabelSource', 'foldernames');

[train, test] = splitEachLabel(imds, 0.7, 'randomized');

net = googlenet;

inputSize = net.Layers(1).InputSize;

lgraph = layerGraph(net);

numClasses = numel(categories(train.Labels));

newLearnableLayer = fullyConnectedLayer(numClasses, ...

    'Name','new\_fc', ...

    'WeightLearnRateFactor',10, ...

    'BiasLearnRateFactor',10);

lgraph = replaceLayer(lgraph,'loss3-classifier',newLearnableLayer);

newClassLayer = classificationLayer('Name','new\_classoutput');

lgraph = replaceLayer(lgraph,'output',newClassLayer);

options = trainingOptions('sgdm', ...

    'MiniBatchSize',10, ...

    'MaxEpochs',10, ...

    'InitialLearnRate',1e-4, ...

    'Shuffle','every-epoch', ...

    'ValidationData',test, ...

    'ValidationFrequency',3, ...

    'Verbose',false, ...

    'Plots','training-progress');

netTransfer = trainNetwork(train,lgraph,options);

preds = classify(netTransfer, test);

actual = test.Labels;

numCorrect = nnz(preds == actual);

fracCorrect = numCorrect/length(actual);

plotconfusion(preds,actual)