Ahmedabad
University

CSE541 Computer Vision

Weekly Project Report

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Project title: Real-time medical image disease detection using deep learning methods.

Group 8

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1. **Task performed and outcomes of task performed this week**

   - We implemented the pre-trained ResNet50 model on the dataset.

   ```
   [ ]  base_model = ResNet50(include_top=False, weights='imagenet')
        x = base_model.output
        x = GlobalAveragePooling2D()(x)
        x = Dense(1024, activation='relu')(x)
        predictions = Dense(train_generator.num_classes, activation='softmax')(x)
        model = Model(inputs=base_model.input, outputs=predictions)
        for layer in base_model.layers:
          layer.trainable = False

        model.compile(optimizer='adam', loss='categorical_crossentropy', metrics = ['accuracy'])

        model.fit(train_generator, epochs=5)

        Downloading data from https://storage.googleapis.com/tensorflow/keras-applications/resnet/resnet50
        94765736/94765736 [==============================] - 1s 0us/step
        Epoch 1/5
        62/62 [==============================] - 563s 9s/step - loss: 0.8407 - accuracy: 0.7649
        Epoch 2/5
        62/62 [==============================] - 457s 7s/step - loss: 0.2498 - accuracy: 0.9098
        Epoch 3/5
        62/62 [==============================] - 463s 7s/step - loss: 0.2183 - accuracy: 0.9093
        Epoch 4/5
        62/62 [==============================] - 466s 8s/step - loss: 0.1959 - accuracy: 0.9210
        Epoch 5/5
        62/62 [==============================] - 468s 8s/step - loss: 0.2107 - accuracy: 0.9210
        <keras.callbacks.History at 0x7f4ad4f3a730>
   ```

   -
   - We used the weights trained on the imagenet dataset.
   - We added a layer with 1024 neurons and "ReLU" activation function.
   - We defined the output layer with 6 classes and "Softmax" activation function.
   - We used "Adam" optimizer and Categorical Cross entropy loss function.
   - We ran the model on our dataset with 5 epochs and observed the accuracy and loss on each epoch.
   - The accuracy increased with each epoch, and the loss decreased with each epoch.

2. **Tasks to be performed in the upcoming week**

   - We will perform fine-tuning of the model and implement it to increase the accuracy.