Faculty name: Faculty of Computers and artificial intelligence – Helwan University

Course name: Selected topics in computer sciences 2

Team number: 26

Team members:

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Authors name: Rahul Chauhan / Kamal Kumar Ghanshala / R.C Joshi

Paper name: Convolutional Neural Network (CNN) for Image Detection and Recognition

Publisher name: Rahul Chauhan

Publication date: December 2018

Dataset: Satellite Image Classification | Kaggle

Total number of samples: 5631

Dimension of the images: 256*256*3

Number of classes: 4

Classes: [Cloudy, Desert, Green Area, Water]

Number of training samples: 4504 | Ratio: 80%

Number of validation samples: 563 | Ratio: 10%

Number of testing samples: 564 | Ratio: 10%

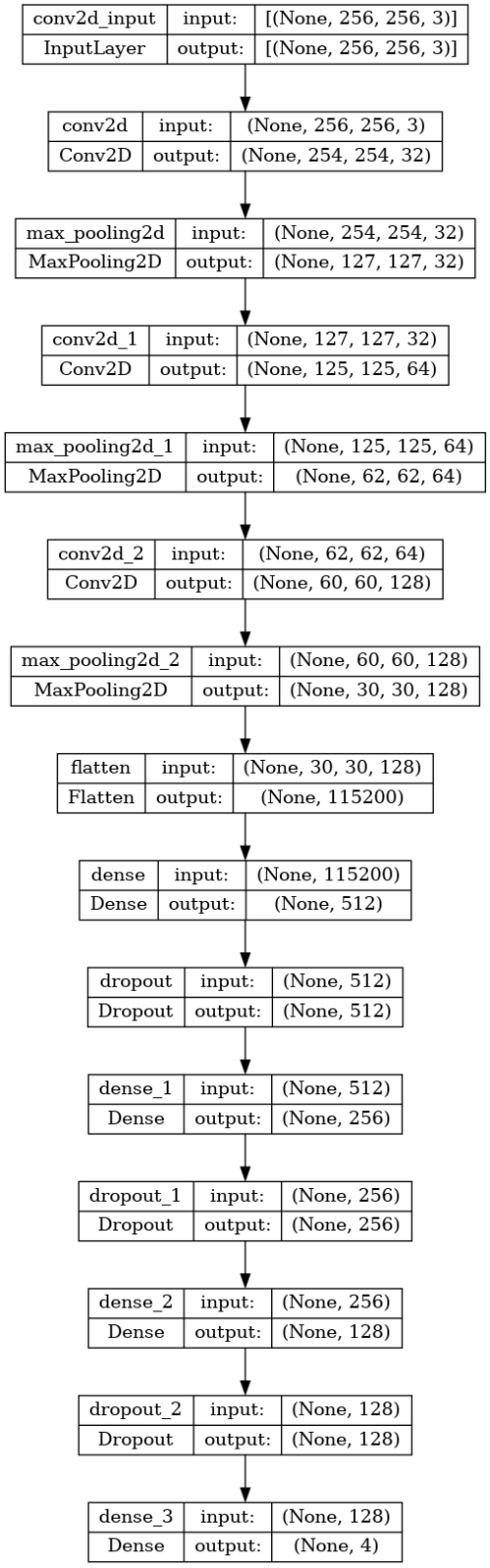
Implemented algorithms: CNN / VGG19 / MobileNetV2

CNN accuracy: 87.4%

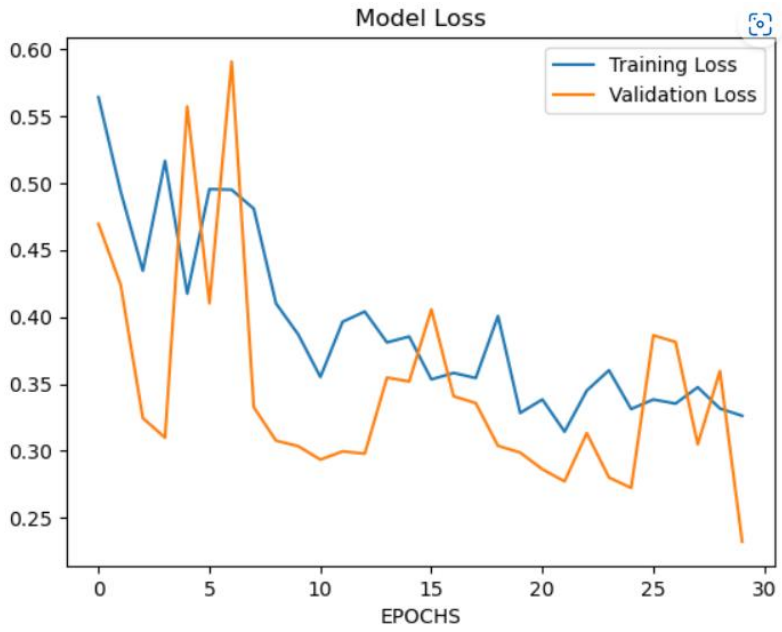
VGG-19 accuracy: 93.9%

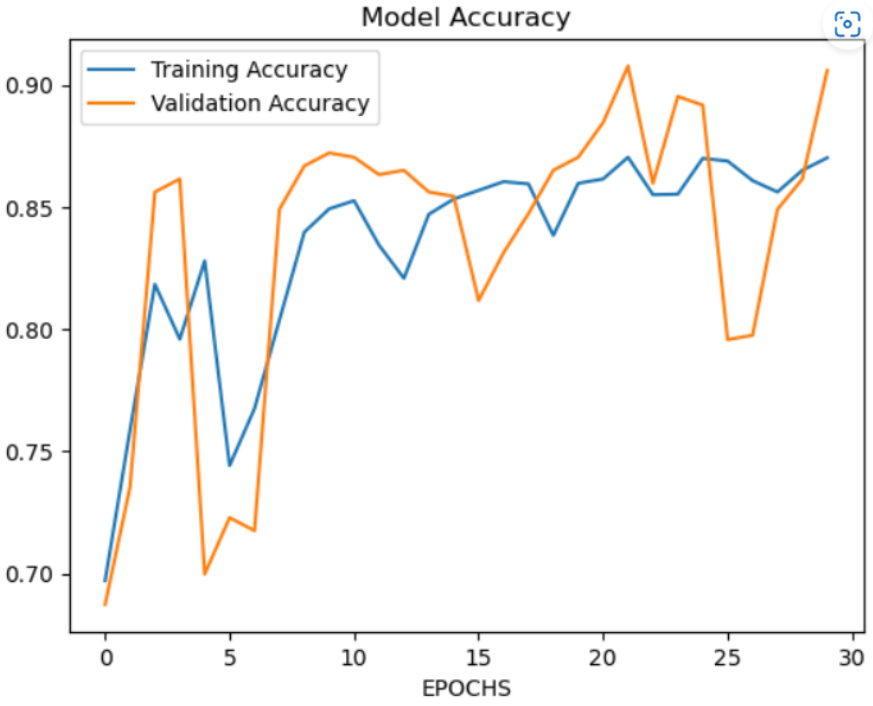
MobileNet V2 accuracy: 97.5%

CNN Block diagram



CNN Model Accuracy and Loss

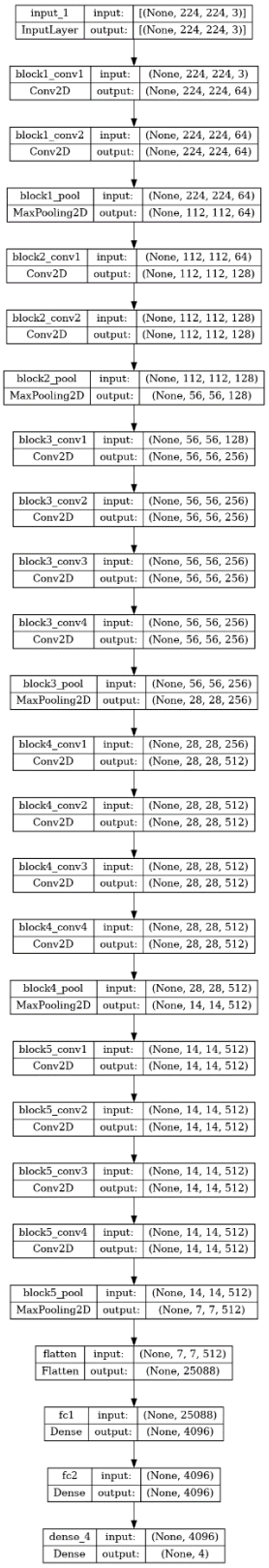




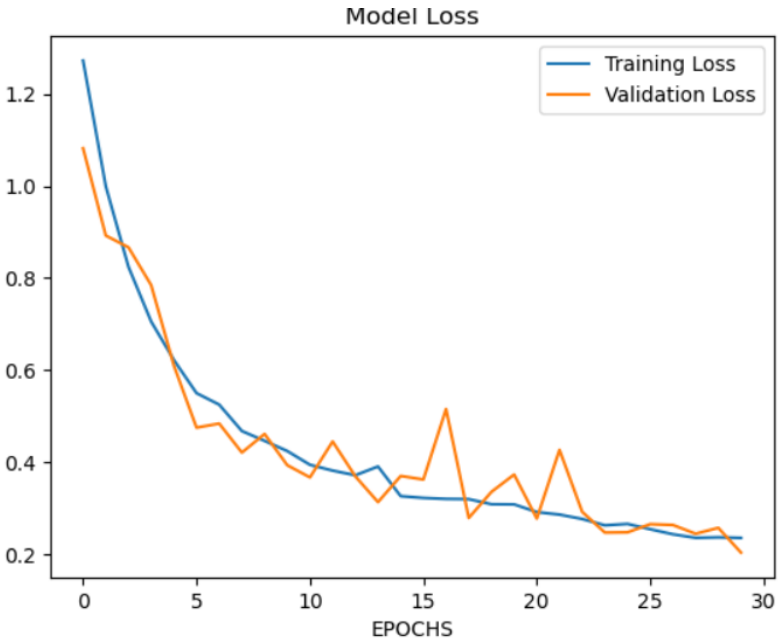

```
score = cnn_model.evaluate(cnn_test_generator)
```

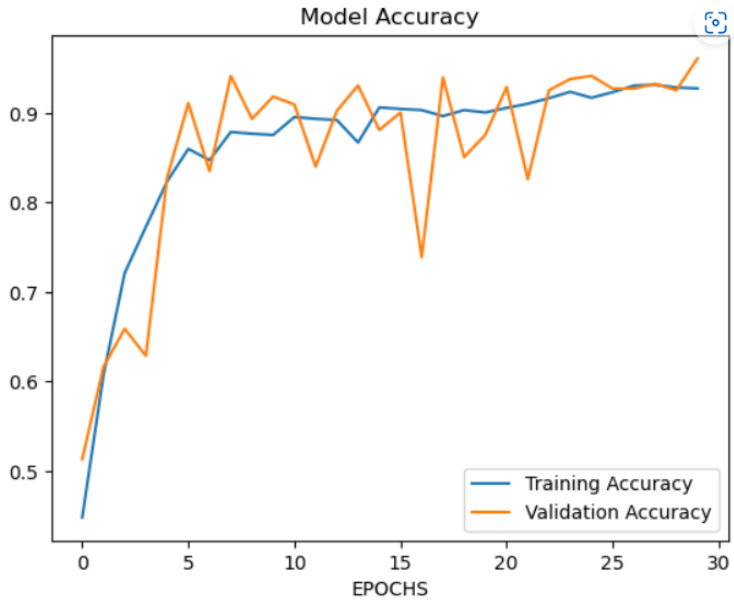
```
18/18 [==============================] - 2s 129ms/step - loss: 0.2943 - accuracy: 0.8741
```

VGG-19 Block Diagram



VGG-19 accuracy and loss

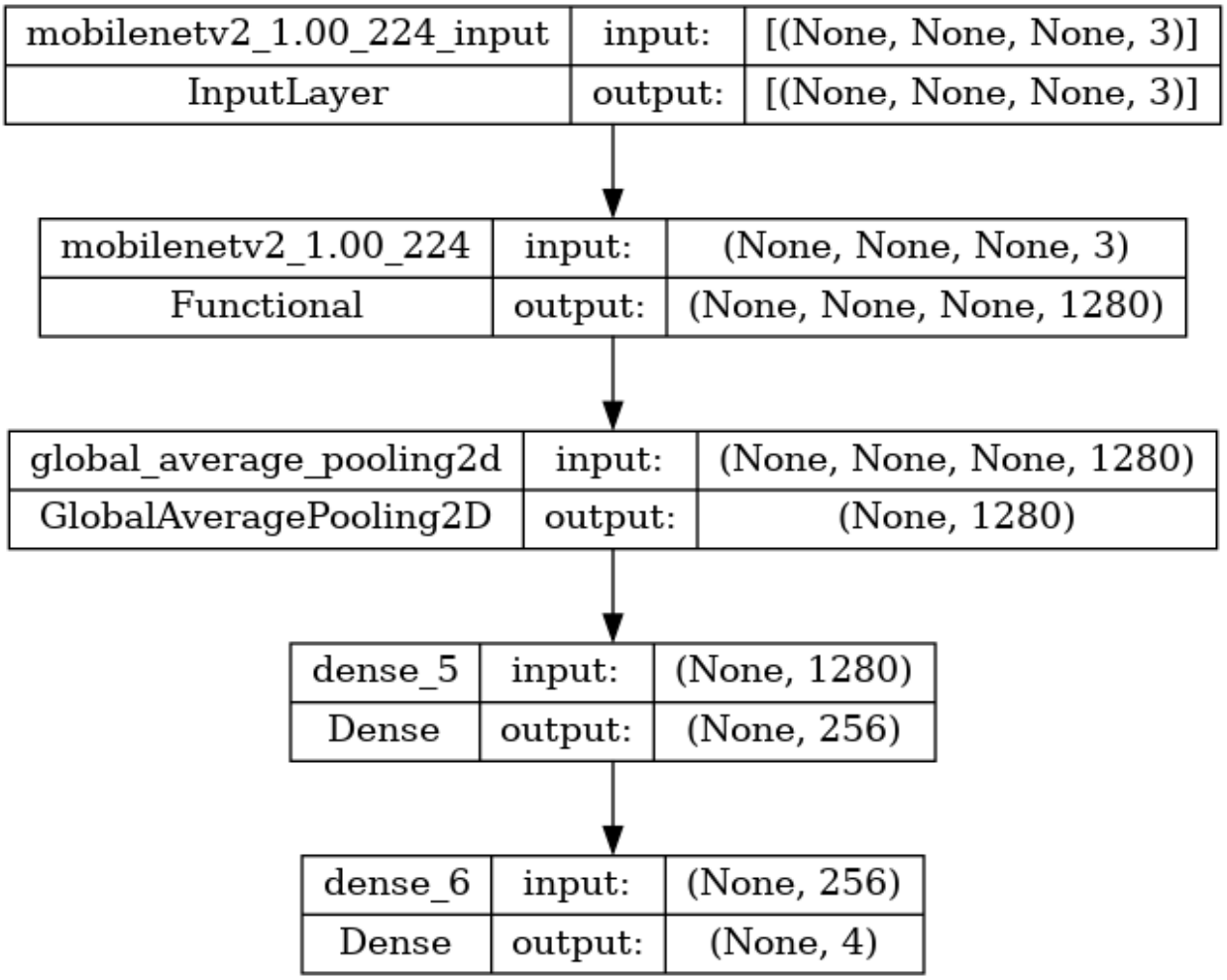




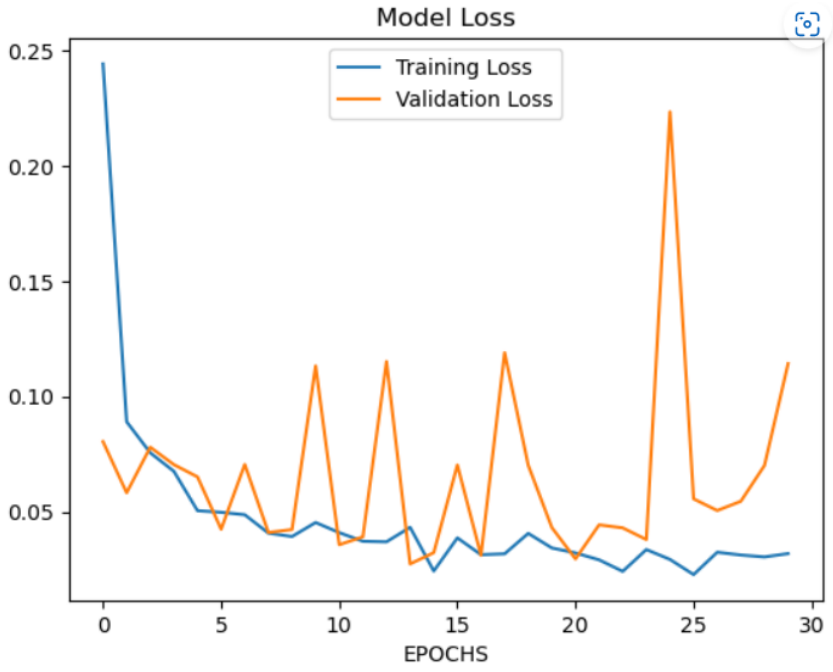

```
vgg_model.evaluate(vgg_test_generator)
```

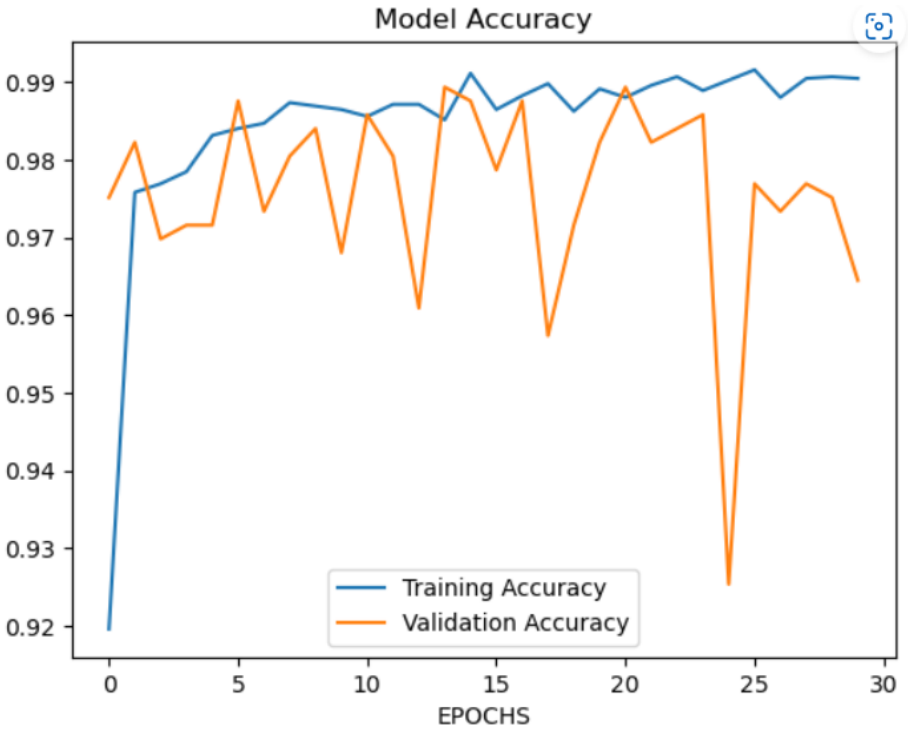
```
18/18 [==============================] - 10s 555ms/step - loss: 0.2277 - accuracy: 0.9397
```

MobileNet V2 Block Diagram



MobileNet V2 accuracy and loss






```
mnv2_model.evaluate(vgg_test_generator)
```

```
18/18 [==============================] - 2s 115ms/step - loss: 0.0956 - accuracy: 0.9752
```