**FFR135-ANN-Home Assignment 3-Arshad Nowsath**

**Convolutional Networks (2020)**

A picture containing diagram

Description automatically generated

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| --- | --- |
| Network 1 | 60 |
| Network 2 | 30 |

|  |  |  |
| --- | --- | --- |
| Network  Dataset | Network1 | Network2 |
| Training | 0.0162 | 0.0112 |
| Validation | 0.0222 | 0.0147 |
| Test | 0.0191 | 0.0126 |

A picture containing diagram

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Discussion:

* From the plots it is clear that Network 2 is the most effective in terms of accuracy and also that classification error in network 2 is less compared to network 1.
* The network 2 performance is based on the architecture of the network with 3 convolutional layer and 2 Max pooling layers (before entering to next layer, the ReLu function rectify the activation after each hidden layer)
* Because of the structure the SoftMax and classification layers produce a better network and helps to give good validation accuracy in network 2.
* The Classification errors obtained on training, validation and test sets are highlighted in Table2.
* The validation accuracy on network 1 is 97.78% while on network 2 is 98.53%.

Figure 2: Accuracy, Loss vs Iteration Plot for Network 2

Figure 1: Accuracy, Loss vs Iteration Plot for Network 1

Table 2: Classification errors

Table 1: Number of training epochs