## RESULTS FOR THREE LAYER CNN CONFIGS

Training model: conv\_config=(1, 10, 3, 1, 1, 1, 10, 20, 3, 1, 1, 1, 20, 30, 3, 1, 1, 1)

yo

Epoch 1, Loss: 1.390

Accuracy of the network on the test images: 89.41%

Epoch 2, Loss: 0.229

Accuracy of the network on the test images: 94.92%

Epoch 3, Loss: 0.146

Accuracy of the network on the test images: 96.12%

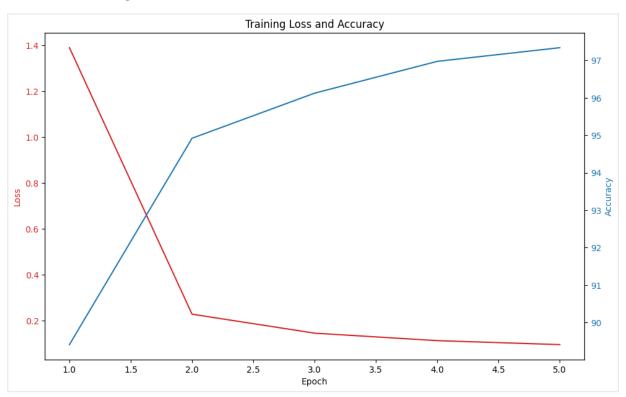
Epoch 4, Loss: 0.114

Accuracy of the network on the test images: 96.97%

Epoch 5, Loss: 0.097

Accuracy of the network on the test images: 97.34%

**Finished Training** 



Testing model...

Average test loss: 0.0785, Accuracy: 9753/10000 (97.53%)

Training model: conv\_config=(1, 10, 3, 1, 1, 1, 10, 20, 3, 1, 1, 1, 20, 40, 3, 1, 1, 1)

VΟ

Epoch 1, Loss: 1.347

Accuracy of the network on the test images: 88.09%

Epoch 2, Loss: 0.269

Accuracy of the network on the test images: 92.89%

Epoch 3, Loss: 0.165

Accuracy of the network on the test images: 96.00%

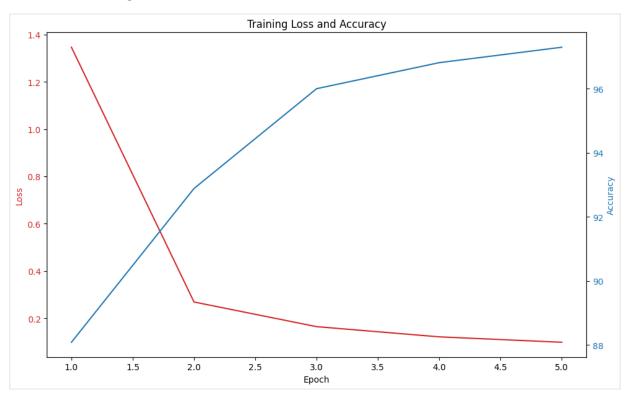
Epoch 4, Loss: 0.122

Accuracy of the network on the test images: 96.81%

Epoch 5, Loss: 0.099

Accuracy of the network on the test images: 97.30%

Finished Training



Testing model...

Average test loss: 0.0783, Accuracy: 9756/10000 (97.56%)

Training model: conv\_config=(1, 10, 3, 1, 1, 10, 20, 3, 1, 1, 1, 20, 50, 3, 1, 1, 1)

yo

Epoch 1, Loss: 1.498

Accuracy of the network on the test images: 88.38%

Epoch 2, Loss: 0.251

Accuracy of the network on the test images: 94.51%

Epoch 3, Loss: 0.152

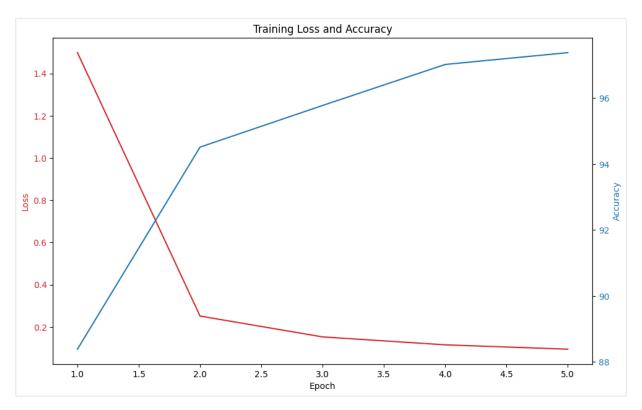
Accuracy of the network on the test images: 95.77%

Epoch 4, Loss: 0.115

Accuracy of the network on the test images: 97.02%

Epoch 5, Loss: 0.094

Accuracy of the network on the test images: 97.38%



Average test loss: 0.0775, Accuracy: 9747/10000 (97.47%)

Training model: conv\_config=(1, 10, 3, 1, 1, 1, 10, 20, 3, 1, 1, 1, 20, 60, 3, 1, 1, 1)

VO

Epoch 1, Loss: 1.450

Accuracy of the network on the test images: 91.79%

Epoch 2, Loss: 0.201

Accuracy of the network on the test images: 95.66%

Epoch 3, Loss: 0.126

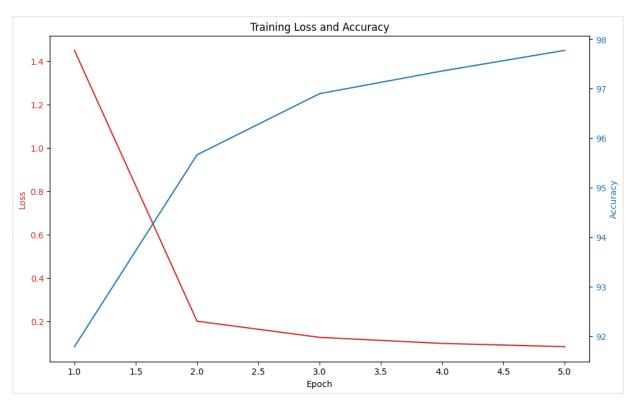
Accuracy of the network on the test images: 96.90%

Epoch 4, Loss: 0.098

Accuracy of the network on the test images: 97.36%

Epoch 5, Loss: 0.083

Accuracy of the network on the test images: 97.77%



Average test loss: 0.0676, Accuracy: 9779/10000 (97.79%)

Training model: conv\_config=(1, 10, 3, 1, 1, 10, 20, 3, 1, 1, 1, 20, 70, 3, 1, 1, 1)

VO

Epoch 1, Loss: 1.066

Accuracy of the network on the test images: 90.37%

Epoch 2, Loss: 0.209

Accuracy of the network on the test images: 95.58%

Epoch 3, Loss: 0.129

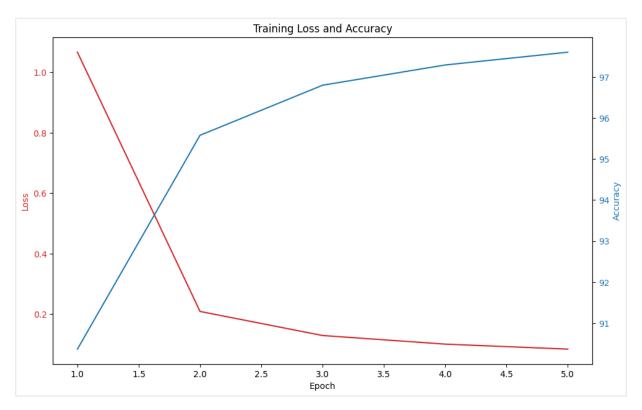
Accuracy of the network on the test images: 96.80%

Epoch 4, Loss: 0.101

Accuracy of the network on the test images: 97.29%

Epoch 5, Loss: 0.084

Accuracy of the network on the test images: 97.60%



Average test loss: 0.0750, Accuracy: 9773/10000 (97.73%)

Training model: conv\_config=(1, 10, 3, 1, 1, 10, 20, 3, 1, 1, 1, 20, 80, 3, 1, 1, 1)

yo

Epoch 1, Loss: 1.394

Accuracy of the network on the test images: 91.11%

Epoch 2, Loss: 0.204

Accuracy of the network on the test images: 95.76%

Epoch 3, Loss: 0.122

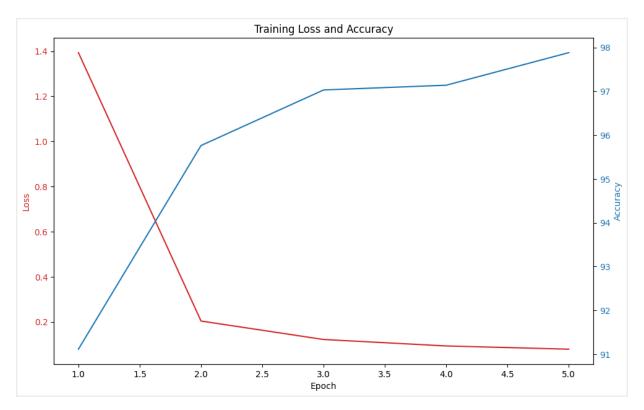
Accuracy of the network on the test images: 97.03%

Epoch 4, Loss: 0.093

Accuracy of the network on the test images: 97.14%

Epoch 5, Loss: 0.079

Accuracy of the network on the test images: 97.88%



Average test loss: 0.0619, Accuracy: 9790/10000 (97.90%)

Training model: conv\_config=(1, 10, 3, 1, 1, 1, 10, 30, 3, 1, 1, 1, 30, 30, 3, 1, 1, 1)

yo

Epoch 1, Loss: 1.102

Accuracy of the network on the test images: 90.81%

Epoch 2, Loss: 0.214

Accuracy of the network on the test images: 94.91%

Epoch 3, Loss: 0.142

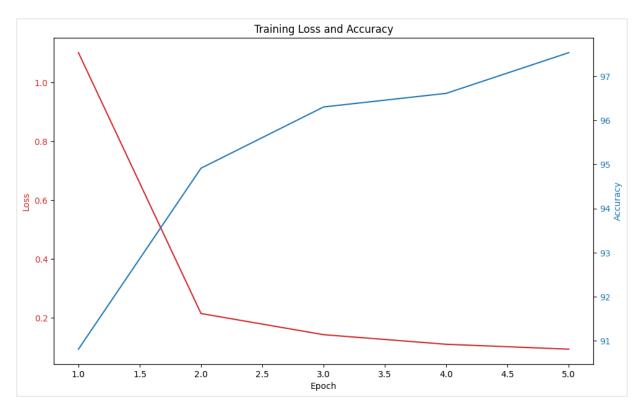
Accuracy of the network on the test images: 96.30%

Epoch 4, Loss: 0.110

Accuracy of the network on the test images: 96.61%

Epoch 5, Loss: 0.093

Accuracy of the network on the test images: 97.53%



Average test loss: 0.0721, Accuracy: 9776/10000 (97.76%)

Training model: conv\_config=(1, 10, 3, 1, 1, 1, 10, 30, 3, 1, 1, 1, 30, 40, 3, 1, 1, 1)

VO

Epoch 1, Loss: 1.260

Accuracy of the network on the test images: 91.27%

Epoch 2, Loss: 0.222

Accuracy of the network on the test images: 95.03%

Epoch 3, Loss: 0.145

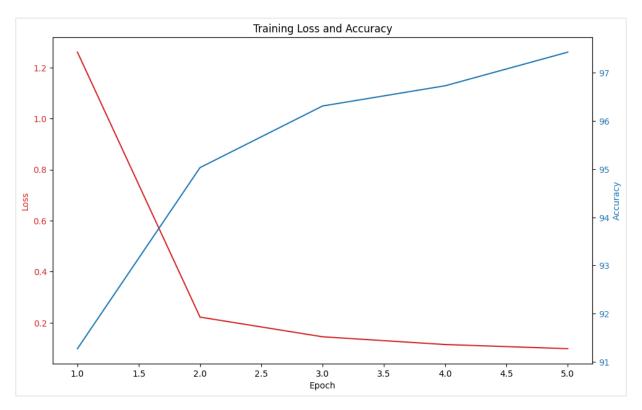
Accuracy of the network on the test images: 96.31%

Epoch 4, Loss: 0.114

Accuracy of the network on the test images: 96.73%

Epoch 5, Loss: 0.098

Accuracy of the network on the test images: 97.43%



Average test loss: 0.0741, Accuracy: 9768/10000 (97.68%)

Training model: conv\_config=(1, 10, 3, 1, 1, 1, 10, 30, 3, 1, 1, 1, 30, 50, 3, 1, 1, 1)

VO

Epoch 1, Loss: 1.297

Accuracy of the network on the test images: 92.04%

Epoch 2, Loss: 0.196

Accuracy of the network on the test images: 95.74%

Epoch 3, Loss: 0.129

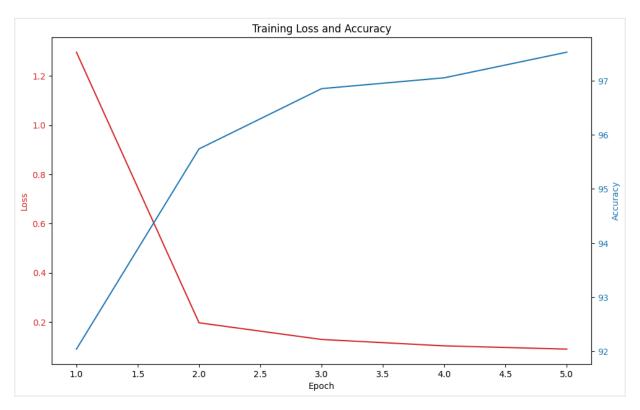
Accuracy of the network on the test images: 96.85%

Epoch 4, Loss: 0.103

Accuracy of the network on the test images: 97.05%

Epoch 5, Loss: 0.089

Accuracy of the network on the test images: 97.53%



Average test loss: 0.0744, Accuracy: 9744/10000 (97.44%)

Training model: conv\_config=(1, 10, 3, 1, 1, 1, 10, 30, 3, 1, 1, 1, 30, 60, 3, 1, 1, 1)

yo

Epoch 1, Loss: 1.277

Accuracy of the network on the test images: 91.17%

Epoch 2, Loss: 0.214

Accuracy of the network on the test images: 95.23%

Epoch 3, Loss: 0.143

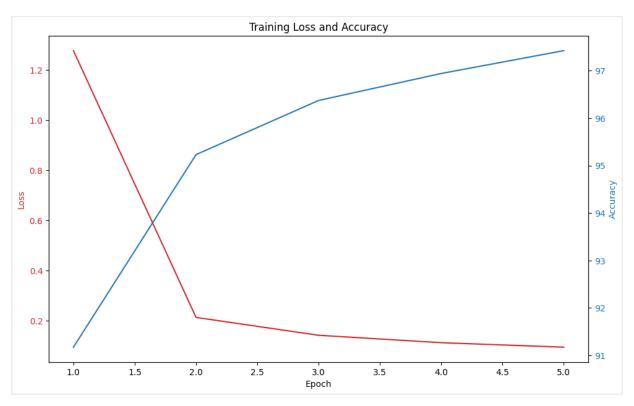
Accuracy of the network on the test images: 96.37%

Epoch 4, Loss: 0.113

Accuracy of the network on the test images: 96.94%

Epoch 5, Loss: 0.096

Accuracy of the network on the test images: 97.42%



Average test loss: 0.0743, Accuracy: 9751/10000 (97.51%)

Training model: conv\_config=(1, 10, 3, 1, 1, 10, 30, 3, 1, 1, 1, 30, 70, 3, 1, 1, 1)

VO

Epoch 1, Loss: 1.243

Accuracy of the network on the test images: 91.71%

Epoch 2, Loss: 0.187

Accuracy of the network on the test images: 95.77%

Epoch 3, Loss: 0.120

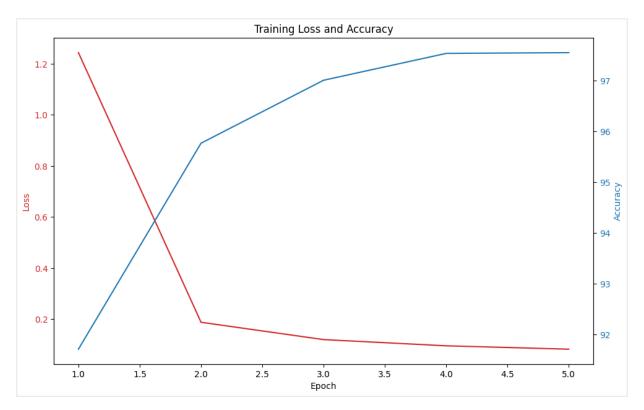
Accuracy of the network on the test images: 97.01%

Epoch 4, Loss: 0.095

Accuracy of the network on the test images: 97.54%

Epoch 5, Loss: 0.082

Accuracy of the network on the test images: 97.55%



Average test loss: 0.0662, Accuracy: 9783/10000 (97.83%)

Training model: conv\_config=(1, 10, 3, 1, 1, 1, 10, 30, 3, 1, 1, 1, 30, 80, 3, 1, 1, 1)

yo

Epoch 1, Loss: 1.043

Accuracy of the network on the test images: 91.39%

Epoch 2, Loss: 0.201

Accuracy of the network on the test images: 95.79%

Epoch 3, Loss: 0.127

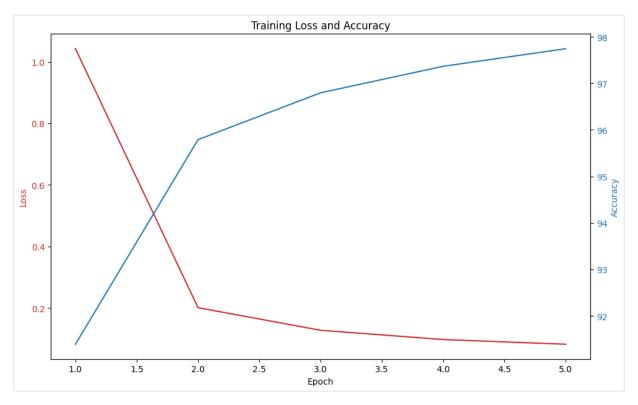
Accuracy of the network on the test images: 96.80%

Epoch 4, Loss: 0.097

Accuracy of the network on the test images: 97.37%

Epoch 5, Loss: 0.082

Accuracy of the network on the test images: 97.75%



Average test loss: 0.0677, Accuracy: 9797/10000 (97.97%)

Training model: conv\_config=(1, 10, 3, 1, 1, 1, 10, 40, 3, 1, 1, 1, 40, 30, 3, 1, 1, 1)

yo

Epoch 1, Loss: 1.461

Accuracy of the network on the test images: 90.76%

Epoch 2, Loss: 0.228

Accuracy of the network on the test images: 94.85%

Epoch 3, Loss: 0.147

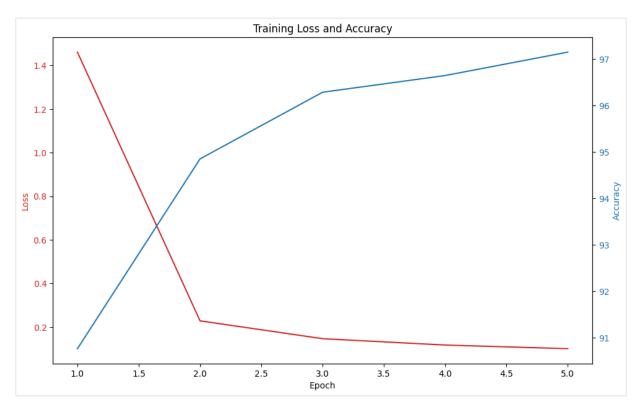
Accuracy of the network on the test images: 96.28%

Epoch 4, Loss: 0.117

Accuracy of the network on the test images: 96.64%

Epoch 5, Loss: 0.101

Accuracy of the network on the test images: 97.14%



Average test loss: 0.0806, Accuracy: 9744/10000 (97.44%)

Training model: conv\_config=(1, 10, 3, 1, 1, 1, 10, 40, 3, 1, 1, 1, 40, 40, 3, 1, 1, 1)

yo

Epoch 1, Loss: 1.451

Accuracy of the network on the test images: 89.09%

Epoch 2, Loss: 0.263

Accuracy of the network on the test images: 94.75%

Epoch 3, Loss: 0.153

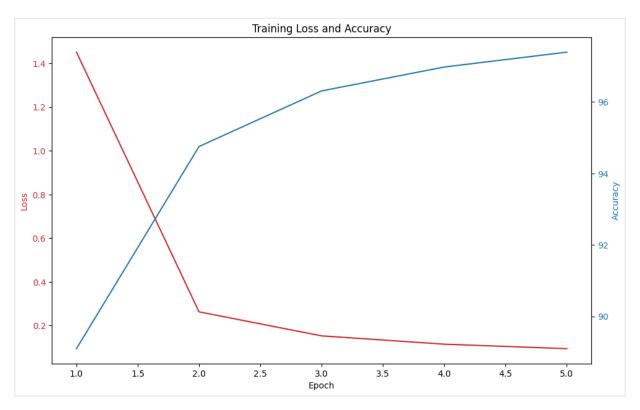
Accuracy of the network on the test images: 96.31%

Epoch 4, Loss: 0.115

Accuracy of the network on the test images: 96.98%

Epoch 5, Loss: 0.094

Accuracy of the network on the test images: 97.39%



Average test loss: 0.0799, Accuracy: 9743/10000 (97.43%)

Training model: conv\_config=(1, 10, 3, 1, 1, 1, 10, 40, 3, 1, 1, 1, 40, 50, 3, 1, 1, 1)

VO

Epoch 1, Loss: 1.248

Accuracy of the network on the test images: 90.67%

Epoch 2, Loss: 0.209

Accuracy of the network on the test images: 95.31%

Epoch 3, Loss: 0.133

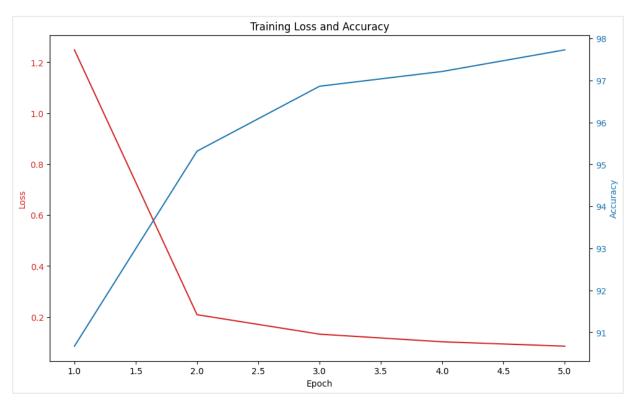
Accuracy of the network on the test images: 96.86%

Epoch 4, Loss: 0.103

Accuracy of the network on the test images: 97.22%

Epoch 5, Loss: 0.085

Accuracy of the network on the test images: 97.73%



Average test loss: 0.0719, Accuracy: 9766/10000 (97.66%)

Training model: conv\_config=(1, 10, 3, 1, 1, 1, 10, 40, 3, 1, 1, 1, 40, 60, 3, 1, 1, 1)

VO

Epoch 1, Loss: 1.116

Accuracy of the network on the test images: 92.30%

Epoch 2, Loss: 0.195

Accuracy of the network on the test images: 95.80%

Epoch 3, Loss: 0.128

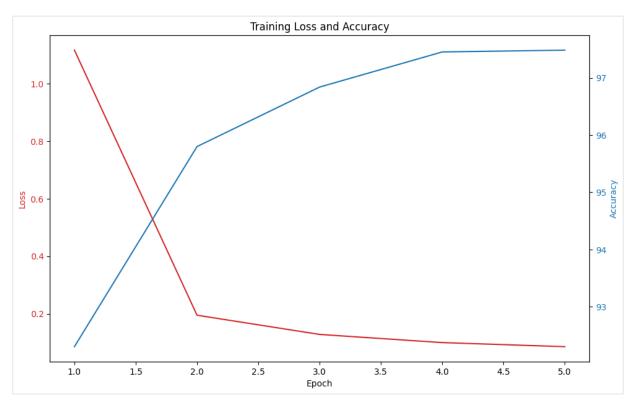
Accuracy of the network on the test images: 96.84%

Epoch 4, Loss: 0.100

Accuracy of the network on the test images: 97.45%

Epoch 5, Loss: 0.085

Accuracy of the network on the test images: 97.48%



Average test loss: 0.0706, Accuracy: 9782/10000 (97.82%)

Training model: conv\_config=(1, 10, 3, 1, 1, 10, 40, 3, 1, 1, 1, 40, 70, 3, 1, 1, 1)

VO

Epoch 1, Loss: 1.261

Accuracy of the network on the test images: 92.77%

Epoch 2, Loss: 0.175

Accuracy of the network on the test images: 95.97%

Epoch 3, Loss: 0.120

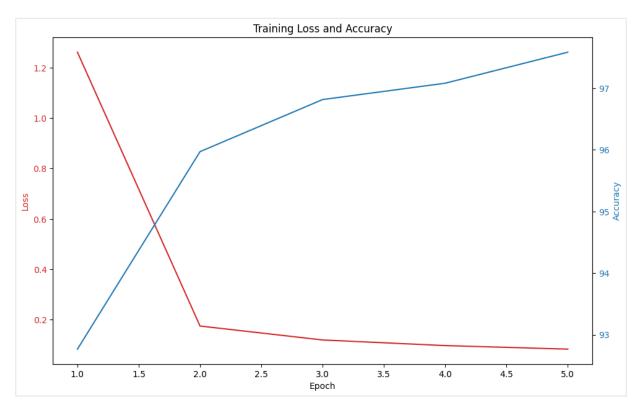
Accuracy of the network on the test images: 96.81%

Epoch 4, Loss: 0.097

Accuracy of the network on the test images: 97.08%

Epoch 5, Loss: 0.083

Accuracy of the network on the test images: 97.58%



Average test loss: 0.0660, Accuracy: 9792/10000 (97.92%)

Training model: conv\_config=(1, 10, 3, 1, 1, 1, 10, 40, 3, 1, 1, 1, 40, 80, 3, 1, 1, 1)

yo

Epoch 1, Loss: 1.196

Accuracy of the network on the test images: 92.07%

Epoch 2, Loss: 0.193

Accuracy of the network on the test images: 95.83%

Epoch 3, Loss: 0.127

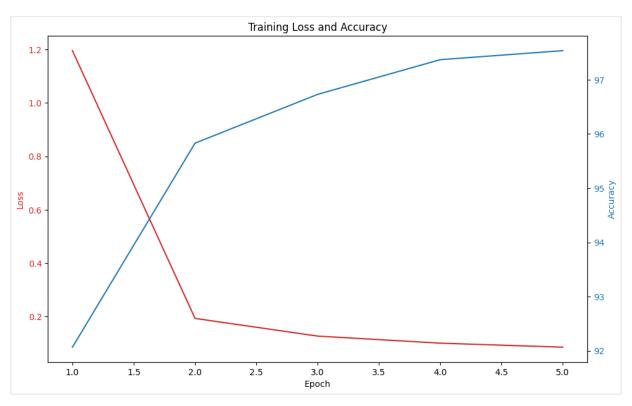
Accuracy of the network on the test images: 96.73%

Epoch 4, Loss: 0.101

Accuracy of the network on the test images: 97.37%

Epoch 5, Loss: 0.086

Accuracy of the network on the test images: 97.54%



Average test loss: 0.0733, Accuracy: 9760/10000 (97.60%)

Training model: conv\_config=(1, 10, 3, 1, 1, 1, 10, 50, 3, 1, 1, 1, 50, 30, 3, 1, 1, 1)

VO

Epoch 1, Loss: 1.250

Accuracy of the network on the test images: 90.06%

Epoch 2, Loss: 0.253

Accuracy of the network on the test images: 93.66%

Epoch 3, Loss: 0.161

Accuracy of the network on the test images: 95.95%

Epoch 4, Loss: 0.123

Accuracy of the network on the test images: 96.71%

Epoch 5, Loss: 0.101

Accuracy of the network on the test images: 97.35%



Average test loss: 0.0804, Accuracy: 9748/10000 (97.48%)

Training model: conv\_config=(1, 10, 3, 1, 1, 1, 10, 50, 3, 1, 1, 1, 50, 40, 3, 1, 1, 1)

VO

Epoch 1, Loss: 1.423

Accuracy of the network on the test images: 89.65%

Epoch 2, Loss: 0.235

Accuracy of the network on the test images: 94.97%

Epoch 3, Loss: 0.143

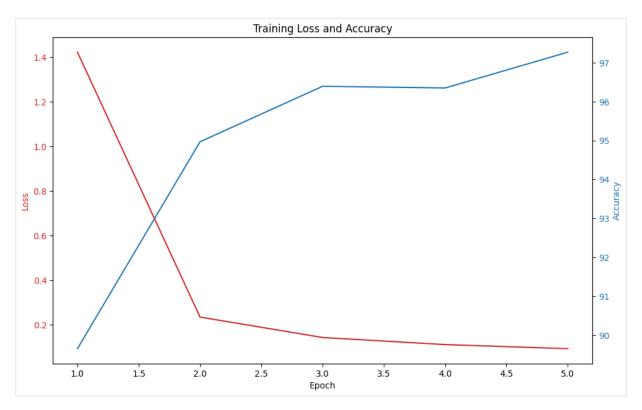
Accuracy of the network on the test images: 96.39%

Epoch 4, Loss: 0.112

Accuracy of the network on the test images: 96.35%

Epoch 5, Loss: 0.093

Accuracy of the network on the test images: 97.27%



Average test loss: 0.0766, Accuracy: 9767/10000 (97.67%)

Training model: conv\_config=(1, 10, 3, 1, 1, 1, 10, 50, 3, 1, 1, 1, 50, 50, 3, 1, 1, 1)

VO

Epoch 1, Loss: 1.262

Accuracy of the network on the test images: 91.94%

Epoch 2, Loss: 0.206

Accuracy of the network on the test images: 95.40%

Epoch 3, Loss: 0.133

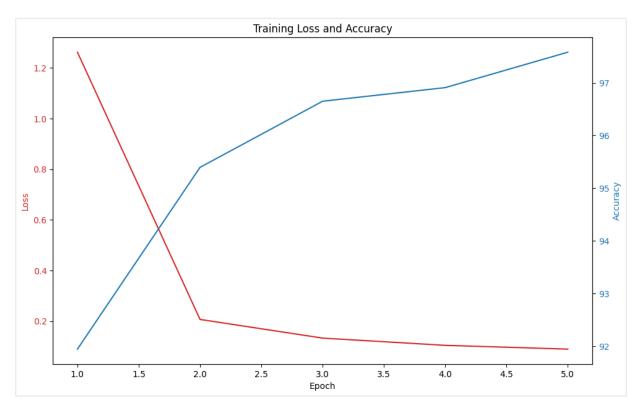
Accuracy of the network on the test images: 96.65%

Epoch 4, Loss: 0.104

Accuracy of the network on the test images: 96.91%

Epoch 5, Loss: 0.089

Accuracy of the network on the test images: 97.58%



Average test loss: 0.0743, Accuracy: 9769/10000 (97.69%)

Training model: conv\_config=(1, 10, 3, 1, 1, 1, 10, 50, 3, 1, 1, 1, 50, 60, 3, 1, 1, 1)

yo

Epoch 1, Loss: 1.120

Accuracy of the network on the test images: 92.96%

Epoch 2, Loss: 0.189

Accuracy of the network on the test images: 95.77%

Epoch 3, Loss: 0.128

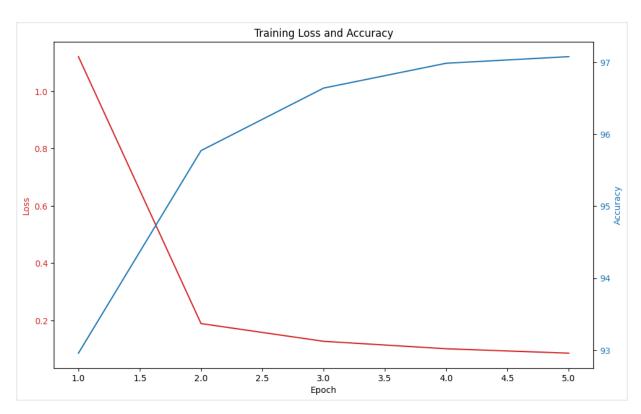
Accuracy of the network on the test images: 96.64%

Epoch 4, Loss: 0.102

Accuracy of the network on the test images: 96.98%

Epoch 5, Loss: 0.086

Accuracy of the network on the test images: 97.08%



Average test loss: 0.0848, Accuracy: 9727/10000 (97.27%)

Training model: conv\_config=(1, 10, 3, 1, 1, 10, 50, 3, 1, 1, 1, 50, 70, 3, 1, 1, 1)

yo