

The background of the slide is a dense, dark green collage of various tropical plants. It includes large, deeply lobed leaves characteristic of Monstera species, as well as long, feathery fronds of palm trees. The lighting is soft, creating a rich, textured appearance with varying shades of green.

Plant Disease Classification

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Data description

Path example: data\train\Rice__brown_spot\BROWNSPOT3_140.jpg

Tomato - spider mites



Rice - brown spot



Potato - early blight



Squash - powdery mildew



Tomato - healthy



Potato - early blight



Grape - healthy



Bell pepper - healthy



Squash - powdery mildew



Corn - common rust



Programming stack



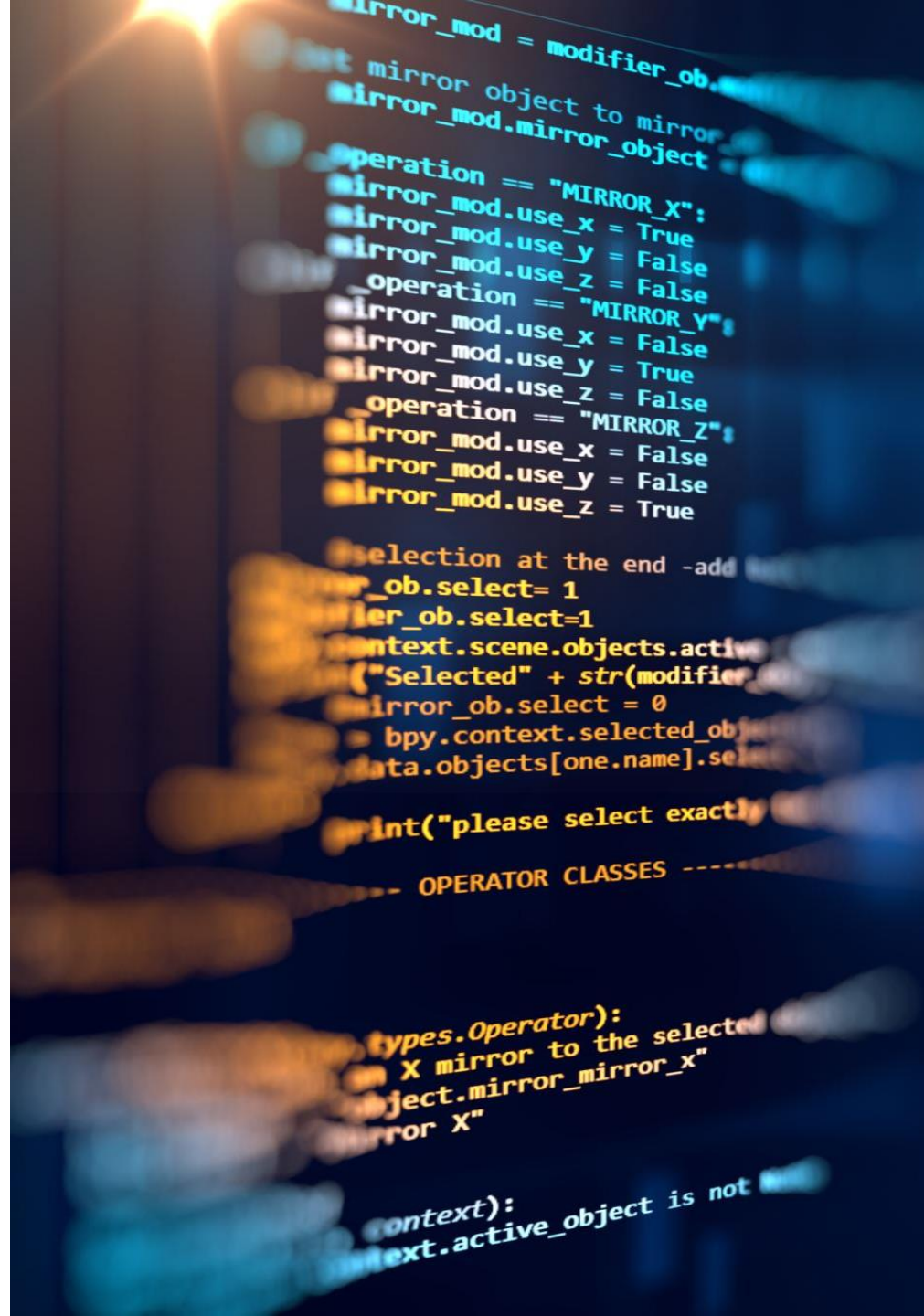
Python



PyTorch



Jupyter Notebook



AI model architecture

Processing: Nvidia CUDA

```
def convBlock(in_channels, out_channels, pool=False):
    layers = [nn.Conv2d(in_channels, out_channels, kernel_size=3, padding=1),
              nn.ReLU(inplace=True)]
    if pool:
        layers.append(nn.MaxPool2d(4))
    return nn.Sequential(*layers)
```

```
class NeuralNetwork(nn.Module):

    def __init__(self):
        super().__init__()

        self.conv1 = convBlock(3, 64)
        self.conv2 = convBlock(64, 128, pool=True)
        self.res1 = nn.Sequential(convBlock(128, 128), convBlock(128, 128))

        self.conv3 = convBlock(128, 256, pool=True)
        self.conv4 = convBlock(256, 512, pool=True)
        self.res2 = nn.Sequential(convBlock(512, 512), convBlock(512, 512))

        self.classifier = nn.Sequential(nn.AdaptiveAvgPool2d(1),
                                         nn.Flatten(),
                                         nn.Linear(512, len(classes)))
```

```
def forward(self, x):
    out = self.conv1(x)
    out = self.conv2(out)
    out = self.res1(out)
    out = F.interpolate(out, scale_factor=2, mode='nearest')
    out = self.conv3(out)
    out = self.conv4(out)
    out = self.res2(out)
    out = F.interpolate(out, scale_factor=2, mode='nearest')
    out = self.classifier(out)
    return out
```

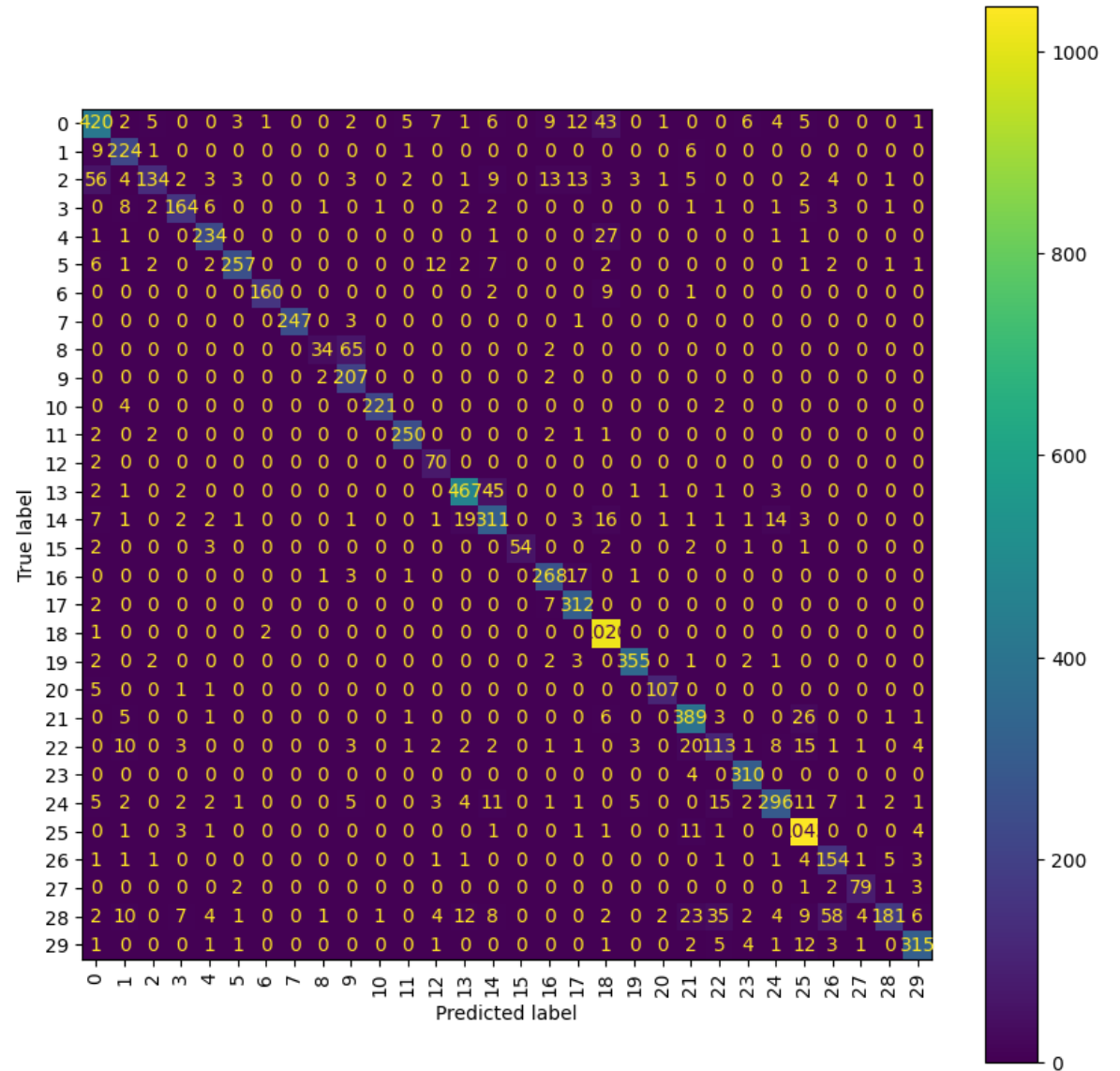
Model 1

30 classes

Training time: 13:15:23

Epochs: 5

Accuracy: 85.39%



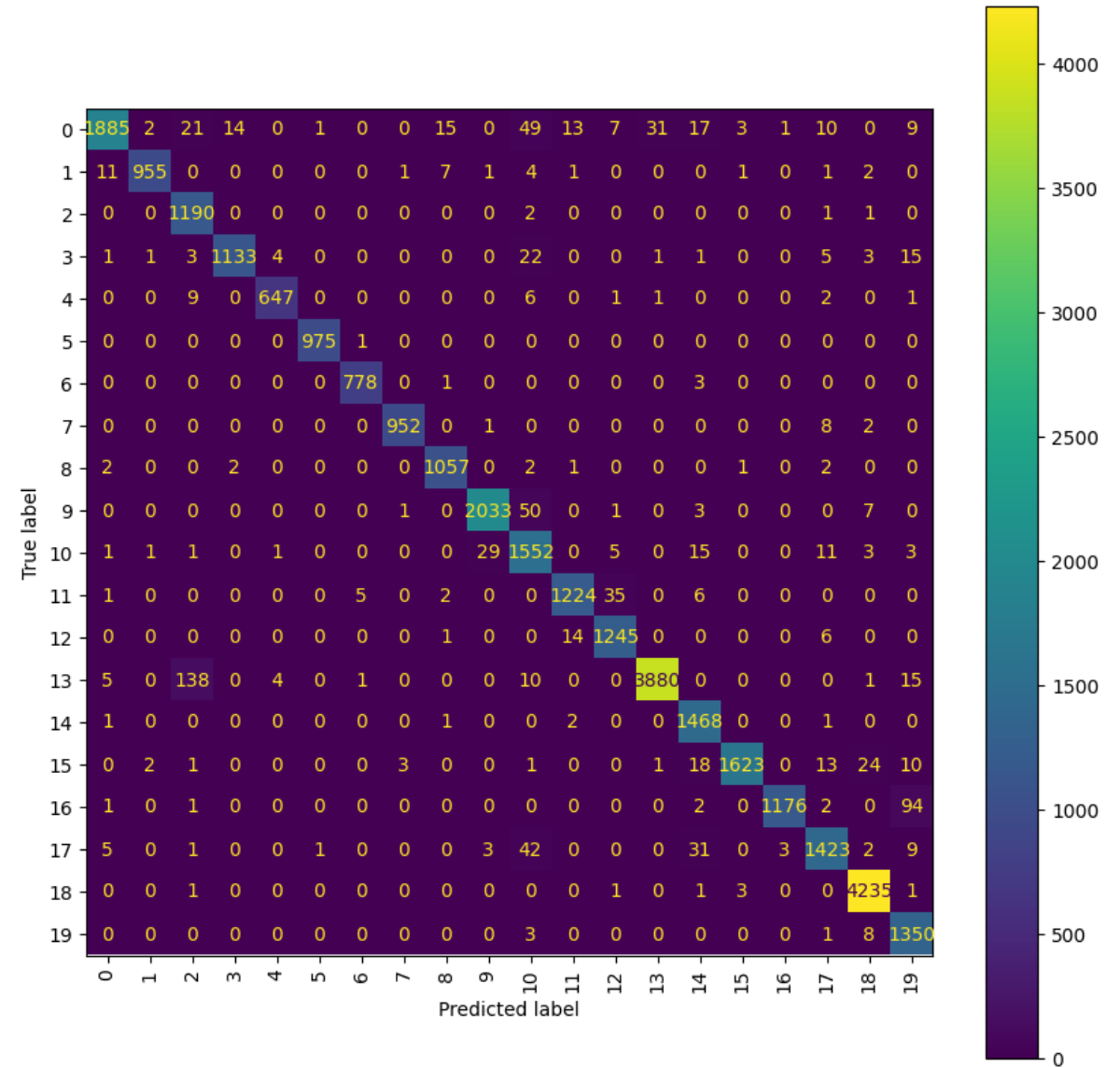
Model 2

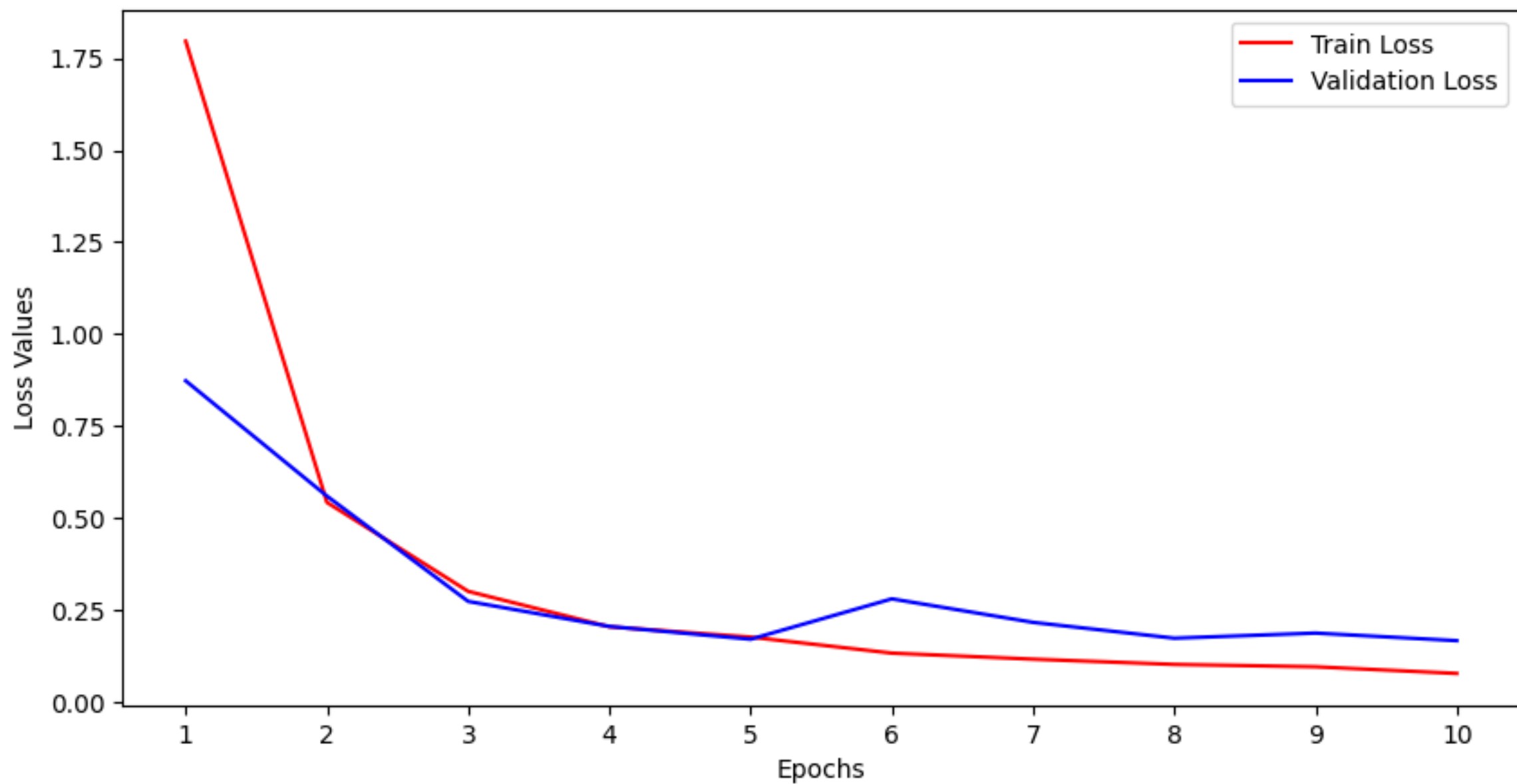
20 classes

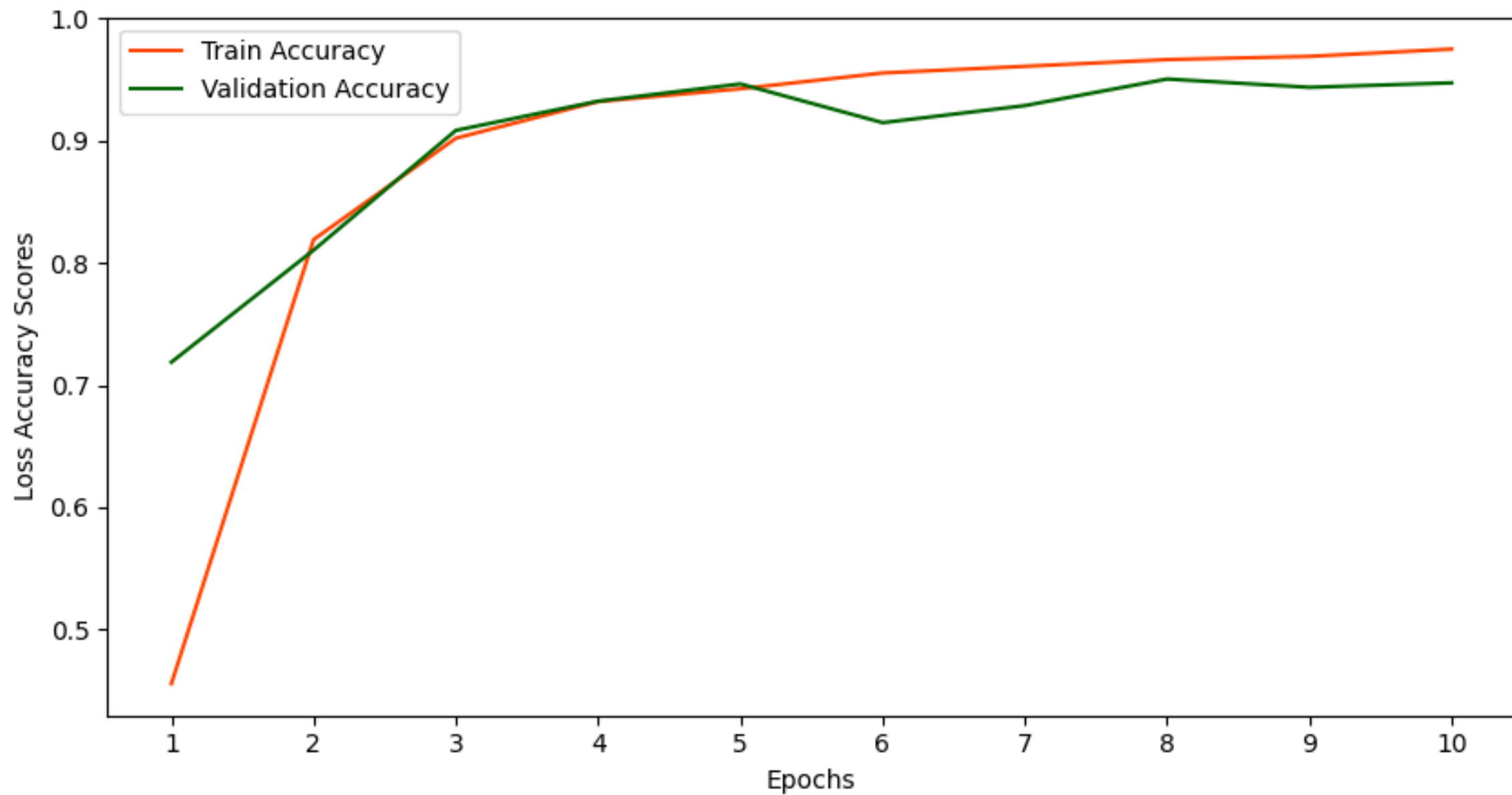
Training time: 17:56:03

Epochs: 10

Accuracy: 94.75%







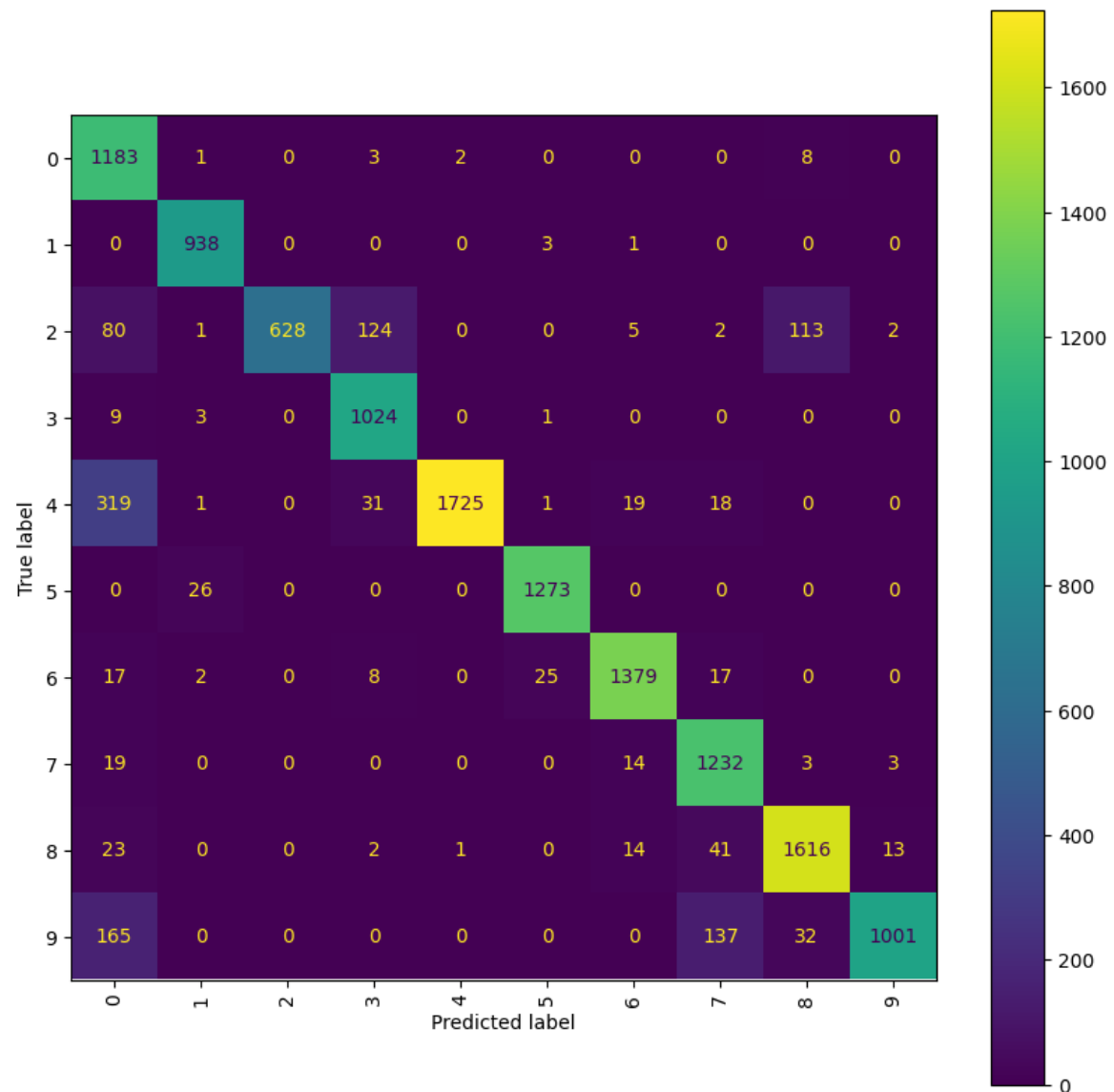
Model 3

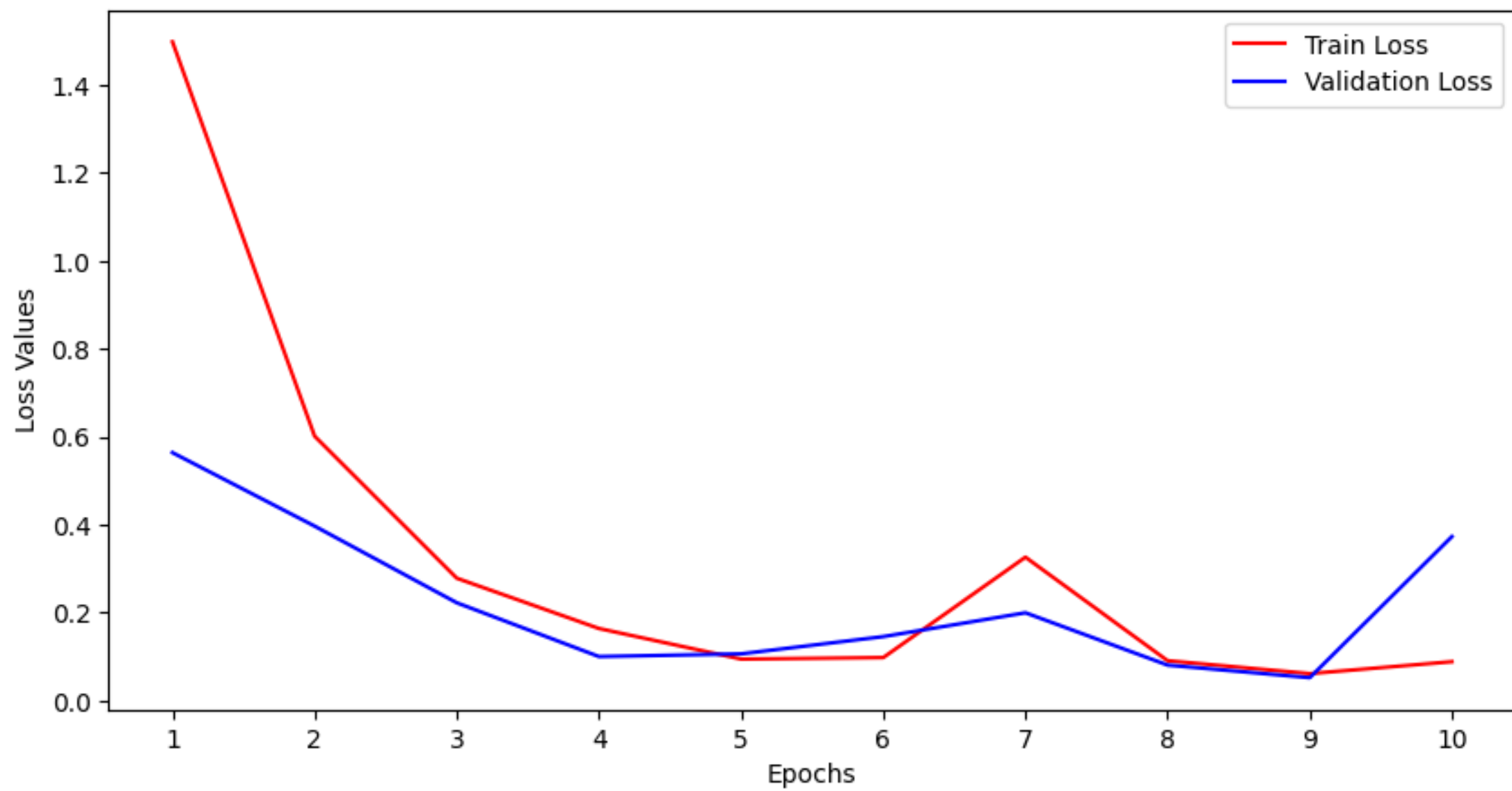
10 classes

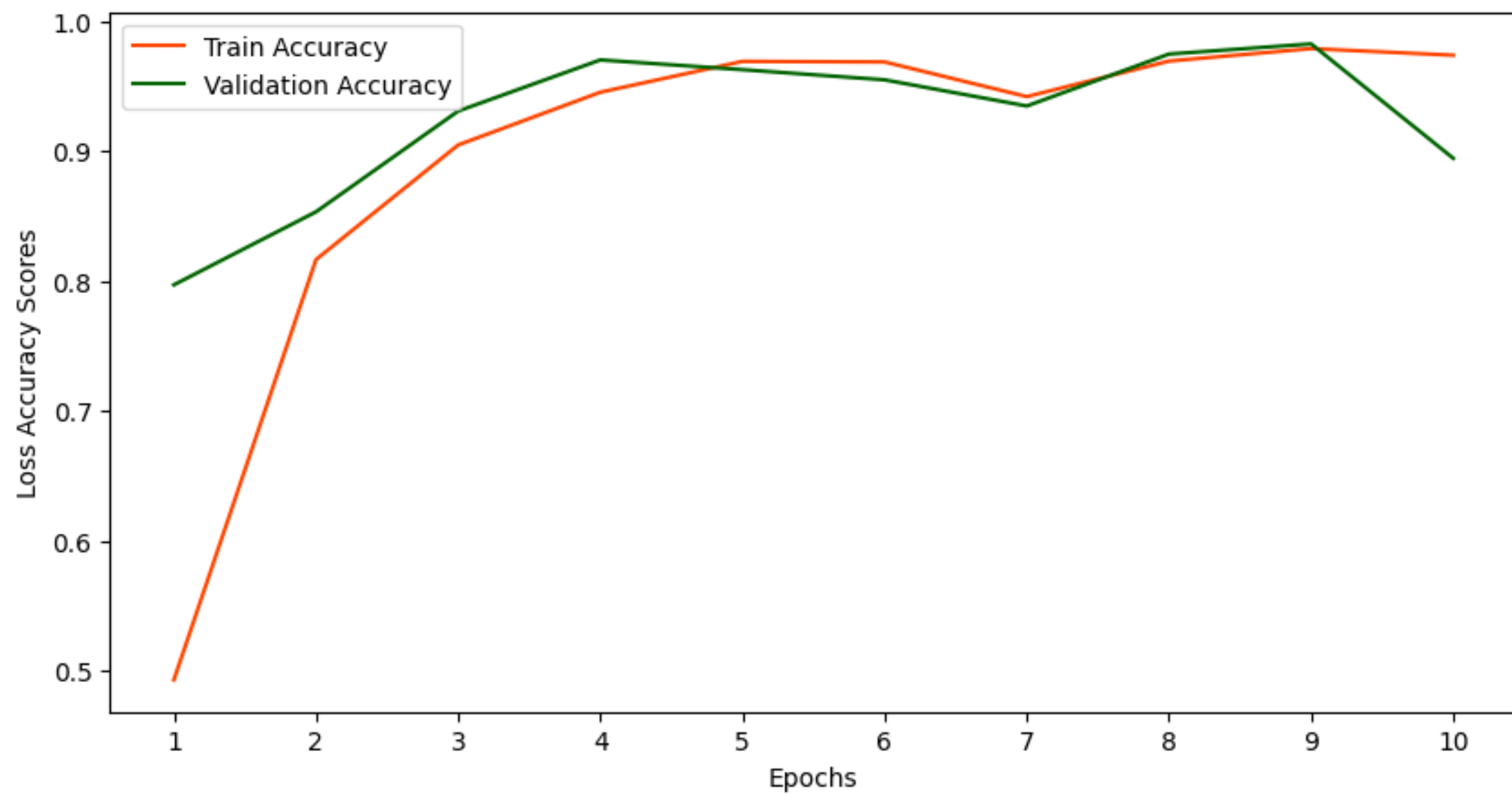
Training time: 6:31:25

Epochs: 10

Accuracy: 89.48%







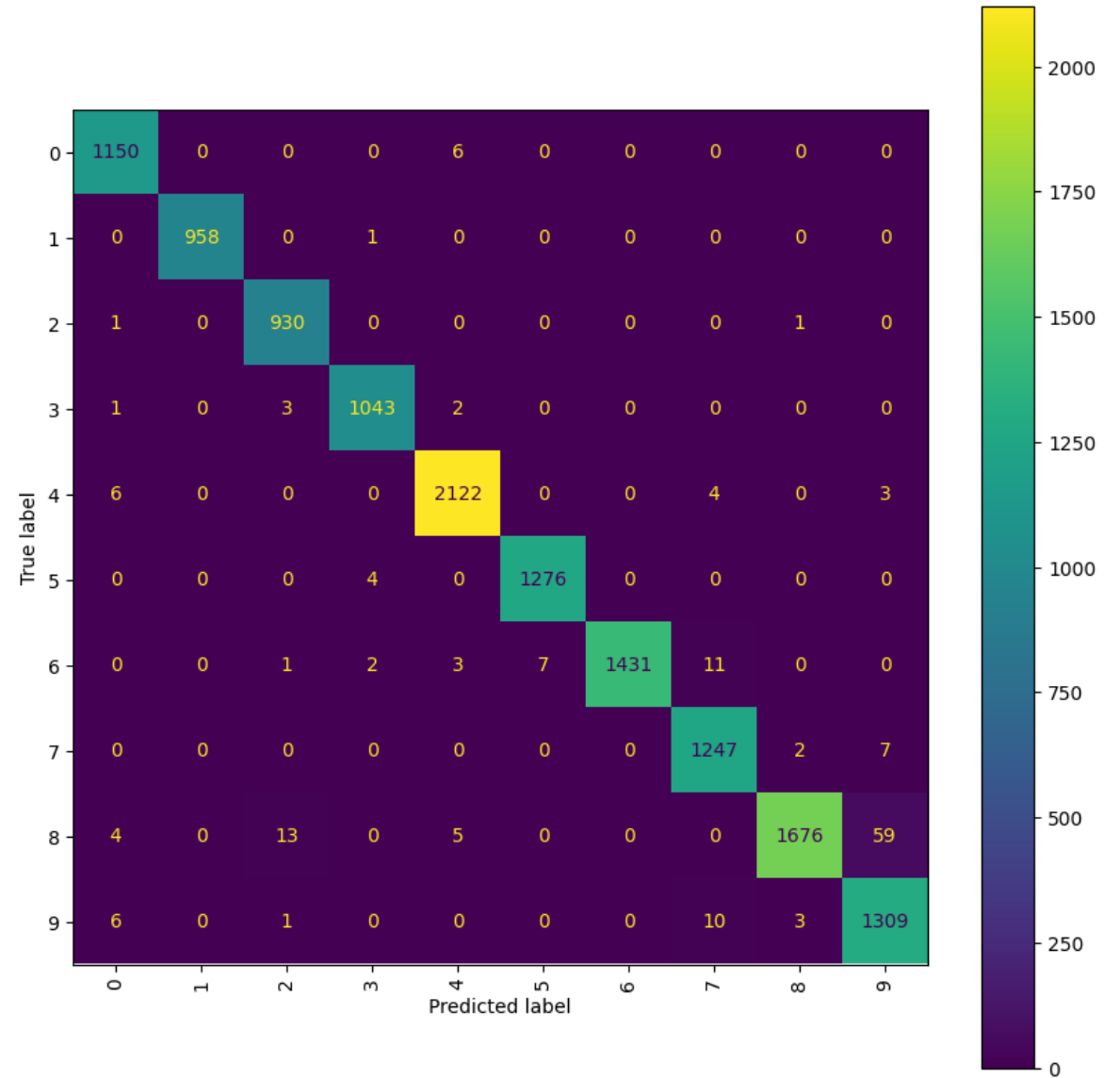
Model 4

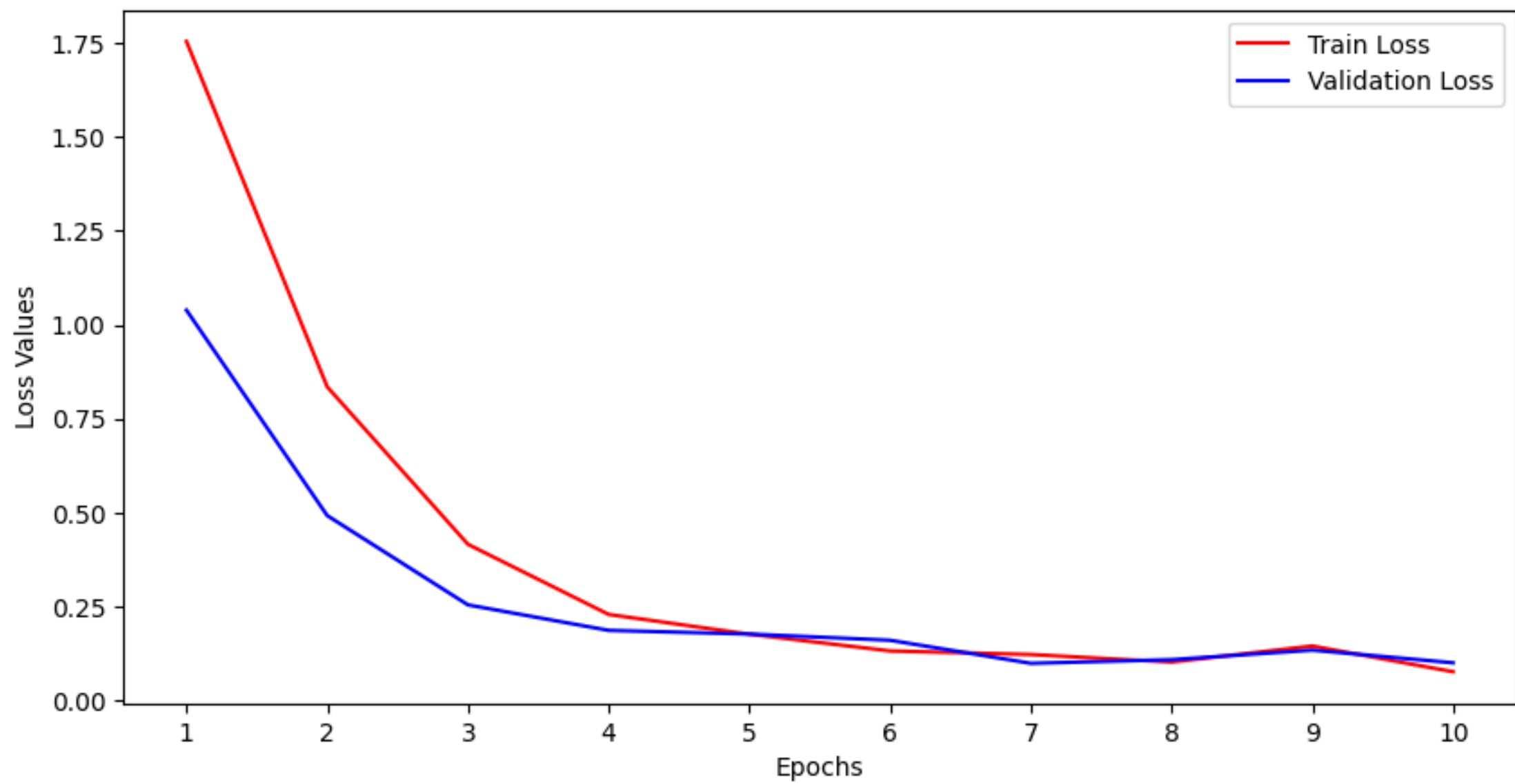
10 classes

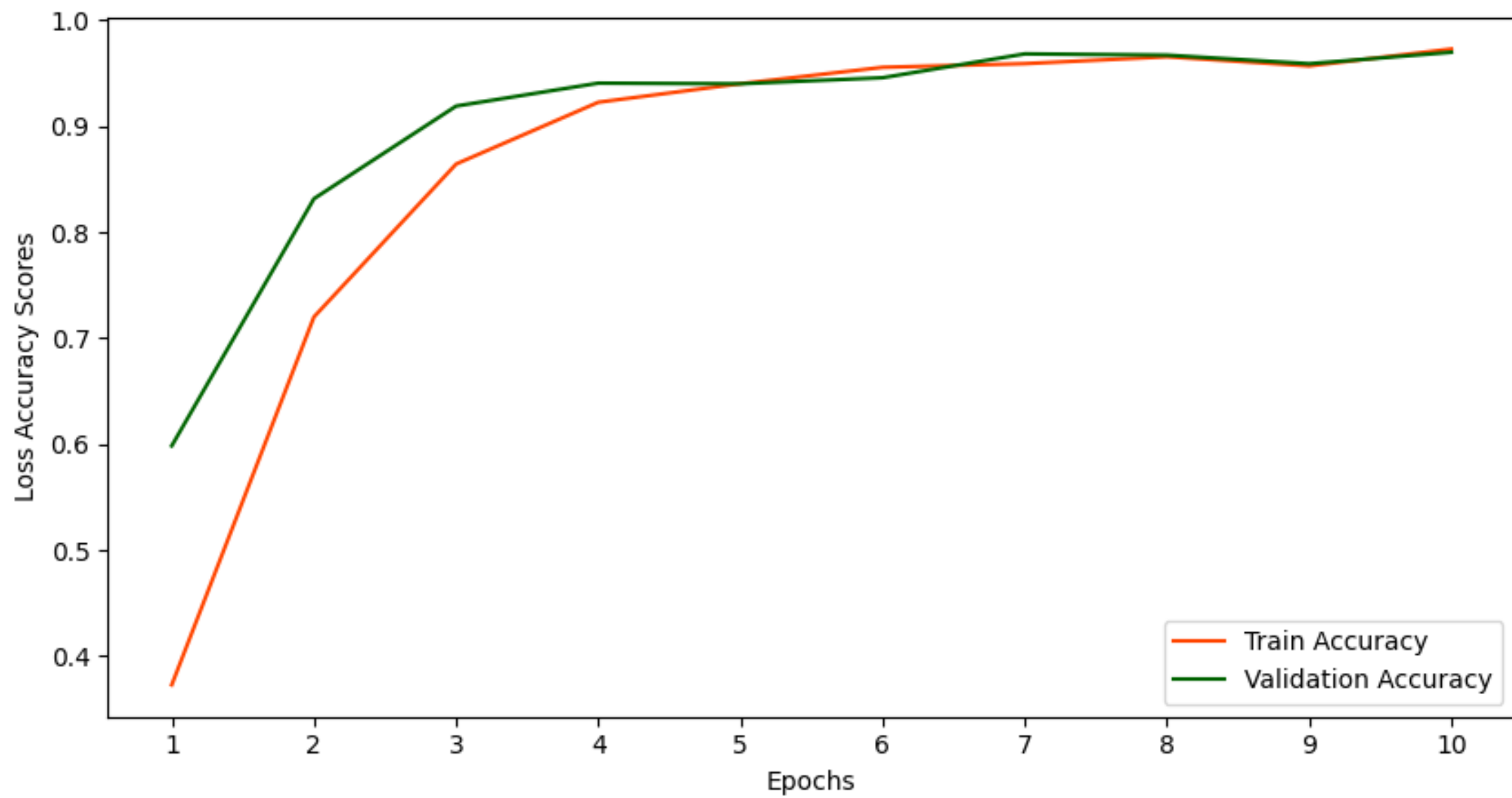
Training time: 6:25:45

Epochs: 10

Accuracy: 96.99%







The background of the slide is a dense, dark green pattern of leaves, likely from a plant like Philodendron, with prominent veins. The lighting is soft, creating a moody and naturalistic feel.

Thank you for attention

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