

# Result of LoRA Part One

Average Loss = 0.20655515794894502

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## BEFORE LoRA APPLICATION

Layer Name = linear1.weight

Parameter Size = torch.Size([1000, 784])

Layer Name = linear1.bias

Parameter Size = torch.Size([1000])

Layer Name = linear2.weight

Parameter Size = torch.Size([2000, 1000])

Layer Name = linear2.bias

Parameter Size = torch.Size([2000])

Layer Name = linear3.weight

Parameter Size = torch.Size([10, 2000])

Layer Name = linear3.bias

Parameter Size = torch.Size([10])

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Total Number of Parameters = 2807010

Accuracy Before Application of LoRA

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accuracy=96.15

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Wrong Count for Digit 0 = 15

Wrong Count for Digit 1 = 6

Wrong Count for Digit 2 = 61

Wrong Count for Digit 3 = 66

Wrong Count for Digit 4 = 7

Wrong Count for Digit 5 = 27

Wrong Count for Digit 6 = 29

Wrong Count for Digit 7 = 36

Wrong Count for Digit 8 = 55

Wrong Count for Digit 9 = 83

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## AFTER LoRA APPLICATION

Layer Name linear1.bias

Parameter Size torch.Size([1000])

Layer Name linear1.parametrizations.weight.original

Parameter Size torch.Size([1000, 784])

Layer Name linear1.parametrizations.weight.0.lora\_A

Parameter Size torch.Size([1, 784])

Layer Name linear1.parametrizations.weight.0.lora\_B

Parameter Size torch.Size([1000, 1])

Layer Name linear2.bias

Parameter Size torch.Size([2000])

Layer Name linear2.parametrizations.weight.original

Parameter Size torch.Size([2000, 1000])

Layer Name linear2.parametrizations.weight.0.lora\_A

Parameter Size torch.Size([1, 1000])

Layer Name linear2.parametrizations.weight.0.lora\_B  
Parameter Size torch.Size([2000, 1])  
Layer Name linear3.bias  
Parameter Size torch.Size([10])  
Layer Name linear3.parametrizations.weight.original  
Parameter Size torch.Size([10, 2000])  
Layer Name linear3.parametrizations.weight.0.lora\_A  
Parameter Size torch.Size([1, 2000])  
Layer Name linear3.parametrizations.weight.0.lora\_B  
Parameter Size torch.Size([10, 1])

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#### PARAMETERS WHERE LoRA NOT IN NAME

Layer Name = linear1.bias  
Layer Shape = torch.Size([1000])  
Layer Name = linear1.parametrizations.weight.original  
Layer Shape = torch.Size([1000, 784])  
Layer Name = linear2.bias  
Layer Shape = torch.Size([2000])  
Layer Name = linear2.parametrizations.weight.original  
Layer Shape = torch.Size([2000, 1000])  
Layer Name = linear3.bias  
Layer Shape = torch.Size([10])  
Layer Name = linear3.parametrizations.weight.original  
Layer Shape = torch.Size([10, 2000])

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#### PARAMETERS WHERE LoRA IN NAME

Layer Name = linear1.parametrizations.weight.0.lora\_A  
Layer Shape = torch.Size([1, 784])  
Layer Name = linear1.parametrizations.weight.0.lora\_B  
Layer Shape = torch.Size([1000, 1])  
Layer Name = linear2.parametrizations.weight.0.lora\_A  
Layer Shape = torch.Size([1, 1000])  
Layer Name = linear2.parametrizations.weight.0.lora\_B  
Layer Shape = torch.Size([2000, 1])  
Layer Name = linear3.parametrizations.weight.0.lora\_A  
Layer Shape = torch.Size([1, 2000])  
Layer Name = linear3.parametrizations.weight.0.lora\_B  
Layer Shape = torch.Size([10, 1])

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#### INCREMENT OF PARAMETERS AFTER APPLICATION OF LoRA

Non LoRA Parameters = 2807010

LoRA Parameters = 6794

% Parameters Increment Due to LoRA 0.24203690047417004

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accuracy=93.51

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Wrong Count for Digit 0 = 32  
Wrong Count for Digit 1 = 10  
Wrong Count for Digit 2 = 59  
Wrong Count for Digit 3 = 97  
Wrong Count for Digit 4 = 68  
Wrong Count for Digit 5 = 49

Wrong Count for Digit 6 = 38

Wrong Count for Digit 7 = 185

Wrong Count for Digit 8 = 86

Wrong Count for Digit 9 = 25