convmodel (

(conv): Conv1d(32, 64, kernel\_size=(3,), stride=(1,)), weights=((64, 32, 3), (64,)), parameters=6208

(conv2): Conv1d(64, 128, kernel\_size=(3,), stride=(1,)), weights=((128, 64, 3), (128,)), parameters=24704

(conv3): Conv1d(128, 256, kernel\_size=(3,), stride=(1,)), weights=((256, 128, 3), (256,)), parameters=98560

(bn): BatchNorm1d(64, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True), weights=((64,), (64,)), parameters=128

(pool): MaxPool1d(kernel\_size=2, stride=2, padding=0, dilation=1, ceil\_mode=False), weights=(), parameters=0

(linear1): Linear(in\_features=16256, out\_features=124, bias=True), weights=((124, 16256), (124,)), parameters=2015868

(linear3): Linear(in\_features=124, out\_features=6, bias=True), weights=((6, 124), (6,)), parameters=750

(dropout1): Dropout(p=0.5, inplace=False), weights=(), parameters=0

(dropout2): Dropout(p=0.5, inplace=False), weights=(), parameters=0

(dropout3): Dropout(p=0.5, inplace=False), weights=(), parameters=0

(convo): Sequential (

(0): Conv1d(32, 64, kernel\_size=(3,), stride=(1,)), weights=((64, 32, 3), (64,)), parameters=6208

(1): ReLU(inplace=True), weights=(), parameters=0

(2): Conv1d(64, 128, kernel\_size=(3,), stride=(1,)), weights=((128, 64, 3), (128,)), parameters=24704

(3): ReLU(inplace=True), weights=(), parameters=0

(4): Conv1d(128, 256, kernel\_size=(3,), stride=(1,)), weights=((256, 128, 3), (256,)), parameters=98560

(5): ReLU(inplace=True), weights=(), parameters=0

(6): BatchNorm1d(64, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True), weights=((64,), (64,)), parameters=128

(7): MaxPool1d(kernel\_size=2, stride=2, padding=0, dilation=1, ceil\_mode=False), weights=(), parameters=0

(8): Dropout(p=0.5, inplace=False), weights=(), parameters=0

), weights=((64, 32, 3), (64,), (128, 64, 3), (128,), (256, 128, 3), (256,), (64,), (64,)), parameters=129600

(dense): Sequential (

(0): Linear(in\_features=16256, out\_features=124, bias=True), weights=((124, 16256), (124,)), parameters=2015868

(1): ReLU(inplace=True), weights=(), parameters=0

(2): Dropout(p=0.5, inplace=False), weights=(), parameters=0

(3): Dropout(p=0.5, inplace=False), weights=(), parameters=0

(4): Linear(in\_features=124, out\_features=6, bias=True), weights=((6, 124), (6,)), parameters=750

), weights=((124, 16256), (124,), (6, 124), (6,)), parameters=2016618

)

CapsNet (

(conv\_layer): ConvLayer(

(conv): Conv1d(32, 64, kernel\_size=(9,), stride=(1,))

), weights=((64, 32, 9), (64,)), parameters=18496

(primary\_capsules): PrimaryCaps(

(capsules): ModuleList(

(0): Conv1d(64, 32, kernel\_size=(9,), stride=(2,))

(1): Conv1d(64, 32, kernel\_size=(9,), stride=(2,))

(2): Conv1d(64, 32, kernel\_size=(9,), stride=(2,))

(3): Conv1d(64, 32, kernel\_size=(9,), stride=(2,))

(4): Conv1d(64, 32, kernel\_size=(9,), stride=(2,))

(5): Conv1d(64, 32, kernel\_size=(9,), stride=(2,))

)

), weights=((32, 64, 9), (32,), (32, 64, 9), (32,), (32, 64, 9), (32,), (32, 64, 9), (32,), (32, 64, 9), (32,), (32, 64, 9), (32,)), parameters=110784

(digit\_capsules): DigitCaps(), weights=((1, 192, 6, 16, 1),), parameters=18432

(decoder): Decoder(

(reconstraction\_layers): Sequential(

(0): Linear(in\_features=96, out\_features=512, bias=True)

(1): ReLU(inplace=True)

(2): Linear(in\_features=512, out\_features=8192, bias=True)

(3): ReLU(inplace=True)

(4): Linear(in\_features=8192, out\_features=8192, bias=True)

(5): Sigmoid()

)

), weights=((512, 96), (512,), (8192, 512), (8192,), (8192, 8192), (8192,)), parameters=71369216

(mse\_loss): MSELoss(), weights=(), parameters=0

)

CNN+LSTM

Combine (

(cnn): convmodel(

(conv2): Conv1d(32, 64, kernel\_size=(3,), stride=(1,))

(bn): BatchNorm1d(64, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(pool): MaxPool1d(kernel\_size=2, stride=2, padding=0, dilation=1, ceil\_mode=False)

(dropout1): Dropout(p=0.5, inplace=False)

(conv): Sequential(

(0): Conv1d(32, 64, kernel\_size=(3,), stride=(1,))

(1): ReLU(inplace=True)

(2): BatchNorm1d(64, eps=1e-05, momentum=0.1, affine=True, track\_running\_stats=True)

(3): MaxPool1d(kernel\_size=2, stride=2, padding=0, dilation=1, ceil\_mode=False)

(4): Dropout(p=0.5, inplace=False)

)

), weights=((64, 32, 3), (64,), (64,), (64,)), parameters=6336

(rnn): LSTM(127, 64, batch\_first=True), weights=((256, 127), (256, 64), (256,), (256,)), parameters=49408

(linear): Linear(in\_features=64, out\_features=6, bias=True), weights=((6, 64), (6,)), parameters=390

)