

```
/Users/rajkumar/tensorflow/bin/python "/Applications/PyCharm
CE.app/Contents/helpers/pydev/pydevd.py" --multiproc --qt-support --client 127.0.0.1 --
port 49475 --file "/Users/rajkumar/MSc
Project/Implementation/Main/Git/MFCC_SWN_BN_Affine/train.py"
pydev debugger: process 14082 is connecting
```

Connected to pydev debugger (build 163.15188.4)

Time elapsed for creating graph: 4.280

/Users/rajkumar/MSc

Project/Implementation/Main/Git/MFCC\_SWN\_BN\_Affine/Data.py:278: FutureWarning:  
comparison to `None` will result in an elementwise object comparison in the future.

if tensors == None:

epoch 1, step: 0, tr\_loss: 1369.63, vl\_loss: 1644.89, tr\_err: 6.31, vl\_err: 7.77

epoch 2, step: 0, tr\_loss: 1507.26, vl\_loss: 1606.90, tr\_err: 7.77, vl\_err: 7.46

epoch 3, step: 0, tr\_loss: 1527.81, vl\_loss: 1551.59, tr\_err: 7.46, vl\_err: 6.80

epoch 4, step: 0, tr\_loss: 1506.10, vl\_loss: 1481.24, tr\_err: 6.80, vl\_err: 5.98

epoch 5, step: 0, tr\_loss: 1458.91, vl\_loss: 1406.71, tr\_err: 5.98, vl\_err: 5.26

epoch 6, step: 0, tr\_loss: 1400.53, vl\_loss: 1333.47, tr\_err: 5.26, vl\_err: 4.48

epoch 7, step: 0, tr\_loss: 1338.64, vl\_loss: 1264.62, tr\_err: 4.48, vl\_err: 3.56

epoch 8, step: 0, tr\_loss: 1277.75, vl\_loss: 1200.58, tr\_err: 3.56, vl\_err: 2.69

epoch 9, step: 0, tr\_loss: 1219.36, vl\_loss: 1141.08, tr\_err: 2.69, vl\_err: 2.04

epoch 10, step: 0, tr\_loss: 1163.93, vl\_loss: 1086.84, tr\_err: 2.04, vl\_err: 1.58

time\_elapsed for 200 steps: 1.117,

('Sample mini-batch results: \npredicted string: ', array(['', 'T', '', 'R', '', 'Y', 'S', 'A', '', 'J', 'B',  
'A', 'E',

'A', 'N', 'Y', 'B', 'K', 'A', 'F', 'O', '', 'A', 'M', 'A', 'R',

'A', 'M', 'R', 'A', 'I', 'P', 'R', '', 'R', 'Y', '', 'A', '',

'A', 'S', 'E', '', '', 'H', 'N', 'Q', 'L', 'E', 'D', '', 'D',

'W', 'D', 'U', '', 'A', '', 'L', 'U', 'Q', 'C', '', 'I', 'E',

'P', 'U', 'H', 'U', 'M', 'D', 'P', '', 'A', '', 'P', '', 'A',

'', 'H', 'T', '', 'Z', '', '', '', '', '', '', '',

'', '', '', '', '', '', '', '', '', '', '',

'', '', '', '', '', '', '', '', '', '', '',

'', '', '', '', '', '', '', '', '', '', '',

'', '', '', '', '', '', '', '', '', '', '',

'', '', '', '', '', '', '', '', '', '', '',

'', '', '', '', '', '', '', '', '', '', ''

dtype='|S1'))

('actual string1: ', array(['I', '', 'W', 'O', 'U', 'L', 'D', '', 'L', 'I', 'K', 'E', '',

'T', 'O', '', 'F', 'I', 'N', 'D', '', 'A', 'N', '', 'I', 'N',

'D', 'I', 'A', 'N', '', 'R', 'E', 'S', 'T', 'A', 'U', 'R', 'A',

'N', 'T', '', 'A', 'N', 'D', '', 'I', 'T', '', 'S', 'H', 'O',

'U', 'L', 'D', '', 'B', 'E', '', 'I', 'N', '', 'T', 'H', 'E',

'', 'G', 'I', 'R', 'T', 'O', 'N', '', 'A', 'R', 'E', 'A'],

dtype='|S1'))

epoch 11, step: 0, tr\_loss: 1112.55, vl\_loss: 1037.14, tr\_err: 1.58, vl\_err: 1.22

epoch 12, step: 0, tr\_loss: 1064.85, vl\_loss: 992.15, tr\_err: 1.22, vl\_err: 1.07  
epoch 13, step: 0, tr\_loss: 1021.18, vl\_loss: 950.26, tr\_err: 1.07, vl\_err: 0.95  
epoch 14, step: 0, tr\_loss: 980.22, vl\_loss: 911.08, tr\_err: 0.95, vl\_err: 0.89  
epoch 15, step: 0, tr\_loss: 941.65, vl\_loss: 874.63, tr\_err: 0.89, vl\_err: 0.84  
epoch 16, step: 0, tr\_loss: 905.56, vl\_loss: 841.51, tr\_err: 0.84, vl\_err: 0.82  
epoch 17, step: 0, tr\_loss: 872.58, vl\_loss: 810.78, tr\_err: 0.82, vl\_err: 0.83  
epoch 18, step: 0, tr\_loss: 841.83, vl\_loss: 781.39, tr\_err: 0.83, vl\_err: 0.80  
epoch 19, step: 0, tr\_loss: 812.35, vl\_loss: 753.43, tr\_err: 0.80, vl\_err: 0.83  
epoch 20, step: 0, tr\_loss: 784.24, vl\_loss: 727.06, tr\_err: 0.83, vl\_err: 0.81  
time\_elapsed for 200 steps: 1.136,  
('Sample mini-batch results: \npredicted string: ', array([' ', 'N', ' ', 'A', ' ', 'A', ' ', 'E', ' ', 'E', 'K',  
'U', ' ',  
'N', ' ', 'A', ' ', 'T', ' ', 'L', ' ', 'A', ' ', 'A', ' ', 'A',  
' ', 'A', ' ', 'A', ' '],  
dtype='|S1'))  
('actual string1: ', array(['I', ' ', 'A', 'M', ' ', 'L', 'O', 'O', 'K', 'I', 'N', 'G', ' ',  
'F', 'O', 'R', ' ', 'A', ' ', 'P', 'U', 'B', ' ', 'I', 'N', ' ',  
'T', 'H', 'E', ' ', 'R', 'I', 'V', 'E', 'R', 'S', 'I', 'D', 'E',  
' ', 'A', 'R', 'E', 'A'],  
dtype='|S1'))

epoch 21, step: 0, tr\_loss: 757.66, vl\_loss: 702.44, tr\_err: 0.81, vl\_err: 0.78  
epoch 22, step: 0, tr\_loss: 732.77, vl\_loss: 679.32, tr\_err: 0.78, vl\_err: 0.72  
epoch 23, step: 0, tr\_loss: 709.34, vl\_loss: 657.66, tr\_err: 0.72, vl\_err: 0.75  
epoch 24, step: 0, tr\_loss: 687.33, vl\_loss: 637.28, tr\_err: 0.75, vl\_err: 0.74  
epoch 25, step: 0, tr\_loss: 666.57, vl\_loss: 618.10, tr\_err: 0.74, vl\_err: 0.69  
epoch 26, step: 0, tr\_loss: 647.01, vl\_loss: 599.96, tr\_err: 0.69, vl\_err: 0.68  
epoch 27, step: 0, tr\_loss: 628.47, vl\_loss: 582.84, tr\_err: 0.68, vl\_err: 0.65  
epoch 28, step: 0, tr\_loss: 610.94, vl\_loss: 566.64, tr\_err: 0.65, vl\_err: 0.57  
epoch 29, step: 0, tr\_loss: 594.33, vl\_loss: 551.33, tr\_err: 0.57, vl\_err: 0.56  
epoch 30, step: 0, tr\_loss: 578.60, vl\_loss: 536.83, tr\_err: 0.56, vl\_err: 0.53  
time\_elapsed for 200 steps: 1.126,  
('Sample mini-batch results: \npredicted string: ', array([' ', 'O', ' ', 'O', 'I', 'N', ' ', 'I', ' ', 'N', 'T',  
'E', 'R',  
' ', 'E', 'T', ' ', 'O', ' ', 'E', 'T', 'I', ' ', 'N', ' ', 'L',  
'O', 'L', ' ', 'N', ' ', 'C', ' ', 'R', 'L', 'R', 'N', ' '],  
dtype='|S1'))  
('actual string1: ', array(['I', ' ', 'A', 'M', ' ', 'L', 'O', 'O', 'K', 'I', 'N', 'G', ' ',  
'F', 'O', 'R', ' ', 'A', ' ', 'P', 'U', 'B', ' ', 'I', 'N', ' ',  
'T', 'H', 'E', ' ', 'R', 'I', 'V', 'E', 'R', 'S', 'I', 'D', 'E',  
' ', 'A', 'R', 'E', 'A'],  
dtype='|S1'))

epoch 31, step: 0, tr\_loss: 563.69, vl\_loss: 522.97, tr\_err: 0.53, vl\_err: 0.49  
epoch 32, step: 0, tr\_loss: 549.43, vl\_loss: 509.72, tr\_err: 0.49, vl\_err: 0.40  
epoch 33, step: 0, tr\_loss: 535.77, vl\_loss: 496.99, tr\_err: 0.40, vl\_err: 0.34  
epoch 34, step: 0, tr\_loss: 522.65, vl\_loss: 484.79, tr\_err: 0.34, vl\_err: 0.26

epoch 35, step: 0, tr\_loss: 510.07, vl\_loss: 473.16, tr\_err: 0.26, vl\_err: 0.21

epoch 36, step: 0, tr\_loss: 498.06, vl\_loss: 462.08, tr\_err: 0.21, vl\_err: 0.21

epoch 37, step: 0, tr\_loss: 486.61, vl\_loss: 451.53, tr\_err: 0.21, vl\_err: 0.19

epoch 38, step: 0, tr\_loss: 475.69, vl\_loss: 441.44, tr\_err: 0.19, vl\_err: 0.20

epoch 39, step: 0, tr\_loss: 465.24, vl\_loss: 431.82, tr\_err: 0.20, vl\_err: 0.18

epoch 40, step: 0, tr\_loss: 455.26, vl\_loss: 422.57, tr\_err: 0.18, vl\_err: 0.16

time\_elapsed for 200 steps: 1.126,

('Sample mini-batch results: \npredicted string: ', array(['I', '', 'M', '', 'O', 'K', 'I', 'N', 'G', '', 'F', 'O', '',

'A', 'N', '', 'E', 'X', 'P', 'E', 'N', 'S', 'I', '', 'R', 'E',

'S', 'T', 'A', 'U', 'R', 'A', 'N', 'T', '', '', '', '', '',

''', ''', ''', ''', ''', ''', ''', ''', ''', ''', ''',

''', ''', ''', ''', ''', ''', ''', ''', ''', ''', ''',

''', ''', ''', ''', ''', ''', ''', ''', ''', ''', ''',

''', ''],

dtype='|S1'))

('actual string1: ', array(['I', '', 'W', 'O', 'U', 'L', 'D', '', 'L', 'I', 'K', 'E', '',

'T', 'O', '', 'F', 'I', 'N', 'D', '', 'A', 'N', '', 'I', 'N',

'D', 'I', 'A', 'N', '', 'R', 'E', 'S', 'T', 'A', 'U', 'R', 'A',

'N', 'T', '', 'A', 'N', 'D', '', 'I', 'T', '', 'S', 'H', 'O',

'U', 'L', 'D', '', 'B', 'E', '', 'I', 'N', '', 'T', 'H', 'E',

''', 'G', 'I', 'R', 'T', 'O', 'N', '', 'A', 'R', 'E', 'A'],

dtype='|S1'))

epoch 41, step: 0, tr\_loss: 445.67, vl\_loss: 413.69, tr\_err: 0.16, vl\_err: 0.16

epoch 42, step: 0, tr\_loss: 436.45, vl\_loss: 405.19, tr\_err: 0.16, vl\_err: 0.16

epoch 43, step: 0, tr\_loss: 427.62, vl\_loss: 397.09, tr\_err: 0.16, vl\_err: 0.16

epoch 44, step: 0, tr\_loss: 419.19, vl\_loss: 389.33, tr\_err: 0.16, vl\_err: 0.15

epoch 45, step: 0, tr\_loss: 411.11, vl\_loss: 381.82, tr\_err: 0.15, vl\_err: 0.13

epoch 46, step: 0, tr\_loss: 403.29, vl\_loss: 374.58, tr\_err: 0.13, vl\_err: 0.11

epoch 47, step: 0, tr\_loss: 395.75, vl\_loss: 367.58, tr\_err: 0.11, vl\_err: 0.10

epoch 48, step: 0, tr\_loss: 388.45, vl\_loss: 360.84, tr\_err: 0.10, vl\_err: 0.10

epoch 49, step: 0, tr\_loss: 381.43, vl\_loss: 354.34, tr\_err: 0.10, vl\_err: 0.10

epoch 50, step: 0, tr\_loss: 374.65, vl\_loss: 348.05, tr\_err: 0.10, vl\_err: 0.10

time\_elapsed for 200 steps: 1.163,

('Sample mini-batch results: \npredicted string: ', array(['I', '', 'M', '', 'L', 'O', 'K', 'I', 'N', 'G', '', 'F', 'O',

'R', '', 'A', 'N', '', 'E', 'X', 'P', 'E', 'N', 'S', 'I', 'V',

''', 'R', 'E', 'S', 'T', 'A', 'U', 'R', 'A', 'N', 'T', '', '',

''', ''', ''', ''', ''', ''', ''', ''', ''', ''', ''',

''', ''', ''', ''', ''', ''', ''', ''', ''', ''', ''',

''', ''', ''', ''', ''', ''', ''', ''', ''', ''', ''',

''', ''],

dtype='|S1'))

('actual string1: ', array(['I', '', 'W', 'O', 'U', 'L', 'D', '', 'L', 'I', 'K', 'E', '',

'T', 'O', '', 'F', 'I', 'N', 'D', '', 'A', 'N', '', 'I', 'N',

'D', 'I', 'A', 'N', '', 'R', 'E', 'S', 'T', 'A', 'U', 'R', 'A',

'N', 'T', '', 'A', 'N', 'D', '', 'I', 'T', '', 'S', 'H', 'O',

'U', 'L', 'D', '', 'B', 'E', '', 'I', 'N', '', 'T', 'H', 'E',

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    ' ', 'G', 'I', 'R', 'T', 'O', 'N', ' ', ' ', 'A', 'R', 'E', 'A'],  
    dtype='|S1'))
```

epoch 51, step: 0, tr\_loss: 368.09, vl\_loss: 342.00, tr\_err: 0.10, vl\_err: 0.10  
epoch 52, step: 0, tr\_loss: 361.76, vl\_loss: 336.16, tr\_err: 0.10, vl\_err: 0.10  
epoch 53, step: 0, tr\_loss: 355.66, vl\_loss: 330.51, tr\_err: 0.10, vl\_err: 0.09  
epoch 54, step: 0, tr\_loss: 349.75, vl\_loss: 325.04, tr\_err: 0.09, vl\_err: 0.09  
epoch 55, step: 0, tr\_loss: 344.03, vl\_loss: 319.74, tr\_err: 0.09, vl\_err: 0.09  
epoch 56, step: 0, tr\_loss: 338.49, vl\_loss: 314.62, tr\_err: 0.09, vl\_err: 0.09  
epoch 57, step: 0, tr\_loss: 333.13, vl\_loss: 309.66, tr\_err: 0.09, vl\_err: 0.09  
epoch 58, step: 0, tr\_loss: 327.94, vl\_loss: 304.87, tr\_err: 0.09, vl\_err: 0.09  
epoch 59, step: 0, tr\_loss: 322.91, vl\_loss: 300.21, tr\_err: 0.09, vl\_err: 0.09  
epoch 60, step: 0, tr\_loss: 318.04, vl\_loss: 295.71, tr\_err: 0.09, vl\_err: 0.09  
time\_elapsed for 200 steps: 1.130,

('Sample mini-batch results: \npredicted string: ', array(['I', '', 'M', ' ', 'L', 'O', 'K', 'I', 'N', 'G', ' ',  
'F', 'O',

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    'R', ' ', 'A', 'N', ' ', 'E', 'X', 'P', 'E', 'N', 'S', 'I', 'V',  
    ' ', 'R', 'E', 'S', 'T', 'A', 'U', 'R', 'A', 'N', 'T', ' ', ' ',  
    ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ',  
    ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ',  
    ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ',  
    ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ',  
    ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ',  
    dtype='|S1'))
```

('actual string1: ', array(['I', ' ', 'W', 'O', 'U', 'L', 'D', ' ', 'L', 'I', 'K', 'E', ' ',  
'T', 'O', ' ', 'F', 'I', 'N', 'D', ' ', ' ', 'A', 'N', ' ', ' ', 'I', 'N',  
'D', 'I', 'A', 'N', ' ', ' ', 'R', 'E', 'S', 'T', 'A', 'U', 'R', 'A',  
'N', 'T', ' ', ' ', 'A', 'N', 'D', ' ', ' ', 'I', 'T', ' ', ' ', 'S', 'H', 'O',  
'U', 'L', 'D', ' ', ' ', 'B', 'E', ' ', ' ', 'I', 'N', ' ', ' ', 'T', 'H', 'E',  
' ', 'G', 'I', 'R', 'T', 'O', 'N', ' ', ' ', 'A', 'R', 'E', 'A'],  
 dtype='|S1'))

epoch 61, step: 0, tr\_loss: 313.32, vl\_loss: 291.34, tr\_err: 0.09, vl\_err: 0.09  
epoch 62, step: 0, tr\_loss: 308.73, vl\_loss: 287.11, tr\_err: 0.09, vl\_err: 0.08  
epoch 63, step: 0, tr\_loss: 304.30, vl\_loss: 283.01, tr\_err: 0.08, vl\_err: 0.09  
epoch 64, step: 0, tr\_loss: 299.99, vl\_loss: 279.02, tr\_err: 0.09, vl\_err: 0.09  
epoch 65, step: 0, tr\_loss: 295.80, vl\_loss: 275.14, tr\_err: 0.09, vl\_err: 0.09  
epoch 66, step: 0, tr\_loss: 291.72, vl\_loss: 271.36, tr\_err: 0.09, vl\_err: 0.09  
epoch 67, step: 0, tr\_loss: 287.76, vl\_loss: 267.69, tr\_err: 0.09, vl\_err: 0.09  
epoch 68, step: 0, tr\_loss: 283.90, vl\_loss: 264.11, tr\_err: 0.09, vl\_err: 0.09  
epoch 69, step: 0, tr\_loss: 280.14, vl\_loss: 260.63, tr\_err: 0.09, vl\_err: 0.09  
epoch 70, step: 0, tr\_loss: 276.47, vl\_loss: 257.24, tr\_err: 0.09, vl\_err: 0.09  
time\_elapsed for 200 steps: 1.155,

('Sample mini-batch results: \npredicted string: ', array(['L', 'O', 'K', 'I', 'N', 'G', ' ', 'F', 'O', 'R', ' ',  
'A', ' ',

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    'P', 'U', 'B', ' ', ' ', 'A', 'N', 'D', ' ', ' ', 'I', 'T', ' ', ' ', 'S', 'H',  
    'O', 'U', ' ', ' ', 'H', ' ', ' ', 'E', ' ', ' ', 'I', 'N', 'T', 'E', 'R', 'N',  
    'E', 'T', ' ', ' ', 'C', 'O', 'N', 'E', 'C', 'T', 'I', 'O', 'N', ' ',  
    'A', 'N', 'D', ' ', ' ', 'A', 'L', 'O', 'W', ' ', ' ', 'C', 'H', 'I', 'L',
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'D', 'R', 'E', 'N', ' ', ' ', ' '],
dtype='|S1'))
('actual string1: ', array(['I', ' ', 'A', 'M', ' ', 'L', 'O', 'O', 'K', 'I', 'N', 'G', ' ',
'F', 'O', 'R', ' ', 'A', ' ', 'P', 'U', 'B', ' ', 'I', 'N', ' ',
'T', 'H', 'E', ' ', 'R', 'I', 'V', 'E', 'R', 'S', 'I', 'D', 'E',
' ', 'A', 'R', 'E', 'A'],
dtype='|S1'))

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epoch 71, step: 0, tr\_loss: 272.91, vl\_loss: 253.94, tr\_err: 0.09, vl\_err: 0.09  
epoch 72, step: 0, tr\_loss: 269.43, vl\_loss: 250.71, tr\_err: 0.09, vl\_err: 0.08  
epoch 73, step: 0, tr\_loss: 266.04, vl\_loss: 247.56, tr\_err: 0.08, vl\_err: 0.08  
epoch 74, step: 0, tr\_loss: 262.72, vl\_loss: 244.49, tr\_err: 0.08, vl\_err: 0.08  
epoch 75, step: 0, tr\_loss: 259.49, vl\_loss: 241.50, tr\_err: 0.08, vl\_err: 0.08  
epoch 76, step: 0, tr\_loss: 256.34, vl\_loss: 238.59, tr\_err: 0.08, vl\_err: 0.08  
epoch 77, step: 0, tr\_loss: 253.28, vl\_loss: 235.74, tr\_err: 0.08, vl\_err: 0.08  
epoch 78, step: 0, tr\_loss: 250.27, vl\_loss: 232.95, tr\_err: 0.08, vl\_err: 0.08  
epoch 79, step: 0, tr\_loss: 247.34, vl\_loss: 230.23, tr\_err: 0.08, vl\_err: 0.08  
epoch 80, step: 0, tr\_loss: 244.47, vl\_loss: 227.56, tr\_err: 0.08, vl\_err: 0.08  
time\_elapsed for 200 steps: 1.096,

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('Sample mini-batch results: \npredicted string: ', array(['L', 'O', 'K', 'I', 'N', 'G', ' ', 'F', 'O', 'R', ' ',
'A', ' ',
'P', 'U', 'B', ' ', 'A', 'N', 'D', ' ', 'I', 'T', ' ', 'S', 'H',
'O', 'U', 'I', 'D', ' ', 'H', ' ', 'E', ' ', 'I', 'N', 'T', 'E',
'R', 'N', 'E', 'T', ' ', 'C', 'O', 'N', 'E', 'C', 'T', 'I', 'O',
'N', ' ', 'A', 'N', 'D', ' ', 'A', 'L', 'O', 'W', ' ', 'C', 'H',
'I', 'L', 'D', 'R', 'E', 'N', ' ', ' '],
dtype='|S1'))
('actual string1: ', array(['I', ' ', 'A', 'M', ' ', 'L', 'O', 'O', 'K', 'I', 'N', 'G', ' ',
'F', 'O', 'R', ' ', 'A', ' ', 'P', 'U', 'B', ' ', 'I', 'N', ' ',
'T', 'H', 'E', ' ', 'R', 'I', 'V', 'E', 'R', 'S', 'I', 'D', 'E',
' ', 'A', 'R', 'E', 'A'],
dtype='|S1'))

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epoch 81, step: 0, tr\_loss: 241.66, vl\_loss: 224.96, tr\_err: 0.08, vl\_err: 0.08  
epoch 82, step: 0, tr\_loss: 238.92, vl\_loss: 222.40, tr\_err: 0.08, vl\_err: 0.08  
epoch 83, step: 0, tr\_loss: 236.22, vl\_loss: 219.90, tr\_err: 0.08, vl\_err: 0.08  
epoch 84, step: 0, tr\_loss: 233.58, vl\_loss: 217.45, tr\_err: 0.08, vl\_err: 0.08  
epoch 85, step: 0, tr\_loss: 231.00, vl\_loss: 215.05, tr\_err: 0.08, vl\_err: 0.07  
epoch 86, step: 0, tr\_loss: 228.48, vl\_loss: 212.71, tr\_err: 0.07, vl\_err: 0.07  
epoch 87, step: 0, tr\_loss: 226.01, vl\_loss: 210.41, tr\_err: 0.07, vl\_err: 0.07  
epoch 88, step: 0, tr\_loss: 223.58, vl\_loss: 208.16, tr\_err: 0.07, vl\_err: 0.07  
epoch 89, step: 0, tr\_loss: 221.21, vl\_loss: 205.96, tr\_err: 0.07, vl\_err: 0.08  
epoch 90, step: 0, tr\_loss: 218.89, vl\_loss: 203.80, tr\_err: 0.08, vl\_err: 0.08  
time\_elapsed for 200 steps: 1.115,

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('Sample mini-batch results: \npredicted string: ', array(['L', 'O', 'K', 'I', 'N', 'G', ' ', 'F', 'O', 'R', ' ',
'A', ' ',
'P', 'U', 'B', ' ', 'A', 'N', 'D', ' ', 'I', 'T', ' ', 'S', 'H',

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'O', 'C', 'I', 'T', ' ', 'H', 'E', ' ', 'I', 'N', 'T', 'E', 'R',
'N', 'E', 'T', ' ', 'C', 'O', 'N', 'E', 'C', 'T', 'I', 'O', 'N',
', ', 'A', 'N', 'D', ' ', 'A', 'L', 'O', 'W', ' ', 'C', 'H', 'I',
'L', 'D', 'R', 'E', 'N', ' ', ' ', ' ', ' ', ' ',
dtype='|S1'))
('actual string1: ', array(['I', ' ', 'A', 'M', ' ', 'L', 'O', 'O', 'K', 'I', 'N', 'G', ' ',
'F', 'O', 'R', ' ', 'A', ' ', 'P', 'U', 'B', ' ', 'I', 'N', ' ',
'T', 'H', 'E', ' ', 'R', 'I', 'V', 'E', 'R', 'S', 'I', 'D', 'E',
', ', 'A', 'R', 'E', 'A'],
dtype='|S1'))

epoch 91, step: 0, tr_loss: 216.62, vl_loss: 201.69, tr_err: 0.08, vl_err: 0.07
epoch 92, step: 0, tr_loss: 214.39, vl_loss: 199.63, tr_err: 0.07, vl_err: 0.07
epoch 93, step: 0, tr_loss: 212.21, vl_loss: 197.60, tr_err: 0.07, vl_err: 0.07
epoch 94, step: 0, tr_loss: 210.07, vl_loss: 195.61, tr_err: 0.07, vl_err: 0.07
epoch 95, step: 0, tr_loss: 207.97, vl_loss: 193.67, tr_err: 0.07, vl_err: 0.07
epoch 96, step: 0, tr_loss: 205.92, vl_loss: 191.76, tr_err: 0.07, vl_err: 0.07
epoch 97, step: 0, tr_loss: 203.90, vl_loss: 189.88, tr_err: 0.07, vl_err: 0.07
epoch 98, step: 0, tr_loss: 201.92, vl_loss: 188.04, tr_err: 0.07, vl_err: 0.07
epoch 99, step: 0, tr_loss: 199.97, vl_loss: 186.23, tr_err: 0.07, vl_err: 0.07
epoch 100, step: 0, tr_loss: 198.06, vl_loss: 184.46, tr_err: 0.07, vl_err: 0.07
time_elapsed for 200 steps: 1.137,
('Sample mini-batch results: \npredicted string: ', array(['I', ' ', 'M', ' ', 'L', 'O', 'O', 'K', 'I', 'N', 'G', ' ',
', 'F', 'O',
'R', ' ', 'P', 'U', 'B', ' ', 'F', 'O', 'D', ' ', 'R', 'E', 'S',
'T', 'A', 'U', 'R', 'A', 'N', 'T', ' ', 'A', 'N', 'D', ' ', 'I',
'T', ' ', 'S', 'H', 'O', 'U', 'L', 'D', ' ', 'B', 'E', ' ', 'I',
'N', ' ', 'T', 'H', 'E', ' ', 'U', 'I', 'D', 'Y', ' ', 'C', 'E',
'N', 'T', 'E', 'R', ' ', 'A', 'R', 'E', 'A'],
dtype='|S1'))
('actual string1: ', array(['I', ' ', 'M', ' ', 'L', 'O', 'O', 'K', 'I', 'N', 'G', ' ', 'F',
'O', 'R', ' ', 'A', ' ', 'M', 'E', 'D', 'I', 'T', 'E', 'R', 'R',
'A', 'N', 'E', 'A', 'N', ' ', 'R', 'E', 'S', 'T', 'A', 'U', 'R',
'A', 'N', 'T'],
dtype='|S1'))

```

```

epoch 101, step: 0, tr_loss: 196.19, vl_loss: 182.72, tr_err: 0.07, vl_err: 0.07
epoch 102, step: 0, tr_loss: 194.35, vl_loss: 181.01, tr_err: 0.07, vl_err: 0.07
epoch 103, step: 0, tr_loss: 192.55, vl_loss: 179.34, tr_err: 0.07, vl_err: 0.07
epoch 104, step: 0, tr_loss: 190.78, vl_loss: 177.69, tr_err: 0.07, vl_err: 0.07
epoch 105, step: 0, tr_loss: 189.04, vl_loss: 176.08, tr_err: 0.07, vl_err: 0.07
epoch 106, step: 0, tr_loss: 187.34, vl_loss: 174.49, tr_err: 0.07, vl_err: 0.07
epoch 107, step: 0, tr_loss: 185.66, vl_loss: 172.93, tr_err: 0.07, vl_err: 0.07
epoch 108, step: 0, tr_loss: 184.01, vl_loss: 171.39, tr_err: 0.07, vl_err: 0.07
epoch 109, step: 0, tr_loss: 182.39, vl_loss: 169.89, tr_err: 0.07, vl_err: 0.08
epoch 110, step: 0, tr_loss: 180.79, vl_loss: 168.40, tr_err: 0.08, vl_err: 0.07
time_elapsed for 200 steps: 1.222,

```

```
(Sample mini-batch results: \npredicted string: ', array(['I', '', 'M', '', 'L', 'O', 'K', 'I', 'N', 'G', ' ', 'F', 'O', 'R', '', 'P', 'U', 'B', '', 'F', 'O', 'D', '', 'R', 'E', 'S', 'T', 'A', 'U', 'R', 'A', 'N', 'T', '', 'A', 'N', 'D', '', 'I', 'T', '', 'S', 'H', 'O', 'U', 'L', 'D', '', 'B', 'E', '', 'I', 'N', '', 'T', 'H', 'E', '', 'U', 'I', 'D', 'Y', '', 'C', 'E', 'N', 'T', 'E', 'R', '', 'A', 'R', 'E', 'A'], dtype='|S1'))
(actual string1: ', array(['I', '', 'M', '', 'L', 'O', 'O', 'K', 'I', 'N', 'G', '', 'F', 'O', 'R', '', 'A', '', 'M', 'E', 'D', 'I', 'T', 'E', 'R', 'R', 'A', 'N', 'E', 'A', 'N', '', 'R', 'E', 'S', 'T', 'A', 'U', 'R', 'A', 'N', 'T'], dtype='|S1'))
```

```
epoch 111, step: 0, tr_loss: 179.23, vl_loss: 166.95, tr_err: 0.07, vl_err: 0.07
epoch 112, step: 0, tr_loss: 177.69, vl_loss: 165.51, tr_err: 0.07, vl_err: 0.07
epoch 113, step: 0, tr_loss: 176.17, vl_loss: 164.11, tr_err: 0.07, vl_err: 0.07
epoch 114, step: 0, tr_loss: 174.68, vl_loss: 162.72, tr_err: 0.07, vl_err: 0.07
epoch 115, step: 0, tr_loss: 173.22, vl_loss: 161.36, tr_err: 0.07, vl_err: 0.07
epoch 116, step: 0, tr_loss: 171.78, vl_loss: 160.03, tr_err: 0.07, vl_err: 0.07
epoch 117, step: 0, tr_loss: 170.36, vl_loss: 158.71, tr_err: 0.07, vl_err: 0.07
epoch 118, step: 0, tr_loss: 168.97, vl_loss: 157.41, tr_err: 0.07, vl_err: 0.07
epoch 119, step: 0, tr_loss: 167.60, vl_loss: 156.13, tr_err: 0.07, vl_err: 0.07
epoch 120, step: 0, tr_loss: 166.24, vl_loss: 154.86, tr_err: 0.07, vl_err: 0.07
time_elapsed for 200 steps: 1.233,
```

```
(Sample mini-batch results: \npredicted string: ', array(['I', '', 'M', '', 'L', 'O', 'K', 'I', 'N', 'G', ' ', 'F', 'O', 'R', '', 'P', 'U', 'B', '', 'F', 'O', 'D', '', 'R', 'E', 'S', 'T', 'A', 'U', 'R', 'A', 'N', 'T', 'E', 'R', 'R', 'A', 'N', 'E', 'A', 'N', '', 'R', 'E', 'S', 'T', 'A', 'U', 'R', 'A', 'N', 'T'], dtype='|S1'))
(actual string1: ', array(['I', '', 'M', '', 'L', 'O', 'O', 'K', 'I', 'N', 'G', '', 'F', 'O', 'R', '', 'A', '', 'M', 'E', 'D', 'I', 'T', 'E', 'R', 'R', 'A', 'N', 'E', 'A', 'N', '', 'R', 'E', 'S', 'T', 'A', 'U', 'R', 'A', 'N', 'T'], dtype='|S1'))
```

```
epoch 121, step: 0, tr_loss: 164.90, vl_loss: 153.62, tr_err: 0.07, vl_err: 0.07
epoch 122, step: 0, tr_loss: 163.59, vl_loss: 152.39, tr_err: 0.07, vl_err: 0.07
epoch 123, step: 0, tr_loss: 162.29, vl_loss: 151.19, tr_err: 0.07, vl_err: 0.07
epoch 124, step: 0, tr_loss: 161.01, vl_loss: 150.00, tr_err: 0.07, vl_err: 0.07
epoch 125, step: 0, tr_loss: 159.75, vl_loss: 148.83, tr_err: 0.07, vl_err: 0.07
epoch 126, step: 0, tr_loss: 158.52, vl_loss: 147.68, tr_err: 0.07, vl_err: 0.07
epoch 127, step: 0, tr_loss: 157.30, vl_loss: 146.55, tr_err: 0.07, vl_err: 0.07
epoch 128, step: 0, tr_loss: 156.11, vl_loss: 145.44, tr_err: 0.07, vl_err: 0.07
```





```

epoch 142, step: 0, tr_loss: 141.05, vl_loss: 131.43, tr_err: 0.07, vl_err: 0.07
epoch 143, step: 0, tr_loss: 140.09, vl_loss: 130.53, tr_err: 0.07, vl_err: 0.07
epoch 144, step: 0, tr_loss: 139.13, vl_loss: 129.64, tr_err: 0.07, vl_err: 0.07
epoch 145, step: 0, tr_loss: 138.19, vl_loss: 128.77, tr_err: 0.07, vl_err: 0.07
epoch 146, step: 0, tr_loss: 137.27, vl_loss: 127.91, tr_err: 0.07, vl_err: 0.07
epoch 147, step: 0, tr_loss: 136.35, vl_loss: 127.05, tr_err: 0.07, vl_err: 0.07
epoch 148, step: 0, tr_loss: 135.45, vl_loss: 126.22, tr_err: 0.07, vl_err: 0.07
epoch 149, step: 0, tr_loss: 134.56, vl_loss: 125.39, tr_err: 0.07, vl_err: 0.07
epoch 150, step: 0, tr_loss: 133.68, vl_loss: 124.57, tr_err: 0.07, vl_err: 0.07
time_elapsed for 200 steps: 1.209,
('Sample mini-batch results: \npredicted string: ', array(['L', 'O', 'K', 'I', 'N', 'G', '', 'F', 'O', 'R', ' ',
', 'A', ' ',
'P', 'U', 'B', ' ', 'A', 'N', 'D', ' ', 'I', 'T', ' ', 'S', 'H',
'O', 'C', 'L', 'D', ' ', 'H', 'A', 'E', ' ', 'I', 'N', 'T', 'E',
'R', 'N', 'E', 'T', ' ', 'C', 'O', 'N', 'E', 'C', 'T', 'I', 'O',
'N', ' ', 'A', 'N', 'D', ' ', 'A', 'L', 'O', 'W', ' ', 'C', 'H',
'I', 'L', 'D', 'R', 'E', 'N', ' ', ' ', ' ', ''],
dtype='|S1'))
('actual string1: ', array(['I', ' ', 'A', 'M', ' ', 'L', 'O', 'O', 'K', 'I', 'N', 'G', ' ',
'F', 'O', 'R', ' ', 'A', ' ', 'P', 'U', 'B', ' ', 'I', 'N', ' ',
'T', 'H', 'E', ' ', 'R', 'I', 'V', 'E', 'R', 'S', 'I', 'D', 'E',
' ', 'A', 'R', 'E', 'A'],
dtype='|S1'))

```

Finished

Process finished with exit code 0