

```
C:\Users\adity\PycharmProjects\crux_round_3\venv\
Scripts\python.exe C:/Users/adity/PycharmProjects/
crux_round_3/semi_supervised_cnn_tf.py
2023-03-06 18:04:51.559365: I tensorflow/core/platform/
cpu_feature_guard.cc:193] This TensorFlow binary is
optimized with oneAPI Deep Neural Network Library (
oneDNN) to use the following CPU instructions in
performance-critical operations: AVX AVX2
To enable them in other operations, rebuild TensorFlow
with the appropriate compiler flags.
```

Search: Running Trial #1

Value	Best Value So Far	Hyperparameter
2048	?	units_1
512	?	units_2
4.6172e-05	?	lr

Epoch 1/3

516/516 [=====] - 31s 59ms/  
step - loss: 4.5036 - acc: 0.0204

Epoch 2/3

516/516 [=====] - 30s 59ms/  
step - loss: 4.2489 - acc: 0.0411

Epoch 3/3

516/516 [=====] - 31s 59ms/  
step - loss: 4.1494 - acc: 0.0530

Trial 1 Complete [00h 01m 33s]

acc: 0.05296969786286354

Best acc So Far: 0.05296969786286354

Total elapsed time: 00h 01m 33s

Search: Running Trial #2

Value	Best Value So Far	Hyperparameter
1024	2048	units_1
2048	512	units_2
0.0046468	4.6172e-05	lr

Epoch 1/3

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516/516 [=====] - 35s 66ms/
step - loss: 4.6079 - acc: 0.0090
Epoch 2/3
516/516 [=====] - 33s 65ms/
step - loss: 4.6062 - acc: 0.0095
Epoch 3/3
516/516 [=====] - 33s 64ms/
step - loss: 4.6060 - acc: 0.0097
Trial 2 Complete [00h 01m 42s]
acc: 0.009696969762444496

```

Best acc So Far: 0.05296969786286354  
Total elapsed time: 00h 03m 15s

Search: Running Trial #3

Value	Best Value So Far	Hyperparameter
1024	2048	units_1
512	512	units_2
9.5723e-05	4.6172e-05	lr

```

Epoch 1/3
516/516 [=====] - 26s 49ms/
step - loss: 4.4577 - acc: 0.0230
Epoch 2/3
516/516 [=====] - 24s 46ms/
step - loss: 4.1741 - acc: 0.0475
Epoch 3/3
516/516 [=====] - 25s 48ms/
step - loss: 4.0810 - acc: 0.0576
Trial 3 Complete [00h 01m 16s]
acc: 0.05763636529445648

```

Best acc So Far: 0.05763636529445648  
Total elapsed time: 00h 04m 31s

Search: Running Trial #4

Value	Best Value So Far	Hyperparameter
2048	1024	units_1
512	512	units_2

0.00010095 | 9.5723e-05 | lr

Epoch 1/3

516/516 [=====] - 29s 55ms/

step - loss: 4.4316 - acc: 0.0227

Epoch 2/3

516/516 [=====] - 28s 55ms/

step - loss: 4.2576 - acc: 0.0327

Epoch 3/3

516/516 [=====] - 29s 55ms/

step - loss: 4.0969 - acc: 0.0539

Trial 4 Complete [00h 01m 27s]

acc: 0.053939394652843475

Best acc So Far: 0.05763636529445648

Total elapsed time: 00h 05m 58s

Search: Running Trial #5

Value	Best Value So Far	Hyperparameter
2048	1024	units_1
2048	512	units_2
0.00052988	9.5723e-05	lr

2023-03-06 18:10:49.510509: W tensorflow/tsl/framework/cpu\_allocator\_impl.cc:82] Allocation of 16777216 exceeds 10% of free system memory.

2023-03-06 18:10:49.535621: W tensorflow/tsl/framework/cpu\_allocator\_impl.cc:82] Allocation of 16777216 exceeds 10% of free system memory.

2023-03-06 18:10:49.539287: W tensorflow/tsl/framework/cpu\_allocator\_impl.cc:82] Allocation of 16777216 exceeds 10% of free system memory.

Epoch 1/3

2023-03-06 18:10:49.846884: W tensorflow/tsl/framework/cpu\_allocator\_impl.cc:82] Allocation of 16777216 exceeds 10% of free system memory.

2023-03-06 18:10:49.849928: W tensorflow/tsl/framework/cpu\_allocator\_impl.cc:82] Allocation of 16777216 exceeds 10% of free system memory.

516/516 [=====] - 46s 86ms/

```

step - loss: 4.4159 - acc: 0.0219
Epoch 2/3
516/516 [=====] - 44s 85ms/
step - loss: 4.1735 - acc: 0.0378
Epoch 3/3
516/516 [=====] - 44s 86ms/
step - loss: 4.0286 - acc: 0.0538
Trial 5 Complete [00h 02m 14s]
acc: 0.05381818115711212

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Best acc So Far: 0.05763636529445648
Total elapsed time: 00h 08m 12s
Model: "model_1"

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-----
Layer (type)                Output Shape
Param #
=====
=====
input_2 (InputLayer)        [(None, 32, 32, 3)]
0

conv2d_5 (Conv2D)           (None, 16, 16, 64)
1792

max_pooling2d_4 (MaxPooling (None, 8, 8, 64)
0
2D
)

conv2d_6 (Conv2D)           (None, 4, 4, 128)
73856

conv2d_7 (Conv2D)           (None, 2, 2, 128)
147584

```

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max_pooling2d_5 (MaxPooling (None, 1, 1, 128)
0
2D
)
```

```
conv2d_8 (Conv2D) (None, 1, 1, 256)
131328
```

```
max_pooling2d_6 (MaxPooling (None, 1, 1, 256)
0
2D
)
```

```
conv2d_9 (Conv2D) (None, 1, 1, 512)
524800
```

```
max_pooling2d_7 (MaxPooling (None, 1, 1, 512)
0
2D
)
```

```
flatten_1 (Flatten) (None, 512)
0
```

```
dense_3 (Dense) (None, 1024)
525312
```

```
dense_4 (Dense) (None, 512)
524800
```

```
dense_5 (Dense)                (None, 100)
51300
```

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Total params: 1,980,772
Trainable params: 1,980,772
Non-trainable params: 0
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Epoch 1/5
258/258 [=====] - 22s 82ms/
step - loss: 4.4988 - acc: 0.0208 - val_loss: 4.3338 -
val_acc: 0.0289
```

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Epoch 2/5
258/258 [=====] - 20s 78ms/
step - loss: 4.2665 - acc: 0.0377 - val_loss: 4.1703 -
val_acc: 0.0524
```

```
Epoch 3/5
258/258 [=====] - 20s 79ms/
step - loss: 4.1343 - acc: 0.0528 - val_loss: 4.0978 -
val_acc: 0.0591
```

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Epoch 4/5
258/258 [=====] - 20s 79ms/
step - loss: 4.0681 - acc: 0.0646 - val_loss: 4.0427 -
val_acc: 0.0648
```

```
Epoch 5/5
258/258 [=====] - 21s 81ms/
step - loss: 3.9972 - acc: 0.0675 - val_loss: 3.9782 -
val_acc: 0.0765
```

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1047/1047 [=====] - 6s 6ms/
step
```

```
Preds shape (33500, 100)
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New datapoints added: (1, 32, 32, 3) (1, 100)
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New size of labelled sets: (16501, 32, 32, 3) (16501,
100)
```

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Epoch 1/5
258/258 [=====] - 21s 80ms/
step - loss: 3.9319 - acc: 0.0804 - val_loss: 3.9380 -
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val_acc: 0.0870
Epoch 2/5
258/258 [=====] - 20s 79ms/
step - loss: 3.8736 - acc: 0.0902 - val_loss: 3.8886 -
val_acc: 0.0921
Epoch 3/5
258/258 [=====] - 20s 79ms/
step - loss: 3.8242 - acc: 0.0956 - val_loss: 3.8402 -
val_acc: 0.0951
Epoch 4/5
258/258 [=====] - 20s 79ms/
step - loss: 3.7719 - acc: 0.1059 - val_loss: 3.7865 -
val_acc: 0.1082
Epoch 5/5
258/258 [=====] - 21s 81ms/
step - loss: 3.7188 - acc: 0.1141 - val_loss: 3.7386 -
val_acc: 0.1220
1047/1047 [=====] - 6s 6ms/
step
Preds shape (33499, 100)
New datapoints added: (323, 32, 32, 3) (323, 100)
New size of labelled sets: (16824, 32, 32, 3) (16824,
100)
Epoch 1/5
263/263 [=====] - ETA: 0s -
loss: 3.6151 - acc: 0.1388
Model stopped training due to drop in validation
accuracy
263/263 [=====] - 22s 82ms/
step - loss: 3.6151 - acc: 0.1388 - val_loss: 3.7451 -
val_acc: 0.1198
1037/1037 [=====] - 6s 6ms/
step
Preds shape (33176, 100)
New datapoints added: (195, 32, 32, 3) (195, 100)
New size of labelled sets: (17019, 32, 32, 3) (17019,
100)
Epoch 1/5
266/266 [=====] - 21s 80ms/
step - loss: 3.5407 - acc: 0.1547 - val_loss: 3.7482 -
val_acc: 0.1213

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Epoch 2/5
266/266 [=====] - 21s 80ms/
step - loss: 3.4988 - acc: 0.1613 - val_loss: 3.6527 -
val_acc: 0.1289
Epoch 3/5
266/266 [=====] - 21s 81ms/
step - loss: 3.4556 - acc: 0.1698 - val_loss: 3.6407 -
val_acc: 0.1334
Epoch 4/5
266/266 [=====] - 21s 78ms/
step - loss: 3.4251 - acc: 0.1749 - val_loss: 3.6415 -
val_acc: 0.1363
Epoch 5/5
266/266 [=====] - 21s 78ms/
step - loss: 3.3949 - acc: 0.1776 - val_loss: 3.5875 -
val_acc: 0.1471
1031/1031 [=====] - 6s 6ms/
step
Preds shape (32981, 100)
New datapoints added: (157, 32, 32, 3) (157, 100)
New size of labelled sets: (17176, 32, 32, 3) (17176,
100)
Epoch 1/5
269/269 [=====] - 21s 80ms/
step - loss: 3.3190 - acc: 0.1968 - val_loss: 3.5814 -
val_acc: 0.1524
Epoch 2/5
269/269 [=====] - 21s 79ms/
step - loss: 3.2889 - acc: 0.1988 - val_loss: 3.5612 -
val_acc: 0.1552
Epoch 3/5
269/269 [=====] - 21s 78ms/
step - loss: 3.2451 - acc: 0.2116 - val_loss: 3.5174 -
val_acc: 0.1625
Epoch 4/5
269/269 [=====] - 21s 77ms/
step - loss: 3.2086 - acc: 0.2147 - val_loss: 3.4775 -
val_acc: 0.1709
Epoch 5/5
268/269 [=====>.] - ETA: 0s -
loss: 3.1681 - acc: 0.2223

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Model stopped training due to drop in validation
accuracy
269/269 [=====] - 21s 77ms/
step - loss: 3.1681 - acc: 0.2225 - val_loss: 3.4913 -
val_acc: 0.1706
1026/1026 [=====] - 6s 6ms/
step
Preds shape (32824, 100)
New datapoints added: (49, 32, 32, 3) (49, 100)
New size of labelled sets: (17225, 32, 32, 3) (17225,
100)
Epoch 1/5
270/270 [=====] - 22s 81ms/
step - loss: 3.1279 - acc: 0.2301 - val_loss: 3.4628 -
val_acc: 0.1764
Epoch 2/5
269/270 [=====>.] - ETA: 0s -
loss: 3.1154 - acc: 0.2340
Model stopped training due to drop in validation
accuracy
270/270 [=====] - 22s 81ms/
step - loss: 3.1152 - acc: 0.2340 - val_loss: 3.4870 -
val_acc: 0.1705
1025/1025 [=====] - 6s 5ms/
step
Preds shape (32775, 100)
New datapoints added: (124, 32, 32, 3) (124, 100)
New size of labelled sets: (17349, 32, 32, 3) (17349,
100)
Epoch 1/5
272/272 [=====] - 22s 81ms/
step - loss: 3.0569 - acc: 0.2478 - val_loss: 3.4252 -
val_acc: 0.1845
Epoch 2/5
271/272 [=====>.] - ETA: 0s -
loss: 3.0213 - acc: 0.2555
Model stopped training due to drop in validation
accuracy
272/272 [=====] - 22s 80ms/
step - loss: 3.0212 - acc: 0.2555 - val_loss: 3.4175 -
val_acc: 0.1826
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1021/1021 [=====] - 6s 5ms/
step
Preds shape (32651, 100)
New datapoints added: (151, 32, 32, 3) (151, 100)
New size of labelled sets: (17500, 32, 32, 3) (17500,
100)
Epoch 1/5
274/274 [=====] - 21s 78ms/
step - loss: 2.9797 - acc: 0.2618 - val_loss: 3.3430 -
val_acc: 0.1962
Epoch 2/5
273/274 [=====>.] - ETA: 0s -
loss: 2.9473 - acc: 0.2677
  Model stopped training due to drop in validation
accuracy
274/274 [=====] - 21s 78ms/
step - loss: 2.9471 - acc: 0.2677 - val_loss: 3.3476 -
val_acc: 0.1953
1016/1016 [=====] - 6s 5ms/
step
Preds shape (32500, 100)
New datapoints added: (70, 32, 32, 3) (70, 100)
New size of labelled sets: (17570, 32, 32, 3) (17570,
100)

Data plotted:
[0.06745454668998718, 0.11405369639396667, 0.
13884925842285156, 0.17762500047683716, 0.
22251980006694794, 0.23402032256126404, 0.
2555190622806549, 0.2677142918109894]
[0.07649999856948853, 0.12200000137090683, 0.
11980000138282776, 0.14710000157356262, 0.
17059999704360962, 0.1704999953508377, 0.
1826000064611435, 0.19529999792575836]
range(1, 9)

```