

skv2109_hw5_p2_TPU

December 12, 2019

0.1 PyTorch/TPU ResNet18/CIFAR10 Demo

This colab example is TF/XRT 1.15 compatible.

Use Colab Cloud TPU

- On the main menu, click Runtime and select **Change runtime type**. Set "TPU" as the hardware accelerator.
- The cell below makes sure you have access to a TPU on Colab.

```
[0]: import os
assert os.environ['COLAB_TPU_ADDR'], 'Make sure to select TPU from Edit >↳
↳Notebook settings > Hardware accelerator'
import collections
from datetime import datetime, timedelta
import requests
import threading
```

```
[0]: from google.colab import drive
drive.mount('/content/drive')
```

Go to this URL in a browser: https://accounts.google.com/o/oauth2/auth?client_id=947318989803-6bn6qk8qdgf4n4g3pfee6491hc0brc4i.apps.googleusercontent.com&redirect_uri=urn%3aietf%3awg%3aoauth%3a2.0%3aob&response_type=code&scope=email%20https%3a%2f%2fwww.googleapis.com%2fauth%2fdocs.test%20https%3a%2f%2fwww.googleapis.com%2fauth%2fdrive%20https%3a%2f%2fwww.googleapis.com%2fauth%2fdrive.photos.readonly%20https%3a%2f%2fwww.googleapis.com%2fauth%2fpeopleapi.readonly

Enter your authorization code:

.....

Mounted at /content/drive

0.1.1 [RUNME] Install Colab TPU compatible PyTorch/TPU wheels and dependencies

This may take up to ~2 minutes

```

[0]: import collections
from datetime import datetime, timedelta
import os
import requests
import threading

_VersionConfig = collections.namedtuple('_VersionConfig', 'wheels,server')
VERSION = "xrt==1.15.0" #@param ["xrt==1.15.0", "torch_xla==nightly"]
CONFIG = {
    'xrt==1.15.0': _VersionConfig('1.15', '1.15.0'),
    'torch_xla==nightly': _VersionConfig('nightly', 'XRT-dev{}'.format(
        (datetime.today() - timedelta(1)).strftime('%Y%m%d'))),
}[VERSION]
DIST_BUCKET = 'gs://tpu-pytorch/wheels'
TORCH_WHEEL = 'torch-{}-cp36-cp36m-linux_x86_64.whl'.format(CONFIG.wheels)
TORCH_XLA_WHEEL = 'torch_xla-{}-cp36-cp36m-linux_x86_64.whl'.format(CONFIG.
    ↪wheels)
TORCHVISION_WHEEL = 'torchvision-{}-cp36-cp36m-linux_x86_64.whl'.format(CONFIG.
    ↪wheels)

# Update TPU XRT version
def update_server_xrt():
    print('Updating server-side XRT to {} ...'.format(CONFIG.server))
    url = 'http://{TPU_ADDRESS}:8475/requestversion/{XRT_VERSION}'.format(
        TPU_ADDRESS=os.environ['COLAB_TPU_ADDR'].split(':')[0],
        XRT_VERSION=CONFIG.server,
    )
    print('Done updating server-side XRT: {}'.format(requests.post(url)))

update = threading.Thread(target=update_server_xrt)
update.start()

# Install Colab TPU compat PyTorch/TPU wheels and dependencies
!pip uninstall -y torch torchvision
!gsutil cp "$DIST_BUCKET/$TORCH_WHEEL" .
!gsutil cp "$DIST_BUCKET/$TORCH_XLA_WHEEL" .
!gsutil cp "$DIST_BUCKET/$TORCHVISION_WHEEL" .
!pip install "$TORCH_WHEEL"
!pip install "$TORCH_XLA_WHEEL"
!pip install "$TORCHVISION_WHEEL"
!sudo apt-get install libomp5
update.join()

```

```

Updating server-side XRT to 1.15.0 ...
Uninstalling torch-1.3.1:
Done updating server-side XRT: <Response [200]>
    Successfully uninstalled torch-1.3.1

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Uninstalling torchvision-0.4.2:
  Successfully uninstalled torchvision-0.4.2
Copying gs://tpu-pytorch/wheels/torch-1.15-cp36-cp36m-linux_x86_64.whl...
\ [1 files][ 77.8 MiB/ 77.8 MiB]
Operation completed over 1 objects/77.8 MiB.
Copying gs://tpu-pytorch/wheels/torch_xla-1.15-cp36-cp36m-linux_x86_64.whl...
- [1 files][109.8 MiB/109.8 MiB]
Operation completed over 1 objects/109.8 MiB.
Copying gs://tpu-pytorch/wheels/torchvision-1.15-cp36-cp36m-linux_x86_64.whl...
/ [1 files][ 2.1 MiB/ 2.1 MiB]
Operation completed over 1 objects/2.1 MiB.
Processing ./torch-1.15-cp36-cp36m-linux_x86_64.whl
ERROR: fastai 1.0.59 requires torchvision, which is not installed.
Installing collected packages: torch
Successfully installed torch-1.4.0a0+c272758
Processing ./torch_xla-1.15-cp36-cp36m-linux_x86_64.whl
Installing collected packages: torch-xla
Successfully installed torch-xla-rt.r1.15
Processing ./torchvision-1.15-cp36-cp36m-linux_x86_64.whl
Requirement already satisfied: pillow>=4.1.1 in /usr/local/lib/python3.6/dist-packages (from torchvision==1.15) (4.3.0)
Requirement already satisfied: torch in /usr/local/lib/python3.6/dist-packages (from torchvision==1.15) (1.4.0a0+c272758)
Requirement already satisfied: six in /usr/local/lib/python3.6/dist-packages (from torchvision==1.15) (1.12.0)
Requirement already satisfied: numpy in /usr/local/lib/python3.6/dist-packages (from torchvision==1.15) (1.17.4)
Requirement already satisfied: olefile in /usr/local/lib/python3.6/dist-packages (from pillow>=4.1.1->torchvision==1.15) (0.46)
Installing collected packages: torchvision
Successfully installed torchvision-0.5.0a0+8aec85d
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following package was automatically installed and is no longer required:
  libnvidia-common-430
Use 'sudo apt autoremove' to remove it.
The following NEW packages will be installed:
  libomp5
0 upgraded, 1 newly installed, 0 to remove and 7 not upgraded.
Need to get 234 kB of archives.
After this operation, 774 kB of additional disk space will be used.
Get:1 http://archive.ubuntu.com/ubuntu bionic/universe amd64 libomp5 amd64
5.0.1-1 [234 kB]
Fetched 234 kB in 1s (357 kB/s)
debconf: unable to initialize frontend: Dialog
debconf: (No usable dialog-like program is installed, so the dialog based
frontend cannot be used. at /usr/share/perl5/Debconf/FrontEnd/Dialog.pm line 76,

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<> line 1.)
debconf: falling back to frontend: Readline
debconf: unable to initialize frontend: Readline
debconf: (This frontend requires a controlling tty.)
debconf: falling back to frontend: Teletype
dpkg-preconfigure: unable to re-open stdin:
Selecting previously unselected package libomp5:amd64.
(Reading database ... 134983 files and directories currently installed.)
Preparing to unpack .../libomp5_5.0.1-1_amd64.deb ...
Unpacking libomp5:amd64 (5.0.1-1) ...
Setting up libomp5:amd64 (5.0.1-1) ...
Processing triggers for libc-bin (2.27-3ubuntu1) ...
```

0.1.2 Define Parameters

```
[0]: # Result Visualization Helper
from matplotlib import pyplot as plt
from torch.optim import lr_scheduler

M, N = 4, 6
RESULT_IMG_PATH = '/tmp/test_result.jpg'
CIFAR10_LABELS = ['airplane', 'automobile', 'bird', 'cat', 'deer',
                  'dog', 'frog', 'horse', 'ship', 'truck']

def plot_results(images, labels, preds):
    images, labels, preds = images[:M*N], labels[:M*N], preds[:M*N]
    inv_norm = transforms.Normalize(
        mean=(-0.4914/0.2023, -0.4822/0.1994, -0.4465/0.2010),
        std=(1/0.2023, 1/0.1994, 1/0.2010))

    num_images = images.shape[0]
    fig, axes = plt.subplots(M, N, figsize=(16, 9))
    fig.suptitle('Correct / Predicted Labels (Red text for incorrect ones)')

    for i, ax in enumerate(fig.axes):
        ax.axis('off')
        if i >= num_images:
            continue
        img, label, prediction = images[i], labels[i], preds[i]
        img = inv_norm(img)
        img = img.permute(1, 2, 0) # (C, M, N) -> (M, N, C)
        label, prediction = label.item(), prediction.item()
        if label == prediction:
            ax.set_title(u'\u2713', color='blue', fontsize=22)
        else:
            ax.set_title(
```

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        'X {}/{}'.format(CIFAR10_LABELS[label],
                          CIFAR10_LABELS[prediction]), color='red')

    ax.imshow(img)
    plt.savefig(RESULT_IMG_PATH, transparent=True)

```

```

[0]: # Define Parameters
FLAGS = {}
FLAGS['data_dir'] = "/tmp/cifar"
FLAGS['batch_size'] = 16
FLAGS['num_workers'] = 8
FLAGS['learning_rate'] = 0.1
FLAGS['momentum'] = 0.9
FLAGS['num_epochs'] = 200
FLAGS['num_cores'] = 8
FLAGS['log_steps'] = 20
FLAGS['metrics_debug'] = True

```

```

[0]: import numpy as np
import time
import torch
import torch.nn as nn
import torch.nn.functional as F
import torch.optim as optim
import torch_xla
import torch_xla.core.xla_model as xm
import torch_xla.debug.metrics as met
import torch_xla.distributed.parallel_loader as pl
import torch_xla.distributed.xla_multiprocessing as xmp
import torch_xla.utils.utils as xu
import torchvision
from torch.optim import lr_scheduler
from torchvision import datasets, models, transforms

```

```

[0]: def train_resnet50():
    torch.manual_seed(1)

    # Get and shard dataset into dataloaders
    # norm = transforms.Normalize(
    #     mean=(0.4914, 0.4822, 0.4465), std=(0.2023, 0.1994, 0.2010))
    transform_train = transforms.Compose([
        transforms.RandomResizedCrop(224),
        #transforms.RandomHorizontalFlip(),
        transforms.ToTensor(),
        transforms.Normalize([0.485, 0.456, 0.406], [0.229, 0.224, 0.225])
    ])

    # transforms.Compose([

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#     transforms.RandomCrop(32, padding=4),
#     transforms.RandomHorizontalFlip(),
#     transforms.ToTensor(),
#     norm,
# ])
transform_test = transforms.Compose([
    transforms.Resize(256),
    transforms.CenterCrop(224),
    transforms.ToTensor(),
    transforms.Normalize([0.485, 0.456, 0.406], [0.229, 0.224, 0.225])
])
# transforms.Compose([
#     transforms.ToTensor(),
#     norm,
# ])
train_dataset = datasets.CIFAR10(
    root=os.path.join(FLAGS['data_dir'], str(xm.get_ordinal())),
    train=True,
    download=True,
    transform=transform_train)
test_dataset = datasets.CIFAR10(
    root=os.path.join(FLAGS['data_dir'], str(xm.get_ordinal())),
    train=False,
    download=True,
    transform=transform_test)
train_sampler = torch.utils.data.distributed.DistributedSampler(
    train_dataset,
    num_replicas=xm.xrt_world_size(),
    rank=xm.get_ordinal(),
    shuffle=True)
train_loader = torch.utils.data.DataLoader(
    train_dataset,
    batch_size=FLAGS['batch_size'],
    sampler=train_sampler,
    num_workers=FLAGS['num_workers'],
    drop_last=True)
test_loader = torch.utils.data.DataLoader(
    test_dataset,
    batch_size=FLAGS['batch_size'],
    shuffle=False,
    num_workers=FLAGS['num_workers'],
    drop_last=True)

# Scale learning rate to num cores
learning_rate = FLAGS['learning_rate'] * xm.xrt_world_size()

# Get loss function, optimizer, and model

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device = xm.xla_device()
model = models.resnet50().to(device)
optimizer = optim.SGD(model.parameters(), lr=learning_rate,
                        momentum=FLAGS['momentum'], weight_decay=5e-4)
scheduler = lr_scheduler.StepLR(optimizer, step_size=90, gamma=0.1)
#loss_fn = nn.NLLLoss()
loss_fn = nn.CrossEntropyLoss()

def train_loop_fn(loader):
    tracker = xm.RateTracker()
    model.train()
    for x, (data, target) in enumerate(loader):
        optimizer.zero_grad()
        output = model(data)
        loss = loss_fn(output, target)
        loss.backward()
        xm.optimizer_step(optimizer)
        tracker.add(FLAGS['batch_size'])
        #scheduler.step()
        #if x % FLAGS['log_steps'] == 0:
        #    print('[xla:{}]({}) Loss={:.5f} Rate={:.2f} GlobalRate={:.2f} Time={}'.
→format(
            #        xm.get_ordinal(), x, loss.item(), tracker.rate(),
            #        tracker.global_rate(), time.asctime()), flush=True)

def test_loop_fn(loader):
    total_samples = 0
    correct = 0
    model.eval()
    data, pred, target = None, None, None
    for data, target in loader:
        output = model(data)
        pred = output.max(1, keepdim=True)[1]
        correct += pred.eq(target.view_as(pred)).sum().item()
        total_samples += data.size()[0]

    accuracy = 100.0 * correct / total_samples
    #print('[xla:{}] Accuracy={:.2f}%'.format(
    #    xm.get_ordinal(), accuracy), flush=True)
    return accuracy, data, pred, target

# Train and eval loops
accuracy = 0.0
data, pred, target = None, None, None
for epoch in range(1, FLAGS['num_epochs'] + 1):
    para_loader = pl.ParallelLoader(train_loader, [device])
    train_loop_fn(para_loader.per_device_loader(device))

```

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scheduler.step()
xm.master_print("Finished training epoch {}".format(epoch))
print("Finishtime: ", datetime.now())
if epoch % 10 == 0:
    torch.save(model.state_dict(), '/content/drive/My Drive/tpu-resnet50/
↪model.pt')
    para_loader = pl.ParallelLoader(test_loader, [device])
    accuracy, data, pred, target = test_loop_fn(para_loader.
↪per_device_loader(device))
    #if FLAGS['metrics_debug']:
    #xm.master_print(met.metrics_report())

return accuracy, data, pred, target, model

```

```

[0]: # Start training processes
print("Starttime: ", datetime.now())
def _mp_fn(rank, flags):
    global FLAGS
    FLAGS = flags
    torch.set_default_tensor_type('torch.FloatTensor')
    accuracy, data, pred, target, model = train_resnet50()
    xmp.spawn(_mp_fn, args=(FLAGS,), nprocs=FLAGS['num_cores'], start_method='fork')

```

Starttime: 2019-12-12 02:16:22.884370

Downloading <https://www.cs.toronto.edu/~kriz/cifar-10-python.tar.gz> to
/tmp/cifar/0/cifar-10-python.tar.gz

HBox(children=(IntProgress(value=1, bar_style='info', max=1), HTML(value='')))

Downloading <https://www.cs.toronto.edu/~kriz/cifar-10-python.tar.gz> to
/tmp/cifar/3/cifar-10-python.tar.gz

Downloading <https://www.cs.toronto.edu/~kriz/cifar-10-python.tar.gz> to
/tmp/cifar/6/cifar-10-python.tar.gz

HBox(children=(IntProgress(value=1, bar_style='info', max=1), HTML(value='')))

HBox(children=(IntProgress(value=1, bar_style='info', max=1), HTML(value='')))

Downloading <https://www.cs.toronto.edu/~kriz/cifar-10-python.tar.gz> to
/tmp/cifar/2/cifar-10-python.tar.gz

HBox(children=(IntProgress(value=1, bar_style='info', max=1), HTML(value='')))

Downloading <https://www.cs.toronto.edu/~kriz/cifar-10-python.tar.gz> to
/tmp/cifar/1/cifar-10-python.tar.gz

HBox(children=(IntProgress(value=1, bar_style='info', max=1), HTML(value='')))


```

Downloading https://www.cs.toronto.edu/~kriz/cifar-10-python.tar.gz to
/tmp/cifar/5/cifar-10-python.tar.gz

HBox(children=(IntProgress(value=1, bar_style='info', max=1), HTML(value='')))

Downloading https://www.cs.toronto.edu/~kriz/cifar-10-python.tar.gz to
/tmp/cifar/7/cifar-10-python.tar.gz

HBox(children=(IntProgress(value=1, bar_style='info', max=1), HTML(value='')))

Downloading https://www.cs.toronto.edu/~kriz/cifar-10-python.tar.gz to
/tmp/cifar/4/cifar-10-python.tar.gz

HBox(children=(IntProgress(value=1, bar_style='info', max=1), HTML(value='')))

Extracting /tmp/cifar/3/cifar-10-python.tar.gz to /tmp/cifar/3
Extracting /tmp/cifar/1/cifar-10-python.tar.gz to /tmp/cifar/1
Extracting /tmp/cifar/2/cifar-10-python.tar.gz to /tmp/cifar/2
Extracting /tmp/cifar/0/cifar-10-python.tar.gz to /tmp/cifar/0
Extracting /tmp/cifar/6/cifar-10-python.tar.gz to /tmp/cifar/6
Extracting /tmp/cifar/5/cifar-10-python.tar.gz to /tmp/cifar/5
Extracting /tmp/cifar/7/cifar-10-python.tar.gz to /tmp/cifar/7
Files already downloaded and verified
Files already downloaded and verified
Files already downloaded and verified
Files already downloaded and verified
Files already downloaded and verified
Files already downloaded and verified
Files already downloaded and verified
Extracting /tmp/cifar/4/cifar-10-python.tar.gz to /tmp/cifar/4
Files already downloaded and verified
Finishtime: 2019-12-12 02:18:32.664870
Finishtime: 2019-12-12 02:18:32.666317
Finished training epoch 1
Finishtime: 2019-12-12 02:18:32.666974
Finishtime: 2019-12-12 02:18:32.667074
Finishtime: 2019-12-12 02:18:32.666922
Finishtime: 2019-12-12 02:18:32.667180
Finishtime: 2019-12-12 02:18:32.667343
Finishtime: 2019-12-12 02:18:32.668390
[xla:3] Accuracy=10.00%
[xla:4] Accuracy=10.01%
[xla:0] Accuracy=10.00%
[xla:2] Accuracy=9.99%
[xla:6] Accuracy=9.99%
[xla:7] Accuracy=9.99%

```

[xla:1] Accuracy=10.01%
 [xla:5] Accuracy=9.99%
 Finishtime: 2019-12-12 02:20:33.745303
 Finished training epoch 2
 Finishtime: 2019-12-12 02:20:33.746007
 Finishtime: 2019-12-12 02:20:33.745819
 Finishtime: 2019-12-12 02:20:33.745795
 Finishtime: 2019-12-12 02:20:33.746402
 Finishtime: 2019-12-12 02:20:33.746703
 Finishtime: 2019-12-12 02:20:33.746717
 Finishtime: 2019-12-12 02:20:33.748532
 [xla:3] Accuracy=23.58%
 [xla:5] Accuracy=22.74%
 [xla:4] Accuracy=23.50%
 [xla:7] Accuracy=23.53%
 [xla:6] Accuracy=23.38%
 [xla:2] Accuracy=23.44%
 [xla:1] Accuracy=23.34%
 [xla:0] Accuracy=23.91%
 Finishtime: 2019-12-12 02:22:26.190221
 Finishtime: 2019-12-12 02:22:26.191013
 Finishtime: 2019-12-12 02:22:26.192110
 Finishtime: 2019-12-12 02:22:26.191980
 Finishtime: 2019-12-12 02:22:26.192230
 Finishtime: 2019-12-12 02:22:26.193103
 Finished training epoch 3
 Finishtime: 2019-12-12 02:22:26.196694
 Finishtime: 2019-12-12 02:22:26.197799
 [xla:3] Accuracy=18.65%
 [xla:7] Accuracy=18.84%
 [xla:5] Accuracy=17.49%
 [xla:6] Accuracy=18.38%
 [xla:4] Accuracy=18.22%
 [xla:0] Accuracy=17.59%
 [xla:2] Accuracy=18.74%
 [xla:1] Accuracy=18.33%
 Finishtime: 2019-12-12 02:24:18.915306
 Finished training epoch 4
 Finishtime: 2019-12-12 02:24:18.916701
 Finishtime: 2019-12-12 02:24:18.916939
 Finishtime: 2019-12-12 02:24:18.916769
 Finishtime: 2019-12-12 02:24:18.917689
 Finishtime: 2019-12-12 02:24:18.916873
 Finishtime: 2019-12-12 02:24:18.917416
 Finishtime: 2019-12-12 02:24:18.917426
 [xla:0] Accuracy=17.13%
 [xla:5] Accuracy=15.86%
 [xla:2] Accuracy=16.63%

```

[xla:1] Accuracy=15.66%
[xla:7] Accuracy=15.27%
[xla:4] Accuracy=16.91%
[xla:3] Accuracy=16.04%
[xla:6] Accuracy=17.15%
Finishtime: 2019-12-12 02:26:11.123379
Finishtime: 2019-12-12 02:26:11.124103
Finishtime: 2019-12-12 02:26:11.124299
Finished training epoch 5
Finishtime: 2019-12-12 02:26:11.125800
Finishtime: 2019-12-12 02:26:11.125287
Finishtime: 2019-12-12 02:26:11.125899
Finishtime: 2019-12-12 02:26:11.125887
Finishtime: 2019-12-12 02:26:11.126318
[xla:7] Accuracy=23.20%
[xla:5] Accuracy=21.61%
[xla:3] Accuracy=22.96%
[xla:0] Accuracy=22.89%
[xla:4] Accuracy=22.33%
[xla:1] Accuracy=22.91%
[xla:6] Accuracy=23.04%
[xla:2] Accuracy=23.26%
Finishtime: 2019-12-12 02:28:03.155101
Finishtime: 2019-12-12 02:28:03.155226
Finishtime: 2019-12-12 02:28:03.155504
Finished training epoch 6
Finishtime: 2019-12-12 02:28:03.156014
Finishtime: 2019-12-12 02:28:03.155855
Finishtime: 2019-12-12 02:28:03.157104
Finishtime: 2019-12-12 02:28:03.156930
Finishtime: 2019-12-12 02:28:03.157565
[xla:5] Accuracy=24.69%
[xla:3] Accuracy=25.67%
[xla:7] Accuracy=25.73%
[xla:0] Accuracy=24.75%
[xla:2] Accuracy=24.87%
[xla:6] Accuracy=25.00%
[xla:4] Accuracy=25.39%
[xla:1] Accuracy=25.39%
Finishtime: 2019-12-12 02:29:54.957060
Finishtime: 2019-12-12 02:29:54.957728
Finishtime: 2019-12-12 02:29:54.957588
Finishtime: 2019-12-12 02:29:54.958319
Finished training epoch 7
Finishtime: 2019-12-12 02:29:54.958473
Finishtime: 2019-12-12 02:29:54.960327
Finishtime: 2019-12-12 02:29:54.961793
Finishtime: 2019-12-12 02:29:54.962242

```

```

[xla:5] Accuracy=19.96%
[xla:3] Accuracy=21.00%
[xla:4] Accuracy=21.19%
[xla:6] Accuracy=21.34%
[xla:1] Accuracy=21.22%
[xla:7] Accuracy=21.77%
[xla:2] Accuracy=20.92%
[xla:0] Accuracy=20.70%
Finishtime: 2019-12-12 02:31:46.389344
Finishtime: 2019-12-12 02:31:46.389310
Finishtime: 2019-12-12 02:31:46.390360
Finishtime: 2019-12-12 02:31:46.390849
Finishtime: 2019-12-12 02:31:46.391521
Finishtime: 2019-12-12 02:31:46.391343
Finishtime: 2019-12-12 02:31:46.390570
Finished training epoch 8
Finishtime: 2019-12-12 02:31:46.393847
[xla:4] Accuracy=23.44%
[xla:6] Accuracy=22.84%
[xla:5] Accuracy=22.70%
[xla:3] Accuracy=23.56%
[xla:2] Accuracy=22.26%
[xla:1] Accuracy=23.69%
[xla:7] Accuracy=24.12%
[xla:0] Accuracy=23.06%
Finishtime: 2019-12-12 02:33:39.360706
Finishtime: 2019-12-12 02:33:39.360636
Finishtime: 2019-12-12 02:33:39.361157
Finishtime: 2019-12-12 02:33:39.360899
Finished training epoch 9
Finishtime: 2019-12-12 02:33:39.361541
Finishtime: 2019-12-12 02:33:39.361446
Finishtime: 2019-12-12 02:33:39.362822
Finishtime: 2019-12-12 02:33:39.362850
[xla:7] Accuracy=29.83%
[xla:3] Accuracy=29.78%
[xla:4] Accuracy=29.51%
[xla:6] Accuracy=29.38%
[xla:5] Accuracy=29.59%
[xla:1] Accuracy=29.83%
[xla:2] Accuracy=29.38%
[xla:0] Accuracy=29.43%
Finishtime: 2019-12-12 02:35:32.578684
Finishtime: 2019-12-12 02:35:32.578307
Finishtime: 2019-12-12 02:35:32.578311
Finishtime: 2019-12-12 02:35:32.579305
Finishtime: 2019-12-12 02:35:32.579680
Finished training epoch 10

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Finishtime: 2019-12-12 02:35:32.579867
 Finishtime: 2019-12-12 02:35:32.580947
 Finishtime: 2019-12-12 02:35:32.582084
 [xla:3] Accuracy=29.05%
 [xla:2] Accuracy=28.98%
 [xla:4] Accuracy=28.98%
 [xla:5] Accuracy=28.66%
 [xla:6] Accuracy=28.97%
 [xla:0] Accuracy=28.78%
 [xla:7] Accuracy=28.67%
 [xla:1] Accuracy=29.54%
 Finishtime: 2019-12-12 02:37:37.717175
 Finishtime: 2019-12-12 02:37:37.717176
 Finishtime: 2019-12-12 02:37:37.717699
 Finishtime: 2019-12-12 02:37:37.717832
 Finishtime: 2019-12-12 02:37:37.718486
 Finished training epoch 11
 Finishtime: 2019-12-12 02:37:37.720844
 Finishtime: 2019-12-12 02:37:37.721607
 Finishtime: 2019-12-12 02:37:37.721497
 [xla:6] Accuracy=28.34%
 [xla:7] Accuracy=27.56%
 [xla:3] Accuracy=28.47%
 [xla:4] Accuracy=29.00%
 [xla:1] Accuracy=27.48%
 [xla:5] Accuracy=29.49%
 [xla:2] Accuracy=27.84%
 [xla:0] Accuracy=28.21%
 Finishtime: 2019-12-12 02:39:30.761997
 Finishtime: 2019-12-12 02:39:30.761976
 Finishtime: 2019-12-12 02:39:30.761708
 Finished training epoch 12
 Finishtime: 2019-12-12 02:39:30.765344
 Finishtime: 2019-12-12 02:39:30.765076
 Finishtime: 2019-12-12 02:39:30.765854
 Finishtime: 2019-12-12 02:39:30.766089
 Finishtime: 2019-12-12 02:39:30.767045
 [xla:6] Accuracy=30.48%
 [xla:4] Accuracy=29.66%
 [xla:7] Accuracy=31.27%
 [xla:2] Accuracy=29.60%
 [xla:0] Accuracy=29.63%
 [xla:3] Accuracy=30.55%
 [xla:1] Accuracy=30.31%
 [xla:5] Accuracy=30.14%
 Finishtime: 2019-12-12 02:41:23.890231
 Finishtime: 2019-12-12 02:41:23.891563
 Finishtime: 2019-12-12 02:41:23.891413

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Finishtime: 2019-12-12 02:41:23.891699
Finishtime: 2019-12-12 02:41:23.892467
Finishtime: 2019-12-12 02:41:23.893229
Finishtime: 2019-12-12 02:41:23.891641
Finished training epoch 13
Finishtime: 2019-12-12 02:41:23.895512
[xla:4] Accuracy=28.47%
[xla:0] Accuracy=28.24%
[xla:7] Accuracy=29.66%
[xla:3] Accuracy=29.03%
[xla:2] Accuracy=28.84%
[xla:6] Accuracy=28.14%
[xla:1] Accuracy=29.50%
[xla:5] Accuracy=28.07%
Finishtime: 2019-12-12 02:43:17.011031
Finishtime: 2019-12-12 02:43:17.011513
Finishtime: 2019-12-12 02:43:17.010906
Finished training epoch 14
Finishtime: 2019-12-12 02:43:17.011308
Finishtime: 2019-12-12 02:43:17.011346
Finishtime: 2019-12-12 02:43:17.011971
Finishtime: 2019-12-12 02:43:17.011688
Finishtime: 2019-12-12 02:43:17.012883
[xla:7] Accuracy=26.15%
[xla:6] Accuracy=27.01%
[xla:4] Accuracy=27.39%
[xla:1] Accuracy=26.14%
[xla:3] Accuracy=26.49%
[xla:0] Accuracy=27.29%
[xla:5] Accuracy=25.18%
[xla:2] Accuracy=27.20%
Finishtime: 2019-12-12 02:45:11.090606
Finishtime: 2019-12-12 02:45:11.091203
Finishtime: 2019-12-12 02:45:11.091425
Finished training epoch 15
Finishtime: 2019-12-12 02:45:11.091400
Finishtime: 2019-12-12 02:45:11.091982
Finishtime: 2019-12-12 02:45:11.091927
Finishtime: 2019-12-12 02:45:11.093237
Finishtime: 2019-12-12 02:45:11.093863
[xla:6] Accuracy=31.45%
[xla:4] Accuracy=33.63%
[xla:2] Accuracy=32.32%
[xla:5] Accuracy=31.30%
[xla:3] Accuracy=30.60%
[xla:7] Accuracy=29.72%
[xla:1] Accuracy=31.64%
[xla:0] Accuracy=31.24%

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Finishtime: 2019-12-12 02:47:05.683454
Finishtime: 2019-12-12 02:47:05.684186
Finishtime: 2019-12-12 02:47:05.684419
Finished training epoch 16
Finishtime: 2019-12-12 02:47:05.684566
Finishtime: 2019-12-12 02:47:05.684927
Finishtime: 2019-12-12 02:47:05.685327
Finishtime: 2019-12-12 02:47:05.685986
Finishtime: 2019-12-12 02:47:05.686408
[xla:4] Accuracy=30.95%
[xla:5] Accuracy=30.03%
[xla:0] Accuracy=31.50%
[xla:7] Accuracy=32.48%
[xla:6] Accuracy=31.01%
[xla:3] Accuracy=31.75%
[xla:1] Accuracy=32.10%
[xla:2] Accuracy=30.82%
Finishtime: 2019-12-12 02:48:59.499019
Finished training epoch 17
Finishtime: 2019-12-12 02:48:59.499694
Finishtime: 2019-12-12 02:48:59.500111
Finishtime: 2019-12-12 02:48:59.501014
Finishtime: 2019-12-12 02:48:59.500007
Finishtime: 2019-12-12 02:48:59.500824
Finishtime: 2019-12-12 02:48:59.500911
Finishtime: 2019-12-12 02:48:59.500527
[xla:6] Accuracy=25.15%
[xla:7] Accuracy=25.70%
[xla:4] Accuracy=25.03%
[xla:3] Accuracy=25.00%
[xla:5] Accuracy=24.28%
[xla:1] Accuracy=25.55%
[xla:2] Accuracy=25.03%
[xla:0] Accuracy=25.46%
Finishtime: 2019-12-12 02:50:52.915060
Finishtime: 2019-12-12 02:50:52.915804
Finishtime: 2019-12-12 02:50:52.915508
Finishtime: 2019-12-12 02:50:52.916003
Finishtime: 2019-12-12 02:50:52.916238
Finishtime: 2019-12-12 02:50:52.916417
Finishtime: 2019-12-12 02:50:52.916213
Finished training epoch 18
Finishtime: 2019-12-12 02:50:52.919887
[xla:7] Accuracy=36.10%
[xla:6] Accuracy=36.61%
[xla:3] Accuracy=35.48%
[xla:4] Accuracy=35.10%
[xla:5] Accuracy=35.23%

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[xla:1] Accuracy=36.93%
[xla:0] Accuracy=35.97%
[xla:2] Accuracy=36.07%
Finished training epoch 19
Finishtime: 2019-12-12 02:52:46.312004
Finishtime: 2019-12-12 02:52:46.311398
Finishtime: 2019-12-12 02:52:46.311795
Finishtime: 2019-12-12 02:52:46.312414
Finishtime: 2019-12-12 02:52:46.312219
Finishtime: 2019-12-12 02:52:46.312531
Finishtime: 2019-12-12 02:52:46.313880
Finishtime: 2019-12-12 02:52:46.313424
[xla:6] Accuracy=32.13%
[xla:3] Accuracy=32.29%
[xla:0] Accuracy=32.52%
[xla:7] Accuracy=32.53%
[xla:5] Accuracy=31.71%
[xla:4] Accuracy=31.86%
[xla:1] Accuracy=32.84%
[xla:2] Accuracy=32.30%
Finishtime: 2019-12-12 02:54:39.267613
Finished training epoch 20
Finishtime: 2019-12-12 02:54:39.268195
Finishtime: 2019-12-12 02:54:39.268365
Finishtime: 2019-12-12 02:54:39.268846
Finishtime: 2019-12-12 02:54:39.268484
Finishtime: 2019-12-12 02:54:39.269912
Finishtime: 2019-12-12 02:54:39.270432
Finishtime: 2019-12-12 02:54:39.271213
[xla:6] Accuracy=29.69%
[xla:4] Accuracy=29.60%
[xla:5] Accuracy=30.09%
[xla:0] Accuracy=29.98%
[xla:3] Accuracy=30.00%
[xla:7] Accuracy=30.24%
[xla:2] Accuracy=29.91%
[xla:1] Accuracy=29.60%
Finishtime: 2019-12-12 02:56:41.274240
Finishtime: 2019-12-12 02:56:41.275836
Finishtime: 2019-12-12 02:56:41.276760
Finishtime: 2019-12-12 02:56:41.276050
Finishtime: 2019-12-12 02:56:41.276631
Finishtime: 2019-12-12 02:56:41.276495
Finished training epoch 21
Finishtime: 2019-12-12 02:56:41.277439
Finishtime: 2019-12-12 02:56:41.279459
[xla:7] Accuracy=40.89%
[xla:6] Accuracy=40.17%

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[xla:4] Accuracy=40.27%
[xla:5] Accuracy=39.94%
[xla:0] Accuracy=40.52%
[xla:2] Accuracy=40.88%
[xla:3] Accuracy=40.42%
[xla:1] Accuracy=41.00%
Finishtime: 2019-12-12 02:58:34.564328
Finishtime: 2019-12-12 02:58:34.564949
Finishtime: 2019-12-12 02:58:34.565353
Finishtime: 2019-12-12 02:58:34.565471
Finishtime: 2019-12-12 02:58:34.565691
Finished training epoch 22
Finishtime: 2019-12-12 02:58:34.565871
Finishtime: 2019-12-12 02:58:34.565932
Finishtime: 2019-12-12 02:58:34.567899
[xla:6] Accuracy=34.33%
[xla:5] Accuracy=34.22%
[xla:7] Accuracy=34.50%
[xla:2] Accuracy=34.76%
[xla:0] Accuracy=35.16%
[xla:3] Accuracy=34.55%
[xla:1] Accuracy=35.16%
[xla:4] Accuracy=34.41%
Finishtime: 2019-12-12 03:00:27.928039
Finishtime: 2019-12-12 03:00:27.928491
Finishtime: 2019-12-12 03:00:27.929308
Finishtime: 2019-12-12 03:00:27.929169
Finishtime: 2019-12-12 03:00:27.929222
Finishtime: 2019-12-12 03:00:27.929457
Finishtime: 2019-12-12 03:00:27.929837
Finished training epoch 23
Finishtime: 2019-12-12 03:00:27.932486
[xla:6] Accuracy=20.49%
[xla:5] Accuracy=19.51%
[xla:7] Accuracy=21.01%
[xla:0] Accuracy=21.39%
[xla:1] Accuracy=20.29%
[xla:2] Accuracy=20.30%
[xla:3] Accuracy=20.03%
[xla:4] Accuracy=19.59%
Finishtime: 2019-12-12 03:02:21.906883
Finishtime: 2019-12-12 03:02:21.906378
Finishtime: 2019-12-12 03:02:21.906525
Finishtime: 2019-12-12 03:02:21.907228
Finishtime: 2019-12-12 03:02:21.906703
Finishtime: 2019-12-12 03:02:21.906889
Finishtime: 2019-12-12 03:02:21.907051
Finished training epoch 24

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Finishtime: 2019-12-12 03:02:21.909431
[xla:5] Accuracy=17.73%
[xla:0] Accuracy=18.25%
[xla:6] Accuracy=18.61%
[xla:3] Accuracy=18.46%
[xla:7] Accuracy=19.08%
[xla:4] Accuracy=18.27%
[xla:1] Accuracy=18.04%
[xla:2] Accuracy=19.12%
Finishtime: 2019-12-12 03:04:15.641588
Finishtime: 2019-12-12 03:04:15.641810
Finishtime: 2019-12-12 03:04:15.641790
Finishtime: 2019-12-12 03:04:15.641486
Finished training epoch 25
Finishtime: 2019-12-12 03:04:15.642384
Finishtime: 2019-12-12 03:04:15.642718
Finishtime: 2019-12-12 03:04:15.642690
Finishtime: 2019-12-12 03:04:15.644183
[xla:4] Accuracy=30.38%
[xla:5] Accuracy=30.24%
[xla:7] Accuracy=31.72%
[xla:3] Accuracy=31.77%
[xla:2] Accuracy=30.77%
[xla:1] Accuracy=30.97%
[xla:6] Accuracy=29.68%
[xla:0] Accuracy=30.73%
Finishtime: 2019-12-12 03:06:09.748478
Finishtime: 2019-12-12 03:06:09.748298
Finishtime: 2019-12-12 03:06:09.748786
Finishtime: 2019-12-12 03:06:09.749524
Finishtime: 2019-12-12 03:06:09.748970
Finished training epoch 26
Finishtime: 2019-12-12 03:06:09.749753
Finishtime: 2019-12-12 03:06:09.751156
Finishtime: 2019-12-12 03:06:09.749849
[xla:6] Accuracy=34.02%
[xla:7] Accuracy=34.55%
[xla:5] Accuracy=32.82%
[xla:1] Accuracy=33.96%
[xla:0] Accuracy=33.52%
[xla:4] Accuracy=33.01%
[xla:2] Accuracy=33.32%
[xla:3] Accuracy=33.50%
Finishtime: 2019-12-12 03:08:03.271641
Finishtime: 2019-12-12 03:08:03.272538
Finishtime: 2019-12-12 03:08:03.273118
Finished training epoch 27
Finishtime: 2019-12-12 03:08:03.273407

Finishtime: 2019-12-12 03:08:03.273654
Finishtime: 2019-12-12 03:08:03.273786
Finishtime: 2019-12-12 03:08:03.275184
Finishtime: 2019-12-12 03:08:03.274739
[xla:7] Accuracy=37.57%
[xla:6] Accuracy=38.05%
[xla:5] Accuracy=37.14%
[xla:0] Accuracy=37.96%
[xla:4] Accuracy=38.12%
[xla:1] Accuracy=37.33%
[xla:3] Accuracy=36.98%
[xla:2] Accuracy=38.54%
Finishtime: 2019-12-12 03:09:56.395604
Finishtime: 2019-12-12 03:09:56.395528
Finishtime: 2019-12-12 03:09:56.396344
Finishtime: 2019-12-12 03:09:56.396498
Finishtime: 2019-12-12 03:09:56.396950
Finishtime: 2019-12-12 03:09:56.396512
Finishtime: 2019-12-12 03:09:56.397225
Finished training epoch 28
Finishtime: 2019-12-12 03:09:56.401664
[xla:7] Accuracy=36.13%
[xla:6] Accuracy=35.05%
[xla:5] Accuracy=34.25%
[xla:4] Accuracy=35.61%
[xla:2] Accuracy=34.59%
[xla:0] Accuracy=35.73%
[xla:3] Accuracy=35.54%
[xla:1] Accuracy=35.50%
Finishtime: 2019-12-12 03:11:50.081123
Finishtime: 2019-12-12 03:11:50.082417
Finishtime: 2019-12-12 03:11:50.082749
Finished training epoch 29
Finishtime: 2019-12-12 03:11:50.082628
Finishtime: 2019-12-12 03:11:50.082336
Finishtime: 2019-12-12 03:11:50.082776
Finishtime: 2019-12-12 03:11:50.083255
Finishtime: 2019-12-12 03:11:50.084204
[xla:6] Accuracy=37.33%
[xla:7] Accuracy=38.71%
[xla:0] Accuracy=36.95%
[xla:5] Accuracy=36.08%
[xla:1] Accuracy=37.65%
[xla:3] Accuracy=37.36%
[xla:4] Accuracy=36.36%
[xla:2] Accuracy=36.27%
Finishtime: 2019-12-12 03:13:43.790842
Finishtime: 2019-12-12 03:13:43.792368

Finishtime: 2019-12-12 03:13:43.792993
 Finishtime: 2019-12-12 03:13:43.793058
 Finishtime: 2019-12-12 03:13:43.793313
 Finishtime: 2019-12-12 03:13:43.794132
 Finishtime: 2019-12-12 03:13:43.794146
 Finished training epoch 30
 Finishtime: 2019-12-12 03:13:43.800784
 [xla:6] Accuracy=35.93%
 [xla:2] Accuracy=34.96%
 [xla:5] Accuracy=35.61%
 [xla:7] Accuracy=36.39%
 [xla:3] Accuracy=36.34%
 [xla:4] Accuracy=36.99%
 [xla:0] Accuracy=35.52%
 [xla:1] Accuracy=36.48%
 Finishtime: 2019-12-12 03:15:46.234875
 Finishtime: 2019-12-12 03:15:46.235703
 Finishtime: 2019-12-12 03:15:46.236095
 Finishtime: 2019-12-12 03:15:46.236232
 Finished training epoch 31
 Finishtime: 2019-12-12 03:15:46.236157
 Finishtime: 2019-12-12 03:15:46.237181
 Finishtime: 2019-12-12 03:15:46.237358
 Finishtime: 2019-12-12 03:15:46.238416
 [xla:6] Accuracy=27.18%
 [xla:5] Accuracy=25.11%
 [xla:2] Accuracy=27.33%
 [xla:3] Accuracy=27.26%
 [xla:4] Accuracy=26.92%
 [xla:0] Accuracy=26.64%
 [xla:7] Accuracy=27.42%
 [xla:1] Accuracy=27.36%
 Finishtime: 2019-12-12 03:17:41.064933
 Finishtime: 2019-12-12 03:17:41.065235
 Finishtime: 2019-12-12 03:17:41.065705
 Finished training epoch 32
 Finishtime: 2019-12-12 03:17:41.065424
 Finishtime: 2019-12-12 03:17:41.066060
 Finishtime: 2019-12-12 03:17:41.066190
 Finishtime: 2019-12-12 03:17:41.065749
 Finishtime: 2019-12-12 03:17:41.069377
 [xla:7] Accuracy=34.46%
 [xla:1] Accuracy=34.23%
 [xla:0] Accuracy=34.74%
 [xla:3] Accuracy=34.77%
 [xla:5] Accuracy=35.70%
 [xla:6] Accuracy=34.68%
 [xla:4] Accuracy=35.21%

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[xla:2] Accuracy=34.83%
Finishtime: 2019-12-12 03:19:35.913292
Finished training epoch 33
Finishtime: 2019-12-12 03:19:35.913654
Finishtime: 2019-12-12 03:19:35.913197
Finishtime: 2019-12-12 03:19:35.913353
Finishtime: 2019-12-12 03:19:35.913176
Finishtime: 2019-12-12 03:19:35.914065
Finishtime: 2019-12-12 03:19:35.914942
Finishtime: 2019-12-12 03:19:35.914031
[xla:7] Accuracy=33.91%
[xla:6] Accuracy=34.15%
[xla:5] Accuracy=33.24%
[xla:0] Accuracy=34.32%
[xla:2] Accuracy=33.69%
[xla:3] Accuracy=35.09%
[xla:1] Accuracy=35.55%
[xla:4] Accuracy=33.46%
Finishtime: 2019-12-12 03:21:30.552405
Finished training epoch 34
Finishtime: 2019-12-12 03:21:30.553443
Finishtime: 2019-12-12 03:21:30.553326
Finishtime: 2019-12-12 03:21:30.553454
Finishtime: 2019-12-12 03:21:30.554188
Finishtime: 2019-12-12 03:21:30.555088
Finishtime: 2019-12-12 03:21:30.553948
Finishtime: 2019-12-12 03:21:30.555905
[xla:7] Accuracy=28.03%
[xla:0] Accuracy=28.49%
[xla:4] Accuracy=27.09%
[xla:3] Accuracy=27.34%
[xla:6] Accuracy=26.79%
[xla:5] Accuracy=28.39%
[xla:1] Accuracy=28.55%
[xla:2] Accuracy=27.52%
Finishtime: 2019-12-12 03:23:25.085482
Finishtime: 2019-12-12 03:23:25.085643
Finishtime: 2019-12-12 03:23:25.086139
Finishtime: 2019-12-12 03:23:25.085842
Finishtime: 2019-12-12 03:23:25.086143
Finished training epoch 35
Finishtime: 2019-12-12 03:23:25.085478
Finishtime: 2019-12-12 03:23:25.086796
Finishtime: 2019-12-12 03:23:25.088602
[xla:6] Accuracy=28.30%
[xla:7] Accuracy=29.37%
[xla:3] Accuracy=29.85%
[xla:5] Accuracy=28.34%

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[xla:2] Accuracy=27.37%
 [xla:0] Accuracy=28.08%
 [xla:1] Accuracy=29.41%
 [xla:4] Accuracy=28.55%
 Finishtime: 2019-12-12 03:25:19.564262
 Finishtime: 2019-12-12 03:25:19.564013
 Finished training epoch 36
 Finishtime: 2019-12-12 03:25:19.564977
 Finishtime: 2019-12-12 03:25:19.566625
 Finishtime: 2019-12-12 03:25:19.567587
 Finishtime: 2019-12-12 03:25:19.567534
 Finishtime: 2019-12-12 03:25:19.569256
 Finishtime: 2019-12-12 03:25:19.570957
 [xla:6] Accuracy=37.05%
 [xla:7] Accuracy=38.07%
 [xla:4] Accuracy=37.57%
 [xla:0] Accuracy=38.47%
 [xla:1] Accuracy=37.95%
 [xla:3] Accuracy=37.66%
 [xla:5] Accuracy=37.33%
 [xla:2] Accuracy=37.93%
 Finishtime: 2019-12-12 03:27:14.337001
 Finishtime: 2019-12-12 03:27:14.337941
 Finishtime: 2019-12-12 03:27:14.337837
 Finished training epoch 37
 Finishtime: 2019-12-12 03:27:14.338329
 Finishtime: 2019-12-12 03:27:14.338398
 Finishtime: 2019-12-12 03:27:14.338195
 Finishtime: 2019-12-12 03:27:14.340203
 Finishtime: 2019-12-12 03:27:14.338994
 [xla:7] Accuracy=41.57%
 [xla:3] Accuracy=41.75%
 [xla:5] Accuracy=40.59%
 [xla:6] Accuracy=41.38%
 [xla:0] Accuracy=41.09%
 [xla:1] Accuracy=41.02%
 [xla:2] Accuracy=40.99%
 [xla:4] Accuracy=41.09%
 Finishtime: 2019-12-12 03:29:09.087776
 Finishtime: 2019-12-12 03:29:09.088836
 Finishtime: 2019-12-12 03:29:09.090294
 Finishtime: 2019-12-12 03:29:09.089943
 Finishtime: 2019-12-12 03:29:09.091061
 Finished training epoch 38
 Finishtime: 2019-12-12 03:29:09.090779
 Finishtime: 2019-12-12 03:29:09.090332
 Finishtime: 2019-12-12 03:29:09.092962
 [xla:7] Accuracy=29.33%

[xla:3] Accuracy=28.80%
 [xla:6] Accuracy=27.58%
 [xla:5] Accuracy=28.36%
 [xla:4] Accuracy=28.93%
 [xla:0] Accuracy=28.41%
 [xla:2] Accuracy=27.93%
 [xla:1] Accuracy=28.94%
 Finishtime: 2019-12-12 03:31:03.728313
 Finishtime: 2019-12-12 03:31:03.729361
 Finishtime: 2019-12-12 03:31:03.729560
 Finishtime: 2019-12-12 03:31:03.729700
 Finished training epoch 39
 Finishtime: 2019-12-12 03:31:03.729882
 Finishtime: 2019-12-12 03:31:03.729244
 Finishtime: 2019-12-12 03:31:03.729721
 Finishtime: 2019-12-12 03:31:03.732323
 [xla:7] Accuracy=28.71%
 [xla:6] Accuracy=28.24%
 [xla:4] Accuracy=28.14%
 [xla:1] Accuracy=29.34%
 [xla:5] Accuracy=27.72%
 [xla:2] Accuracy=29.32%
 [xla:0] Accuracy=29.13%
 [xla:3] Accuracy=28.63%
 Finishtime: 2019-12-12 03:32:58.406579
 Finishtime: 2019-12-12 03:32:58.406543
 Finishtime: 2019-12-12 03:32:58.406543
 Finishtime: 2019-12-12 03:32:58.407050
 Finished training epoch 40
 Finishtime: 2019-12-12 03:32:58.406908
 Finishtime: 2019-12-12 03:32:58.407336
 Finishtime: 2019-12-12 03:32:58.407732
 Finishtime: 2019-12-12 03:32:58.409187
 [xla:7] Accuracy=34.44%
 [xla:3] Accuracy=34.25%
 [xla:5] Accuracy=33.25%
 [xla:6] Accuracy=32.79%
 [xla:4] Accuracy=33.89%
 [xla:0] Accuracy=33.94%
 [xla:2] Accuracy=34.37%
 [xla:1] Accuracy=34.52%
 Finishtime: 2019-12-12 03:35:00.796280
 Finishtime: 2019-12-12 03:35:00.797399
 Finishtime: 2019-12-12 03:35:00.797120
 Finished training epoch 41
 Finishtime: 2019-12-12 03:35:00.797453
 Finishtime: 2019-12-12 03:35:00.797620
 Finishtime: 2019-12-12 03:35:00.799748

Finishtime: 2019-12-12 03:35:00.800419
 Finishtime: 2019-12-12 03:35:00.799915
 [xla:6] Accuracy=34.61%
 [xla:7] Accuracy=34.97%
 [xla:4] Accuracy=35.00%
 [xla:5] Accuracy=33.08%
 [xla:0] Accuracy=33.45%
 [xla:2] Accuracy=33.03%
 [xla:3] Accuracy=34.81%
 [xla:1] Accuracy=35.08%
 Finishtime: 2019-12-12 03:36:55.155899
 Finished training epoch 42
 Finishtime: 2019-12-12 03:36:55.156492
 Finishtime: 2019-12-12 03:36:55.156642
 Finishtime: 2019-12-12 03:36:55.156873
 Finishtime: 2019-12-12 03:36:55.157704
 Finishtime: 2019-12-12 03:36:55.157469
 Finishtime: 2019-12-12 03:36:55.157472
 Finishtime: 2019-12-12 03:36:55.158769
 [xla:7] Accuracy=37.27%
 [xla:3] Accuracy=37.96%
 [xla:5] Accuracy=36.67%
 [xla:1] Accuracy=36.41%
 [xla:6] Accuracy=37.36%
 [xla:0] Accuracy=36.18%
 [xla:4] Accuracy=37.38%
 [xla:2] Accuracy=36.20%
 Finishtime: 2019-12-12 03:38:49.516117
 Finishtime: 2019-12-12 03:38:49.517224
 Finishtime: 2019-12-12 03:38:49.517369
 Finishtime: 2019-12-12 03:38:49.518063
 Finishtime: 2019-12-12 03:38:49.517434
 Finished training epoch 43
 Finishtime: 2019-12-12 03:38:49.518643
 Finishtime: 2019-12-12 03:38:49.518342
 Finishtime: 2019-12-12 03:38:49.519819
 [xla:6] Accuracy=15.66%
 [xla:7] Accuracy=15.31%
 [xla:2] Accuracy=15.95%
 [xla:3] Accuracy=15.64%
 [xla:5] Accuracy=16.34%
 [xla:1] Accuracy=15.45%
 [xla:4] Accuracy=16.00%
 [xla:0] Accuracy=15.73%
 Finishtime: 2019-12-12 03:40:44.159081
 Finishtime: 2019-12-12 03:40:44.159593
 Finishtime: 2019-12-12 03:40:44.158954
 Finishtime: 2019-12-12 03:40:44.159230

Finished training epoch 44
Finishtime: 2019-12-12 03:40:44.159809
Finishtime: 2019-12-12 03:40:44.159908
Finishtime: 2019-12-12 03:40:44.160088
Finishtime: 2019-12-12 03:40:44.162229
[xla:4] Accuracy=23.47%
[xla:6] Accuracy=23.85%
[xla:0] Accuracy=24.29%
[xla:7] Accuracy=23.71%
[xla:3] Accuracy=23.62%
[xla:5] Accuracy=22.57%
[xla:1] Accuracy=23.81%
[xla:2] Accuracy=23.29%
Finishtime: 2019-12-12 03:42:38.700244
Finishtime: 2019-12-12 03:42:38.701770
Finishtime: 2019-12-12 03:42:38.702132
Finishtime: 2019-12-12 03:42:38.701934
Finishtime: 2019-12-12 03:42:38.702382
Finishtime: 2019-12-12 03:42:38.702984
Finished training epoch 45
Finishtime: 2019-12-12 03:42:38.703135
Finishtime: 2019-12-12 03:42:38.705650
[xla:4] Accuracy=30.33%
[xla:0] Accuracy=28.95%
[xla:6] Accuracy=30.08%
[xla:3] Accuracy=30.00%
[xla:5] Accuracy=28.79%
[xla:1] Accuracy=30.89%
[xla:2] Accuracy=30.07%
[xla:7] Accuracy=30.45%
Finishtime: 2019-12-12 03:44:32.800146
Finishtime: 2019-12-12 03:44:32.803785
Finishtime: 2019-12-12 03:44:32.803799
Finishtime: 2019-12-12 03:44:32.804663
Finishtime: 2019-12-12 03:44:32.804654
Finishtime: 2019-12-12 03:44:32.805368
Finishtime: 2019-12-12 03:44:32.805234
Finished training epoch 46
Finishtime: 2019-12-12 03:44:32.807906
[xla:6] Accuracy=38.55%
[xla:0] Accuracy=37.89%
[xla:1] Accuracy=37.36%
[xla:7] Accuracy=37.77%
[xla:4] Accuracy=38.82%
[xla:3] Accuracy=38.37%
[xla:2] Accuracy=37.43%
[xla:5] Accuracy=38.29%
Finished training epoch 47

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Finishtime: 2019-12-12 03:46:27.395389
Finishtime: 2019-12-12 03:46:27.396246
Finishtime: 2019-12-12 03:46:27.395346
Finishtime: 2019-12-12 03:46:27.396199
Finishtime: 2019-12-12 03:46:27.396159
Finishtime: 2019-12-12 03:46:27.396515
Finishtime: 2019-12-12 03:46:27.398358
Finishtime: 2019-12-12 03:46:27.399842
[xla:4] Accuracy=18.46%
[xla:0] Accuracy=18.21%
[xla:5] Accuracy=17.90%
[xla:3] Accuracy=18.35%
[xla:2] Accuracy=17.27%
[xla:1] Accuracy=17.36%
[xla:6] Accuracy=18.39%
[xla:7] Accuracy=17.89%
Finishtime: 2019-12-12 03:48:21.795549
Finished training epoch 48
Finishtime: 2019-12-12 03:48:21.795561
Finishtime: 2019-12-12 03:48:21.795544
Finishtime: 2019-12-12 03:48:21.795762
Finishtime: 2019-12-12 03:48:21.795828
Finishtime: 2019-12-12 03:48:21.796439
Finishtime: 2019-12-12 03:48:21.798243
Finishtime: 2019-12-12 03:48:21.797869
[xla:3] Accuracy=23.09%
[xla:1] Accuracy=21.58%
[xla:7] Accuracy=22.82%
[xla:4] Accuracy=22.75%
[xla:5] Accuracy=21.54%
[xla:0] Accuracy=20.05%
[xla:2] Accuracy=21.29%
[xla:6] Accuracy=22.45%
Finishtime: 2019-12-12 03:50:16.321474
Finishtime: 2019-12-12 03:50:16.322966
Finishtime: 2019-12-12 03:50:16.323594
Finishtime: 2019-12-12 03:50:16.324733
Finishtime: 2019-12-12 03:50:16.323003
Finishtime: 2019-12-12 03:50:16.324762
Finishtime: 2019-12-12 03:50:16.327420
Finished training epoch 49
Finishtime: 2019-12-12 03:50:16.329856
[xla:4] Accuracy=36.53%
[xla:5] Accuracy=37.09%
[xla:7] Accuracy=37.92%
[xla:0] Accuracy=37.18%
[xla:1] Accuracy=37.76%
[xla:3] Accuracy=37.05%

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[xla:6] Accuracy=35.97%
[xla:2] Accuracy=36.97%
Finishtime: 2019-12-12 03:52:10.314410
Finishtime: 2019-12-12 03:52:10.315203
Finishtime: 2019-12-12 03:52:10.315429
Finished training epoch 50
Finishtime: 2019-12-12 03:52:10.315534
Finishtime: 2019-12-12 03:52:10.315506
Finishtime: 2019-12-12 03:52:10.316251
Finishtime: 2019-12-12 03:52:10.317495
Finishtime: 2019-12-12 03:52:10.316646
[xla:6] Accuracy=39.30%
[xla:7] Accuracy=39.33%
[xla:3] Accuracy=38.92%
[xla:4] Accuracy=38.75%
[xla:2] Accuracy=39.18%
[xla:1] Accuracy=39.39%
[xla:5] Accuracy=38.32%
[xla:0] Accuracy=38.66%
Finishtime: 2019-12-12 03:54:11.779604
Finishtime: 2019-12-12 03:54:11.780206
Finishtime: 2019-12-12 03:54:11.780461
Finishtime: 2019-12-12 03:54:11.780119
Finishtime: 2019-12-12 03:54:11.779806
Finishtime: 2019-12-12 03:54:11.779642
Finishtime: 2019-12-12 03:54:11.780217
Finished training epoch 51
Finishtime: 2019-12-12 03:54:11.783483
[xla:7] Accuracy=22.81%
[xla:0] Accuracy=22.73%
[xla:4] Accuracy=21.48%
[xla:1] Accuracy=22.40%
[xla:6] Accuracy=21.54%
[xla:5] Accuracy=20.75%
[xla:2] Accuracy=21.43%
[xla:3] Accuracy=22.60%
Finishtime: 2019-12-12 03:56:04.973588
Finishtime: 2019-12-12 03:56:04.973458
Finishtime: 2019-12-12 03:56:04.973817
Finished training epoch 52
Finishtime: 2019-12-12 03:56:04.974877
Finishtime: 2019-12-12 03:56:04.976924
Finishtime: 2019-12-12 03:56:04.978792
Finishtime: 2019-12-12 03:56:04.979389
Finishtime: 2019-12-12 03:56:04.975875
[xla:0] Accuracy=27.20%
[xla:5] Accuracy=26.99%
[xla:3] Accuracy=26.44%

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[xla:7] Accuracy=25.62%
[xla:6] Accuracy=27.93%
[xla:4] Accuracy=28.07%
[xla:2] Accuracy=28.50%
[xla:1] Accuracy=25.92%
Finishtime: 2019-12-12 03:57:58.745745
Finishtime: 2019-12-12 03:57:58.747407
Finishtime: 2019-12-12 03:57:58.747953
Finishtime: 2019-12-12 03:57:58.747884
Finishtime: 2019-12-12 03:57:58.749030
Finished training epoch 53
Finishtime: 2019-12-12 03:57:58.749496
Finishtime: 2019-12-12 03:57:58.751393
Finishtime: 2019-12-12 03:57:58.751180
[xla:7] Accuracy=13.63%
[xla:3] Accuracy=13.46%
[xla:6] Accuracy=13.21%
[xla:2] Accuracy=12.66%
[xla:4] Accuracy=12.69%
[xla:1] Accuracy=12.80%
[xla:5] Accuracy=12.97%
[xla:0] Accuracy=12.68%
Finishtime: 2019-12-12 03:59:52.132005
Finishtime: 2019-12-12 03:59:52.132015
Finished training epoch 54
Finishtime: 2019-12-12 03:59:52.132789
Finishtime: 2019-12-12 03:59:52.133090
Finishtime: 2019-12-12 03:59:52.133380
Finishtime: 2019-12-12 03:59:52.134531
Finishtime: 2019-12-12 03:59:52.133241
Finishtime: 2019-12-12 03:59:52.133163
[xla:6] Accuracy=24.00%
[xla:4] Accuracy=23.88%
[xla:7] Accuracy=22.37%
[xla:3] Accuracy=23.82%
[xla:2] Accuracy=23.72%
[xla:5] Accuracy=22.39%
[xla:1] Accuracy=21.80%
[xla:0] Accuracy=24.00%
Finishtime: 2019-12-12 04:01:45.356746
Finishtime: 2019-12-12 04:01:45.356906
Finished training epoch 55
Finishtime: 2019-12-12 04:01:45.357630
Finishtime: 2019-12-12 04:01:45.357926
Finishtime: 2019-12-12 04:01:45.357279
Finishtime: 2019-12-12 04:01:45.357482
Finishtime: 2019-12-12 04:01:45.358478
Finishtime: 2019-12-12 04:01:45.359779

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[xla:5] Accuracy=30.63%
[xla:4] Accuracy=30.85%
[xla:3] Accuracy=31.09%
[xla:6] Accuracy=29.94%
[xla:7] Accuracy=31.32%
[xla:0] Accuracy=30.90%
[xla:2] Accuracy=30.69%
[xla:1] Accuracy=31.06%
Finishtime: 2019-12-12 04:03:38.227948
Finishtime: 2019-12-12 04:03:38.228795
Finishtime: 2019-12-12 04:03:38.229199
Finished training epoch 56
Finishtime: 2019-12-12 04:03:38.229345
Finishtime: 2019-12-12 04:03:38.229242
Finishtime: 2019-12-12 04:03:38.229645
Finishtime: 2019-12-12 04:03:38.229933
Finishtime: 2019-12-12 04:03:38.230938
[xla:7] Accuracy=31.31%
[xla:6] Accuracy=31.14%
[xla:5] Accuracy=30.57%
[xla:2] Accuracy=29.61%
[xla:0] Accuracy=30.29%
[xla:4] Accuracy=31.11%
[xla:1] Accuracy=29.92%
[xla:3] Accuracy=31.46%
Finishtime: 2019-12-12 04:05:31.443925
Finishtime: 2019-12-12 04:05:31.443734
Finishtime: 2019-12-12 04:05:31.445186
Finishtime: 2019-12-12 04:05:31.445063
Finishtime: 2019-12-12 04:05:31.445009
Finishtime: 2019-12-12 04:05:31.445395
Finishtime: 2019-12-12 04:05:31.446025
Finished training epoch 57
Finishtime: 2019-12-12 04:05:31.448772
[xla:7] Accuracy=38.23%
[xla:3] Accuracy=38.50%
[xla:5] Accuracy=39.79%
[xla:4] Accuracy=37.41%
[xla:6] Accuracy=37.89%
[xla:2] Accuracy=37.95%
[xla:1] Accuracy=37.99%
[xla:0] Accuracy=37.60%
Finishtime: 2019-12-12 04:07:24.047361
Finishtime: 2019-12-12 04:07:24.047494
Finishtime: 2019-12-12 04:07:24.048069
Finishtime: 2019-12-12 04:07:24.048549
Finishtime: 2019-12-12 04:07:24.048198
Finished training epoch 58

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Finishtime: 2019-12-12 04:07:24.048727
Finishtime: 2019-12-12 04:07:24.050146
Finishtime: 2019-12-12 04:07:24.051486
[xla:6] Accuracy=30.16%
[xla:5] Accuracy=30.52%
[xla:2] Accuracy=30.12%
[xla:4] Accuracy=30.84%
[xla:7] Accuracy=31.76%
[xla:3] Accuracy=31.50%
[xla:0] Accuracy=30.45%
[xla:1] Accuracy=30.85%
Finishtime: 2019-12-12 04:09:16.989205
Finishtime: 2019-12-12 04:09:16.989647
Finishtime: 2019-12-12 04:09:16.990772
Finishtime: 2019-12-12 04:09:16.991590
Finishtime: 2019-12-12 04:09:16.991152
Finishtime: 2019-12-12 04:09:16.991579
Finished training epoch 59
Finishtime: 2019-12-12 04:09:16.992813
Finishtime: 2019-12-12 04:09:16.994587
[xla:6] Accuracy=24.65%
[xla:0] Accuracy=25.13%
[xla:3] Accuracy=25.44%
[xla:5] Accuracy=24.73%
[xla:4] Accuracy=24.40%
[xla:2] Accuracy=25.47%
[xla:7] Accuracy=25.40%
[xla:1] Accuracy=25.66%
Finishtime: 2019-12-12 04:11:09.781474
Finishtime: 2019-12-12 04:11:09.782545
Finishtime: 2019-12-12 04:11:09.784244
Finished training epoch 60
Finishtime: 2019-12-12 04:11:09.784226
Finishtime: 2019-12-12 04:11:09.785315
Finishtime: 2019-12-12 04:11:09.784923
Finishtime: 2019-12-12 04:11:09.784134
Finishtime: 2019-12-12 04:11:09.786627
[xla:4] Accuracy=28.95%
[xla:6] Accuracy=30.08%
[xla:5] Accuracy=28.45%
[xla:3] Accuracy=28.82%
[xla:7] Accuracy=27.79%
[xla:1] Accuracy=29.81%
[xla:2] Accuracy=30.16%
[xla:0] Accuracy=29.74%
Finishtime: 2019-12-12 04:13:09.941488
Finishtime: 2019-12-12 04:13:09.941962
Finishtime: 2019-12-12 04:13:09.941881

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Finishtime: 2019-12-12 04:13:09.942526
Finishtime: 2019-12-12 04:13:09.943396
Finishtime: 2019-12-12 04:13:09.943509
Finishtime: 2019-12-12 04:13:09.945691
Finished training epoch 61
Finishtime: 2019-12-12 04:13:09.949166
[xla:6] Accuracy=49.80%
[xla:5] Accuracy=50.33%
[xla:0] Accuracy=49.77%
[xla:3] Accuracy=49.98%
[xla:4] Accuracy=49.93%
[xla:1] Accuracy=50.19%
[xla:2] Accuracy=49.82%
[xla:7] Accuracy=50.02%
Finishtime: 2019-12-12 04:15:02.455555
Finishtime: 2019-12-12 04:15:02.455957
Finishtime: 2019-12-12 04:15:02.456219
Finishtime: 2019-12-12 04:15:02.457128
Finishtime: 2019-12-12 04:15:02.457412
Finishtime: 2019-12-12 04:15:02.457877
Finishtime: 2019-12-12 04:15:02.458414
Finished training epoch 62
Finishtime: 2019-12-12 04:15:02.460491
[xla:7] Accuracy=47.31%
[xla:4] Accuracy=47.76%
[xla:6] Accuracy=46.74%
[xla:5] Accuracy=47.81%
[xla:3] Accuracy=47.45%
[xla:2] Accuracy=46.56%
[xla:0] Accuracy=47.23%
[xla:1] Accuracy=47.04%
Finishtime: 2019-12-12 04:16:55.532207
Finished training epoch 63
Finishtime: 2019-12-12 04:16:55.533092
Finishtime: 2019-12-12 04:16:55.533172
Finishtime: 2019-12-12 04:16:55.533587
Finishtime: 2019-12-12 04:16:55.533566
Finishtime: 2019-12-12 04:16:55.534367
Finishtime: 2019-12-12 04:16:55.533997
Finishtime: 2019-12-12 04:16:55.534183
[xla:7] Accuracy=48.68%
[xla:4] Accuracy=49.59%
[xla:3] Accuracy=49.01%
[xla:5] Accuracy=49.47%
[xla:6] Accuracy=48.95%
[xla:0] Accuracy=49.20%
[xla:1] Accuracy=48.53%
[xla:2] Accuracy=49.62%

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Finishtime: 2019-12-12 04:18:48.651210
Finishtime: 2019-12-12 04:18:48.652032
Finishtime: 2019-12-12 04:18:48.651659
Finishtime: 2019-12-12 04:18:48.652524
Finishtime: 2019-12-12 04:18:48.652906
Finishtime: 2019-12-12 04:18:48.653364
Finished training epoch 64
Finishtime: 2019-12-12 04:18:48.653383
Finishtime: 2019-12-12 04:18:48.655871
[xla:7] Accuracy=50.99%
[xla:5] Accuracy=50.06%
[xla:0] Accuracy=50.07%
[xla:6] Accuracy=50.47%
[xla:4] Accuracy=50.96%
[xla:1] Accuracy=50.43%
[xla:3] Accuracy=50.53%
[xla:2] Accuracy=49.98%
Finishtime: 2019-12-12 04:20:41.628582
Finishtime: 2019-12-12 04:20:41.628546
Finished training epoch 65
Finishtime: 2019-12-12 04:20:41.628737
Finishtime: 2019-12-12 04:20:41.629329
Finishtime: 2019-12-12 04:20:41.629236
Finishtime: 2019-12-12 04:20:41.629583
Finishtime: 2019-12-12 04:20:41.629983
Finishtime: 2019-12-12 04:20:41.630613
[xla:5] Accuracy=47.54%
[xla:2] Accuracy=49.05%
[xla:7] Accuracy=47.66%
[xla:4] Accuracy=49.27%
[xla:3] Accuracy=48.58%
[xla:6] Accuracy=49.10%
[xla:0] Accuracy=48.53%
[xla:1] Accuracy=47.86%
Finishtime: 2019-12-12 04:22:34.709384
Finishtime: 2019-12-12 04:22:34.710287
Finishtime: 2019-12-12 04:22:34.710587
Finishtime: 2019-12-12 04:22:34.710526
Finishtime: 2019-12-12 04:22:34.711203
Finishtime: 2019-12-12 04:22:34.711260
Finished training epoch 66
Finishtime: 2019-12-12 04:22:34.712327
Finishtime: 2019-12-12 04:22:34.713695
[xla:7] Accuracy=39.47%
[xla:3] Accuracy=39.83%
[xla:0] Accuracy=39.68%
[xla:4] Accuracy=40.09%
[xla:5] Accuracy=38.45%


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[xla:6] Accuracy=40.60%
[xla:2] Accuracy=39.33%
[xla:1] Accuracy=39.06%
Finishtime: 2019-12-12 04:24:27.903035
Finishtime: 2019-12-12 04:24:27.903046
Finishtime: 2019-12-12 04:24:27.903822
Finished training epoch 67
Finishtime: 2019-12-12 04:24:27.904120
Finishtime: 2019-12-12 04:24:27.904564
Finishtime: 2019-12-12 04:24:27.906363
Finishtime: 2019-12-12 04:24:27.907140
Finishtime: 2019-12-12 04:24:27.907202
[xla:7] Accuracy=45.52%
[xla:6] Accuracy=46.40%
[xla:5] Accuracy=44.81%
[xla:2] Accuracy=45.61%
[xla:3] Accuracy=45.88%
[xla:0] Accuracy=45.61%
[xla:1] Accuracy=46.54%
[xla:4] Accuracy=45.30%
Finishtime: 2019-12-12 04:26:21.042829
Finishtime: 2019-12-12 04:26:21.042776
Finishtime: 2019-12-12 04:26:21.043010
Finishtime: 2019-12-12 04:26:21.044115
Finishtime: 2019-12-12 04:26:21.044201
Finishtime: 2019-12-12 04:26:21.043822
Finishtime: 2019-12-12 04:26:21.044525
Finished training epoch 68
Finishtime: 2019-12-12 04:26:21.047809
[xla:6] Accuracy=52.63%
[xla:5] Accuracy=52.44%
[xla:2] Accuracy=52.85%
[xla:4] Accuracy=52.40%
[xla:3] Accuracy=52.50%
[xla:7] Accuracy=52.97%
[xla:0] Accuracy=52.82%
[xla:1] Accuracy=53.03%
Finishtime: 2019-12-12 04:28:14.012854
Finishtime: 2019-12-12 04:28:14.013866
Finished training epoch 69
Finishtime: 2019-12-12 04:28:14.014095
Finishtime: 2019-12-12 04:28:14.014048
Finishtime: 2019-12-12 04:28:14.014606
Finishtime: 2019-12-12 04:28:14.014976
Finishtime: 2019-12-12 04:28:14.014669
Finishtime: 2019-12-12 04:28:14.016020
[xla:6] Accuracy=47.99%
[xla:5] Accuracy=46.25%

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[xla:4] Accuracy=47.04%
[xla:3] Accuracy=47.94%
[xla:2] Accuracy=47.61%
[xla:0] Accuracy=47.99%
[xla:1] Accuracy=47.92%
[xla:7] Accuracy=47.88%
Finishtime: 2019-12-12 04:30:06.526920
Finishtime: 2019-12-12 04:30:06.527647
Finishtime: 2019-12-12 04:30:06.527990
Finishtime: 2019-12-12 04:30:06.527974
Finished training epoch 70
Finishtime: 2019-12-12 04:30:06.528686
Finishtime: 2019-12-12 04:30:06.529247
Finishtime: 2019-12-12 04:30:06.528955
Finishtime: 2019-12-12 04:30:06.530674
[xla:4] Accuracy=44.49%
[xla:0] Accuracy=44.83%
[xla:3] Accuracy=45.07%
[xla:5] Accuracy=44.78%
[xla:2] Accuracy=45.11%
[xla:7] Accuracy=44.86%
[xla:1] Accuracy=45.01%
[xla:6] Accuracy=45.00%
Finishtime: 2019-12-12 04:32:06.984386
Finishtime: 2019-12-12 04:32:06.985364
Finishtime: 2019-12-12 04:32:06.986049
Finishtime: 2019-12-12 04:32:06.986081
Finished training epoch 71
Finishtime: 2019-12-12 04:32:06.985904
Finishtime: 2019-12-12 04:32:06.986824
Finishtime: 2019-12-12 04:32:06.987148
Finishtime: 2019-12-12 04:32:06.990331
[xla:6] Accuracy=40.90%
[xla:7] Accuracy=40.52%
[xla:5] Accuracy=40.37%
[xla:3] Accuracy=40.22%
[xla:1] Accuracy=40.45%
[xla:4] Accuracy=40.23%
[xla:2] Accuracy=41.01%
[xla:0] Accuracy=41.13%
Finishtime: 2019-12-12 04:33:59.290519
Finishtime: 2019-12-12 04:33:59.291221
Finishtime: 2019-12-12 04:33:59.291707
Finishtime: 2019-12-12 04:33:59.291459
Finishtime: 2019-12-12 04:33:59.292011
Finishtime: 2019-12-12 04:33:59.292019
Finishtime: 2019-12-12 04:33:59.292716
Finished training epoch 72

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Finishtime: 2019-12-12 04:33:59.295914
 [xla:7] Accuracy=47.22%
 [xla:5] Accuracy=46.60%
 [xla:6] Accuracy=47.45%
 [xla:2] Accuracy=48.19%
 [xla:0] Accuracy=47.53%
 [xla:3] Accuracy=47.15%
 [xla:1] Accuracy=48.17%
 [xla:4] Accuracy=48.01%
 Finishtime: 2019-12-12 04:35:51.876195
 Finishtime: 2019-12-12 04:35:51.878214
 Finished training epoch 73
 Finishtime: 2019-12-12 04:35:51.878369
 Finishtime: 2019-12-12 04:35:51.877951
 Finishtime: 2019-12-12 04:35:51.880344
 Finishtime: 2019-12-12 04:35:51.880054
 Finishtime: 2019-12-12 04:35:51.880388
 Finishtime: 2019-12-12 04:35:51.880201
 [xla:6] Accuracy=51.54%
 [xla:4] Accuracy=51.78%
 [xla:3] Accuracy=51.46%
 [xla:5] Accuracy=51.88%
 [xla:7] Accuracy=51.37%
 [xla:0] Accuracy=52.31%
 [xla:1] Accuracy=51.92%
 [xla:2] Accuracy=51.95%
 Finishtime: 2019-12-12 04:37:44.853862
 Finishtime: 2019-12-12 04:37:44.855169
 Finishtime: 2019-12-12 04:37:44.855336
 Finishtime: 2019-12-12 04:37:44.855003
 Finishtime: 2019-12-12 04:37:44.855398
 Finished training epoch 74
 Finishtime: 2019-12-12 04:37:44.856228
 Finishtime: 2019-12-12 04:37:44.856298
 Finishtime: 2019-12-12 04:37:44.858127
 [xla:6] Accuracy=50.28%
 [xla:3] Accuracy=50.41%
 [xla:5] Accuracy=50.19%
 [xla:7] Accuracy=49.75%
 [xla:4] Accuracy=50.16%
 [xla:0] Accuracy=49.71%
 [xla:1] Accuracy=50.43%
 [xla:2] Accuracy=50.01%
 Finishtime: 2019-12-12 04:39:37.811993
 Finishtime: 2019-12-12 04:39:37.812421
 Finishtime: 2019-12-12 04:39:37.813223
 Finishtime: 2019-12-12 04:39:37.812891
 Finishtime: 2019-12-12 04:39:37.813389

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Finishtime: 2019-12-12 04:39:37.813299
Finished training epoch 75
Finishtime: 2019-12-12 04:39:37.813461
Finishtime: 2019-12-12 04:39:37.815523
[xla:6] Accuracy=49.69%
[xla:3] Accuracy=50.23%
[xla:2] Accuracy=48.65%
[xla:7] Accuracy=49.44%
[xla:1] Accuracy=49.79%
[xla:5] Accuracy=48.84%
[xla:0] Accuracy=49.38%
[xla:4] Accuracy=49.29%
Finished training epoch 76
Finishtime: 2019-12-12 04:41:30.820783
Finishtime: 2019-12-12 04:41:30.821483
Finishtime: 2019-12-12 04:41:30.822916
Finishtime: 2019-12-12 04:41:30.822079
Finishtime: 2019-12-12 04:41:30.822001
Finishtime: 2019-12-12 04:41:30.823556
Finishtime: 2019-12-12 04:41:30.823599
Finishtime: 2019-12-12 04:41:30.823410
[xla:7] Accuracy=47.46%
[xla:6] Accuracy=47.29%
[xla:2] Accuracy=46.49%
[xla:3] Accuracy=47.56%
[xla:4] Accuracy=46.12%
[xla:5] Accuracy=46.80%
[xla:0] Accuracy=46.18%
[xla:1] Accuracy=46.04%
Finishtime: 2019-12-12 04:43:23.671552
Finishtime: 2019-12-12 04:43:23.671428
Finishtime: 2019-12-12 04:43:23.671902
Finishtime: 2019-12-12 04:43:23.671931
Finishtime: 2019-12-12 04:43:23.672124
Finishtime: 2019-12-12 04:43:23.672073
Finishtime: 2019-12-12 04:43:23.672552
Finished training epoch 77
Finishtime: 2019-12-12 04:43:23.675310
[xla:6] Accuracy=50.55%
[xla:7] Accuracy=50.02%
[xla:5] Accuracy=50.19%
[xla:1] Accuracy=48.89%
[xla:3] Accuracy=50.28%
[xla:4] Accuracy=50.55%
[xla:2] Accuracy=50.89%
[xla:0] Accuracy=51.42%
Finishtime: 2019-12-12 04:45:16.297578
Finishtime: 2019-12-12 04:45:16.298057

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Finishtime: 2019-12-12 04:45:16.298412
Finishtime: 2019-12-12 04:45:16.298028
Finished training epoch 78
Finishtime: 2019-12-12 04:45:16.298778
Finishtime: 2019-12-12 04:45:16.300545
Finishtime: 2019-12-12 04:45:16.300927
Finishtime: 2019-12-12 04:45:16.302528
[xla:6] Accuracy=52.42%
[xla:2] Accuracy=52.84%
[xla:0] Accuracy=52.58%
[xla:3] Accuracy=52.79%
[xla:5] Accuracy=51.76%
[xla:7] Accuracy=52.66%
[xla:1] Accuracy=51.90%
[xla:4] Accuracy=52.42%
Finishtime: 2019-12-12 04:47:08.665843
Finishtime: 2019-12-12 04:47:08.665471
Finishtime: 2019-12-12 04:47:08.666375
Finishtime: 2019-12-12 04:47:08.666559
Finishtime: 2019-12-12 04:47:08.666148
Finishtime: 2019-12-12 04:47:08.666646
Finished training epoch 79
Finishtime: 2019-12-12 04:47:08.666931
Finishtime: 2019-12-12 04:47:08.669118
[xla:7] Accuracy=46.25%
[xla:6] Accuracy=48.14%
[xla:1] Accuracy=46.84%
[xla:0] Accuracy=47.63%
[xla:4] Accuracy=48.29%
[xla:5] Accuracy=46.78%
[xla:3] Accuracy=47.69%
[xla:2] Accuracy=47.85%
Finishtime: 2019-12-12 04:49:00.966693
Finishtime: 2019-12-12 04:49:00.967111
Finishtime: 2019-12-12 04:49:00.967798
Finishtime: 2019-12-12 04:49:00.969013
Finished training epoch 80
Finishtime: 2019-12-12 04:49:00.968187
Finishtime: 2019-12-12 04:49:00.968484
Finishtime: 2019-12-12 04:49:00.968491
Finishtime: 2019-12-12 04:49:00.971214
[xla:6] Accuracy=53.78%
[xla:7] Accuracy=53.06%
[xla:5] Accuracy=53.23%
[xla:4] Accuracy=53.62%
[xla:3] Accuracy=53.27%
[xla:1] Accuracy=53.03%
[xla:2] Accuracy=53.45%

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[xla:0] Accuracy=53.31%
Finished training epoch 81
Finishtime: 2019-12-12 04:51:01.287875
Finishtime: 2019-12-12 04:51:01.288127
Finishtime: 2019-12-12 04:51:01.288534
Finishtime: 2019-12-12 04:51:01.288404
Finishtime: 2019-12-12 04:51:01.288240
Finishtime: 2019-12-12 04:51:01.288686
Finishtime: 2019-12-12 04:51:01.287895
Finishtime: 2019-12-12 04:51:01.289470
[xla:6] Accuracy=49.63%
[xla:4] Accuracy=49.65%
[xla:7] Accuracy=50.32%
[xla:3] Accuracy=50.24%
[xla:0] Accuracy=48.60%
[xla:2] Accuracy=48.94%
[xla:5] Accuracy=49.91%
[xla:1] Accuracy=49.20%
Finishtime: 2019-12-12 04:52:53.456682
Finishtime: 2019-12-12 04:52:53.456076
Finished training epoch 82
Finishtime: 2019-12-12 04:52:53.456596
Finishtime: 2019-12-12 04:52:53.456828
Finishtime: 2019-12-12 04:52:53.456725
Finishtime: 2019-12-12 04:52:53.458439
Finishtime: 2019-12-12 04:52:53.459801
Finishtime: 2019-12-12 04:52:53.460808
[xla:4] Accuracy=49.33%
[xla:6] Accuracy=49.15%
[xla:7] Accuracy=50.79%
[xla:0] Accuracy=49.29%
[xla:3] Accuracy=49.21%
[xla:5] Accuracy=48.41%
[xla:1] Accuracy=50.08%
[xla:2] Accuracy=49.74%
Finishtime: 2019-12-12 04:54:45.941458
Finishtime: 2019-12-12 04:54:45.943225
Finishtime: 2019-12-12 04:54:45.942818
Finishtime: 2019-12-12 04:54:45.943070
Finishtime: 2019-12-12 04:54:45.943101
Finishtime: 2019-12-12 04:54:45.944159
Finishtime: 2019-12-12 04:54:45.943865
Finished training epoch 83
Finishtime: 2019-12-12 04:54:45.947026
[xla:6] Accuracy=43.79%
[xla:3] Accuracy=43.34%
[xla:5] Accuracy=42.54%
[xla:0] Accuracy=44.31%

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[xla:4] Accuracy=43.59%
[xla:7] Accuracy=44.02%
[xla:2] Accuracy=44.02%
[xla:1] Accuracy=42.38%
Finished training epoch 84
Finishtime: 2019-12-12 04:56:37.991794
Finishtime: 2019-12-12 04:56:37.991992
Finishtime: 2019-12-12 04:56:37.991717
Finishtime: 2019-12-12 04:56:37.992778
Finishtime: 2019-12-12 04:56:37.992396
Finishtime: 2019-12-12 04:56:37.992120
Finishtime: 2019-12-12 04:56:37.992875
Finishtime: 2019-12-12 04:56:37.994154
[xla:3] Accuracy=47.45%
[xla:4] Accuracy=47.51%
[xla:5] Accuracy=47.82%
[xla:6] Accuracy=47.90%
[xla:7] Accuracy=47.98%
[xla:1] Accuracy=48.16%
[xla:2] Accuracy=47.85%
[xla:0] Accuracy=48.90%
Finishtime: 2019-12-12 04:58:29.748631
Finishtime: 2019-12-12 04:58:29.748277
Finishtime: 2019-12-12 04:58:29.749656
Finishtime: 2019-12-12 04:58:29.749378
Finishtime: 2019-12-12 04:58:29.749317
Finished training epoch 85
Finishtime: 2019-12-12 04:58:29.749349
Finishtime: 2019-12-12 04:58:29.749539
Finishtime: 2019-12-12 04:58:29.752458
[xla:6] Accuracy=45.48%
[xla:4] Accuracy=45.43%
[xla:5] Accuracy=44.42%
[xla:3] Accuracy=44.62%
[xla:1] Accuracy=43.10%
[xla:2] Accuracy=43.89%
[xla:0] Accuracy=44.32%
[xla:7] Accuracy=44.62%
Finishtime: 2019-12-12 05:00:21.789940
Finishtime: 2019-12-12 05:00:21.789988
Finished training epoch 86
Finishtime: 2019-12-12 05:00:21.789716
Finishtime: 2019-12-12 05:00:21.790650
Finishtime: 2019-12-12 05:00:21.792054
Finishtime: 2019-12-12 05:00:21.791519
Finishtime: 2019-12-12 05:00:21.791055
Finishtime: 2019-12-12 05:00:21.792650
[xla:6] Accuracy=53.05%

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[xla:7] Accuracy=53.56%
[xla:2] Accuracy=53.15%
[xla:1] Accuracy=53.02%
[xla:5] Accuracy=52.69%
[xla:0] Accuracy=53.08%
[xla:4] Accuracy=53.10%
[xla:3] Accuracy=52.97%
Finishtime: 2019-12-12 05:02:14.395628
Finishtime: 2019-12-12 05:02:14.395928
Finished training epoch 87
Finishtime: 2019-12-12 05:02:14.397511
Finishtime: 2019-12-12 05:02:14.397306
Finishtime: 2019-12-12 05:02:14.397653
Finishtime: 2019-12-12 05:02:14.400315
Finishtime: 2019-12-12 05:02:14.401074
Finishtime: 2019-12-12 05:02:14.400741
[xla:7] Accuracy=50.37%
[xla:0] Accuracy=49.10%
[xla:6] Accuracy=49.52%
[xla:3] Accuracy=50.22%
[xla:5] Accuracy=50.16%
[xla:2] Accuracy=49.60%
[xla:4] Accuracy=49.86%
[xla:1] Accuracy=49.68%
Finishtime: 2019-12-12 05:04:07.197798
Finishtime: 2019-12-12 05:04:07.198437
Finishtime: 2019-12-12 05:04:07.197603
Finishtime: 2019-12-12 05:04:07.199149
Finished training epoch 88
Finishtime: 2019-12-12 05:04:07.199263
Finishtime: 2019-12-12 05:04:07.199212
Finishtime: 2019-12-12 05:04:07.200442
Finishtime: 2019-12-12 05:04:07.201626
[xla:7] Accuracy=50.66%
[xla:5] Accuracy=50.04%
[xla:3] Accuracy=50.46%
[xla:6] Accuracy=51.23%
[xla:1] Accuracy=50.94%
[xla:4] Accuracy=50.67%
[xla:0] Accuracy=51.41%
[xla:2] Accuracy=50.84%
Finishtime: 2019-12-12 05:05:59.934191
Finishtime: 2019-12-12 05:05:59.934540
Finishtime: 2019-12-12 05:05:59.933631
Finishtime: 2019-12-12 05:05:59.934249
Finishtime: 2019-12-12 05:05:59.934593
Finished training epoch 89
Finishtime: 2019-12-12 05:05:59.935110

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Finishtime: 2019-12-12 05:05:59.935900
Finishtime: 2019-12-12 05:05:59.940416
[xla:6] Accuracy=50.87%
[xla:4] Accuracy=50.02%
[xla:0] Accuracy=49.86%
[xla:7] Accuracy=50.59%
[xla:2] Accuracy=49.87%
[xla:5] Accuracy=50.04%
[xla:3] Accuracy=49.91%
[xla:1] Accuracy=48.90%
Finishtime: 2019-12-12 05:07:52.153012
Finishtime: 2019-12-12 05:07:52.153795
Finishtime: 2019-12-12 05:07:52.154151
Finishtime: 2019-12-12 05:07:52.155092
Finishtime: 2019-12-12 05:07:52.156665
Finishtime: 2019-12-12 05:07:52.156835
Finishtime: 2019-12-12 05:07:52.156882
Finished training epoch 90
Finishtime: 2019-12-12 05:07:52.160379
[xla:7] Accuracy=47.27%
[xla:6] Accuracy=48.09%
[xla:5] Accuracy=47.27%
[xla:1] Accuracy=48.10%
[xla:4] Accuracy=48.18%
[xla:3] Accuracy=47.95%
[xla:2] Accuracy=49.09%
[xla:0] Accuracy=48.11%
Finishtime: 2019-12-12 05:09:52.230418
Finishtime: 2019-12-12 05:09:52.231444
Finishtime: 2019-12-12 05:09:52.231917
Finished training epoch 91
Finishtime: 2019-12-12 05:09:52.232326
Finishtime: 2019-12-12 05:09:52.233129
Finishtime: 2019-12-12 05:09:52.233262
Finishtime: 2019-12-12 05:09:52.234796
Finishtime: 2019-12-12 05:09:52.234959
[xla:6] Accuracy=49.74%
[xla:5] Accuracy=48.19%
[xla:4] Accuracy=48.61%
[xla:7] Accuracy=51.17%
[xla:2] Accuracy=50.57%
[xla:1] Accuracy=49.37%
[xla:3] Accuracy=50.53%
[xla:0] Accuracy=49.42%
Finishtime: 2019-12-12 05:11:44.567313
Finishtime: 2019-12-12 05:11:44.567429
Finishtime: 2019-12-12 05:11:44.567006
Finishtime: 2019-12-12 05:11:44.567788

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Finished training epoch 92
 Finishtime: 2019-12-12 05:11:44.568582
 Finishtime: 2019-12-12 05:11:44.571046
 Finishtime: 2019-12-12 05:11:44.572545
 Finishtime: 2019-12-12 05:11:44.571393
 [xla:6] Accuracy=47.26%
 [xla:4] Accuracy=47.07%
 [xla:0] Accuracy=47.44%
 [xla:7] Accuracy=47.41%
 [xla:5] Accuracy=47.35%
 [xla:3] Accuracy=47.04%
 [xla:2] Accuracy=48.04%
 [xla:1] Accuracy=47.62%
 Finishtime: 2019-12-12 05:13:36.836856
 Finishtime: 2019-12-12 05:13:36.837490
 Finishtime: 2019-12-12 05:13:36.838524
 Finishtime: 2019-12-12 05:13:36.839263
 Finishtime: 2019-12-12 05:13:36.839056
 Finishtime: 2019-12-12 05:13:36.839619
 Finished training epoch 93
 Finishtime: 2019-12-12 05:13:36.839889
 Finishtime: 2019-12-12 05:13:36.842157
 [xla:6] Accuracy=44.60%
 [xla:1] Accuracy=44.65%
 [xla:7] Accuracy=45.36%
 [xla:0] Accuracy=43.18%
 [xla:3] Accuracy=46.76%
 [xla:5] Accuracy=44.71%
 [xla:2] Accuracy=43.01%
 [xla:4] Accuracy=44.40%
 Finished training epoch 94
 Finishtime: 2019-12-12 05:15:29.287950
 Finishtime: 2019-12-12 05:15:29.287946
 Finishtime: 2019-12-12 05:15:29.288231
 Finishtime: 2019-12-12 05:15:29.289156
 Finishtime: 2019-12-12 05:15:29.288513
 Finishtime: 2019-12-12 05:15:29.288288
 Finishtime: 2019-12-12 05:15:29.289425
 Finishtime: 2019-12-12 05:15:29.289084
 [xla:5] Accuracy=48.13%
 [xla:4] Accuracy=47.97%
 [xla:1] Accuracy=49.56%
 [xla:3] Accuracy=48.12%
 [xla:7] Accuracy=48.52%
 [xla:6] Accuracy=47.78%
 [xla:0] Accuracy=47.87%
 [xla:2] Accuracy=47.67%
 Finished training epoch 95

```

Finishtime: 2019-12-12 05:17:22.168107
Finishtime: 2019-12-12 05:17:22.168177
Finishtime: 2019-12-12 05:17:22.167503
Finishtime: 2019-12-12 05:17:22.167400
Finishtime: 2019-12-12 05:17:22.168639
Finishtime: 2019-12-12 05:17:22.168526
Finishtime: 2019-12-12 05:17:22.170851
Finishtime: 2019-12-12 05:17:22.171413

```

```

↳ -----
KeyboardInterrupt                                Traceback (most recent call↳
↳last)

<ipython-input-8-6871d9b77650> in <module>()
      5 torch.set_default_tensor_type('torch.FloatTensor')
      6 accuracy, data, pred, target, model = train_resnet50()
----> 7 xmp.spawn(_mp_fn, args=(FLAGS,), nprocs=FLAGS['num_cores'],↳
↳start_method='fork')

/usr/local/lib/python3.6/dist-packages/torch_xla/distributed/
↳xla_multiprocessing.py in spawn(fn, args, nprocs, join, daemon, start_method)
    171     join=join,
    172     daemon=daemon,
--> 173     start_method=start_method)

/usr/local/lib/python3.6/dist-packages/torch/multiprocessing/spawn.py in↳
↳start_processes(fn, args, nprocs, join, daemon, start_method)
    147
    148     # Loop on join until it returns True or raises an exception.
--> 149     while not context.join():
    150         pass
    151

/usr/local/lib/python3.6/dist-packages/torch/multiprocessing/spawn.py in↳
↳join(self, timeout)
    175         ready = multiprocessing.connection.wait(
    176             self.sentinel.keys(),
----> 177             timeout=timeout,
    178         )
    179

```

```

/usr/lib/python3.6/multiprocessing/connection.py in wait(object_list,
↳ timeout)
    909
    910         while True:
--> 911             ready = selector.select(timeout)
    912             if ready:
    913                 return [key.fileobj for (key, events) in ready]

```

```

/usr/lib/python3.6/selectors.py in select(self, timeout)
    374         ready = []
    375         try:
--> 376             fd_event_list = self._poll.poll(timeout)
    377         except InterruptedError:
    378             return ready

```

KeyboardInterrupt:

[0]:

```

[0]: device = xm.xla_device()
model = models.resnet50().to(device)
model.load_state_dict(torch.load('/content/model.pt'))
model.eval()

```

↳ -----

FileNotFoundError Traceback (most recent call↳
↳ last)

```

<ipython-input-9-3b03fa3b09a8> in <module>()
    1 device = xm.xla_device()
    2 model = models.resnet50().to(device)
----> 3 model.load_state_dict(torch.load('/content/model.pt'))
    4 model.eval()

```

```

/usr/local/lib/python3.6/dist-packages/torch/serialization.py in load(f,↳
↳ map_location, pickle_module, **pickle_load_args)
    481         pickle_load_args['encoding'] = 'utf-8'
    482
--> 483         with _open_file_like(f, 'rb') as opened_file:

```

```

484         return _load(opened_file, map_location, pickle_module,
↳ **pickle_load_args)
485

```

```

/usr/local/lib/python3.6/dist-packages/torch/serialization.py in
↳ _open_file_like(name_or_buffer, mode)
208 def _open_file_like(name_or_buffer, mode):
209     if _is_path(name_or_buffer):
--> 210         return _open_file(name_or_buffer, mode)
211     else:
212         if 'w' in mode:

```

```

/usr/local/lib/python3.6/dist-packages/torch/serialization.py in
↳ __init__(self, name, mode)
191 class _open_file(_opener):
192     def __init__(self, name, mode):
--> 193         super(_open_file, self).__init__(open(name, mode))
194
195     def __exit__(self, *args):

```

```

FileNotFoundError: [Errno 2] No such file or directory: '/content/model.
↳ pt'

```

```

[0]: from PIL import Image
from torchvision import transforms

def eval_image(filepath):
    input_image = Image.open(filepath)
    preprocess = transforms.Compose([
        transforms.Resize(256),
        transforms.CenterCrop(224),
        transforms.ToTensor(),
        transforms.Normalize(mean=[0.485, 0.456, 0.406], std=[0.229, 0.224, 0.
↳ 225]),
    ])
    input_tensor = preprocess(input_image)
    input_batch = input_tensor.unsqueeze(0) # create a mini-batch as expected
↳ by the model

    # move the input and model to GPU for speed if available
    device = xm.xla_device()
    input_batch = input_batch.to(device)

```

```

with torch.no_grad():
    output = model(input_batch)
    # The output has unnormalized scores. To get probabilities, you can run a
    ↪ softmax on it.
    #print(torch.nn.functional.softmax(output[0], dim=0))
    _, preds = torch.max(output, 1)
    return preds[0]

from os import listdir
classes_new = ('airplane', 'automobile', 'bird', 'cat',
               'deer', 'dog', 'frog', 'horse', 'ship', 'truck')
image_paths = [
    listdir("/content/DSF_HW5_wild_images/%d_%s" % ( num, c_name ))
    for num, c_name in enumerate(classes_new)
]

```

```

[0]: correct = 0.0
total = 0.0
for actual_class,files in enumerate(image_paths):
    for image_filepath in files:
        fpath = "/content/drive/My Drive/DSF_HW5_wild_images/%d_%s/" %
        ↪(actual_class, classes_new[actual_class])
        pred_label = eval_image(fpath + image_filepath)
        if pred_label == actual_class:
            correct += 1.0
            total += 1.0
print( "Wild Accuracy: ", correct / total )

```

Wild Accuracy: 0.0

```

[0]: os.system("unzip /content/DSF_HW5_wild_images.zip")

```

[0]: 0