

WARNING flwr 2024-03-23 20:00:43,488 | app.py:211 | Both server and strategy were provided, ignoring strategy

INFO flwr 2024-03-23 20:00:43,489 | app.py:178 | Starting Flower simulation, config: ServerConfig(num\_rounds=5, round\_timeout=None)

Data partitioned across 3 clients and 0.0 of local dataset reserved for validation.

FL experiment configured for 5 rounds with 3 client in the pool.

FL round will proceed with 100.0% of clients sampled, at least 1.

2024-03-23 20:00:46,432 INFO worker.py:1621 -- Started a local Ray instance.

INFO flwr 2024-03-23 20:00:48,393 | app.py:213 | Flower VCE: Ray initialized with resources: {'memory': 5232453223.0, 'CPU': 8.0, 'node:\_\_internal\_head\_\_': 1.0, 'object\_store\_memory': 2147483648.0, 'node:127.0.0.1': 1.0}

INFO flwr 2024-03-23 20:00:48,394 | app.py:219 | Optimize your simulation with Flower VCE: <https://flower.dev/docs/framework/how-to-run-simulations.html>

INFO flwr 2024-03-23 20:00:48,394 | app.py:242 | Flower VCE: Resources for each Virtual Client: {'num\_cpus': 2}

INFO flwr 2024-03-23 20:00:48,414 | app.py:288 | Flower VCE: Creating VirtualClientEngineActorPool with 4 actors

INFO flwr 2024-03-23 20:00:48,415 | 2437557820.py:20 | Initializing global parameters

INFO flwr 2024-03-23 20:00:48,416 | 2437557820.py:226 | Requesting initial parameters from one random client

[2m[36m(pid=18484)[0m 2024-03-23 20:00:51.824163: I tensorflow/core/platform/cpu\_feature\_guard.cc:182] This TensorFlow binary is optimized to use available CPU instructions in performance-critical operations.

[2m[36m(pid=18484)[0m To enable the following instructions: AVX2 AVX512F AVX512\_VNNI FMA, in other operations, rebuild TensorFlow with the appropriate compiler flags.

[2m[36m(DefaultActor pid=18485)[0m /Users/rohan/anaconda3/lib/python3.11/site-packages/torch/utils/data/\_utils/collate.py:171: UserWarning: The given NumPy array is not writable, and PyTorch does not support non-writable tensors. This means writing to this tensor will result in undefined behavior. You may want to copy the array to protect its data or make it writable before converting it to a tensor. This type of warning will be suppressed for the rest of this program. (Triggered internally at /Users/runner/work/pytorch/pytorch/pytorch/torch/csrc/utils/tensor\_numpy.cpp:212.)

[2m[36m(DefaultActor pid=18485)[0m return collate([torch.as\_tensor(b) for b in batch], collate\_fn\_map=collate\_fn\_map)

[2m[36m(pid=18483)[0m 2024-03-23 20:00:51.813636: I tensorflow/core/platform/cpu\_feature\_guard.cc:182] This TensorFlow binary is optimized to use available CPU instructions in performance-critical operations.[32m [repeated 3x across cluster] (Ray deduplicates logs by default. Set RAY\_DEDUP\_LOGS=0 to disable log deduplication, or see <https://docs.ray.io/en/master/ray-observability/ray-logging.html#log-deduplication> for more options.))[0m

[2m[36m(pid=18483)[0m To enable the following instructions: AVX2 AVX512F AVX512\_VNNI FMA, in other operations, rebuild TensorFlow with the appropriate compiler flags.[32m [repeated 3x across cluster]][0m

INFO flwr 2024-03-23 20:01:17,021 | 2437557820.py:231 | Received initial parameters from one random client

INFO flwr 2024-03-23 20:01:17,022 | 2437557820.py:23 | Evaluating initial parameters

INFO flwr 2024-03-23 20:02:10,896 | 2437557820.py:26 | initial parameters (loss,

other metrics): 0.006050774943580482, {'accuracy': tensor(0.9987)}  
INFO flwr 2024-03-23 20:02:10,898 | 2437557820.py:36 | FL starting  
DEBUG flwr 2024-03-23 20:02:10,899 | 2437557820.py:165 | fit\_round 1: strategy  
sampled 3 clients (out of 3)  
Evaluation on the server: test\_loss=0.0061, test\_accuracy=0.9987  
Configuring round 1  
[2m[36m(DefaultActor pid=18484)[0m /Users/rohan/anaconda3/lib/python3.11/site-  
packages/torch/utils/data/\_utils/collate.py:171: UserWarning: The given NumPy array  
is not writable, and PyTorch does not support non-writable tensors. This means  
writing to this tensor will result in undefined behavior. You may want to copy the array  
to protect its data or make it writable before converting it to a tensor. This type of  
warning will be suppressed for the rest of this program. (Triggered internally at /  
Users/runner/work/pytorch/pytorch/pytorch/torch/csrc/utils/tensor\_numpy.cpp:212.)  
[2m[36m(DefaultActor pid=18484)[0m return collate([torch.as\_tensor(b) for b in  
batch], collate\_fn\_map=collate\_fn\_map)  
[2m[36m(DefaultActor pid=18483)[0m /Users/rohan/anaconda3/lib/python3.11/site-  
packages/torch/utils/data/\_utils/collate.py:171: UserWarning: The given NumPy array  
is not writable, and PyTorch does not support non-writable tensors. This means  
writing to this tensor will result in undefined behavior. You may want to copy the array  
to protect its data or make it writable before converting it to a tensor. This type of  
warning will be suppressed for the rest of this program. (Triggered internally at /  
Users/runner/work/pytorch/pytorch/pytorch/torch/csrc/utils/tensor\_numpy.cpp:212.)  
[2m[36m(DefaultActor pid=18483)[0m return collate([torch.as\_tensor(b) for b in  
batch], collate\_fn\_map=collate\_fn\_map)  
[2m[36m(DefaultActor pid=18485)[0m Client 1: only had its own tree  
[2m[36m(DefaultActor pid=18483)[0m Client 2: only had its own tree[32m [repeated  
2x across cluster][0m  
[2m[36m(DefaultActor pid=18485)[0m Client 1: training for 100 iterations/updates  
[2m[36m(DefaultActor pid=18485)[0m Client 1: training round complete, 6400  
examples processed  
[2m[36m(DefaultActor pid=18484)[0m Client 0: training for 100 iterations/updates  
[2m[36m(DefaultActor pid=18484)[0m Client 0: training round complete, 6400  
examples processed  
[2m[36m(DefaultActor pid=18483)[0m Client 2: training for 100 iterations/updates  
DEBUG flwr 2024-03-23 20:03:20,074 | 2437557820.py:180 | fit\_round 1 received 3  
results and 0 failures  
WARNING flwr 2024-03-23 20:03:20,078 | fedxgb\_nn\_avg.py:95 | No  
fit\_metrics\_aggregation\_fn provided  
Server side aggregated 3 trees.  
INFO flwr 2024-03-23 20:04:09,933 | 2437557820.py:51 | fit progress: (1,  
0.0008882982860405124, {'accuracy': tensor(0.9987)}, 119.03614695700026)  
INFO flwr 2024-03-23 20:04:09,934 | 2437557820.py:98 | evaluate\_round 1: no  
clients selected, cancel  
DEBUG flwr 2024-03-23 20:04:09,935 | 2437557820.py:165 | fit\_round 2: strategy  
sampled 3 clients (out of 3)  
Evaluation on the server: test\_loss=0.0009, test\_accuracy=0.9987  
Configuring round 2  
[2m[36m(DefaultActor pid=18483)[0m Client 0: recieved 3 trees  
[2m[36m(DefaultActor pid=18483)[0m Client 2: training round complete, 6400  
examples processed

[2m[36m(DefaultActor pid=18484)[0m Client 1: training for 100 iterations/updates  
[2m[36m(DefaultActor pid=18485)[0m Client 2: recieved 3 trees[32m [repeated 2x  
across cluster][0m  
[2m[36m(DefaultActor pid=18484)[0m Client 1: training round complete, 6400  
examples processed  
DEBUG flwr 2024-03-23 20:05:25,309 | 2437557820.py:180 | fit\_round 2 received 3  
results and 0 failures  
Server side aggregated 3 trees.  
INFO flwr 2024-03-23 20:06:15,276 | 2437557820.py:51 | fit progress: (2,  
0.00020238576002490507, {'accuracy': tensor(0.9987)}, 244.41981644800035)  
INFO flwr 2024-03-23 20:06:15,278 | 2437557820.py:98 | evaluate\_round 2: no  
clients selected, cancel  
DEBUG flwr 2024-03-23 20:06:15,279 | 2437557820.py:165 | fit\_round 3: strategy  
sampled 3 clients (out of 3)  
Evaluation on the server: test\_loss=0.0002, test\_accuracy=0.9987  
Configuring round 3  
[2m[36m(DefaultActor pid=18485)[0m Client 2: training for 100 iterations/  
updates[32m [repeated 2x across cluster][0m  
[2m[36m(DefaultActor pid=18485)[0m Client 1: recieved 3 trees  
[2m[36m(DefaultActor pid=18485)[0m Client 2: training round complete, 6400  
examples processed[32m [repeated 2x across cluster][0m  
[2m[36m(DefaultActor pid=18484)[0m Client 2: recieved 3 trees  
[2m[36m(DefaultActor pid=18485)[0m Client 1: training for 100 iterations/updates  
[2m[36m(DefaultActor pid=18483)[0m Client 0: recieved 3 trees  
[2m[36m(DefaultActor pid=18485)[0m Client 1: training round complete, 6400  
examples processed  
[2m[36m(DefaultActor pid=18484)[0m Client 2: training for 100 iterations/updates  
DEBUG flwr 2024-03-23 20:07:22,991 | 2437557820.py:180 | fit\_round 3 received 3  
results and 0 failures  
Server side aggregated 3 trees.  
INFO flwr 2024-03-23 20:08:08,978 | 2437557820.py:51 | fit progress: (3,  
0.00014376200372673287, {'accuracy': tensor(0.9987)}, 358.12458734699976)  
INFO flwr 2024-03-23 20:08:08,979 | 2437557820.py:98 | evaluate\_round 3: no  
clients selected, cancel  
DEBUG flwr 2024-03-23 20:08:08,980 | 2437557820.py:165 | fit\_round 4: strategy  
sampled 3 clients (out of 3)  
Evaluation on the server: test\_loss=0.0001, test\_accuracy=0.9987  
Configuring round 4  
[2m[36m(DefaultActor pid=18483)[0m Client 1: recieved 3 trees  
[2m[36m(DefaultActor pid=18483)[0m Client 0: training round complete, 6400  
examples processed[32m [repeated 2x across cluster][0m  
[2m[36m(DefaultActor pid=18483)[0m Client 0: training for 100 iterations/updates  
[2m[36m(DefaultActor pid=18484)[0m Client 0: training for 100 iterations/updates  
[2m[36m(DefaultActor pid=18485)[0m Client 2: recieved 3 trees[32m [repeated 2x  
across cluster][0m  
[2m[36m(DefaultActor pid=18484)[0m Client 0: training round complete, 6400  
examples processed  
DEBUG flwr 2024-03-23 20:09:19,180 | 2437557820.py:180 | fit\_round 4 received 3  
results and 0 failures  
Server side aggregated 3 trees.

INFO flwr 2024-03-23 20:10:06,006 | 2437557820.py:51 | fit progress: (4, 0.00013855697251271299, {'accuracy': tensor(0.9987)}), 475.1552590450001)  
INFO flwr 2024-03-23 20:10:06,008 | 2437557820.py:98 | evaluate\_round 4: no clients selected, cancel  
DEBUG flwr 2024-03-23 20:10:06,008 | 2437557820.py:165 | fit\_round 5: strategy sampled 3 clients (out of 3)  
Evaluation on the server: test\_loss=0.0001, test\_accuracy=0.9987  
Configuring round 5  
[2m[36m(DefaultActor pid=18485)[0m Client 2: training for 100 iterations/updates[32m [repeated 2x across cluster][0m  
[2m[36m(DefaultActor pid=18485)[0m Client 1: recieved 3 trees  
[2m[36m(DefaultActor pid=18485)[0m Client 2: training round complete, 6400 examples processed[32m [repeated 2x across cluster][0m  
[2m[36m(DefaultActor pid=18483)[0m Client 2: recieved 3 trees  
[2m[36m(DefaultActor pid=18485)[0m Client 1: training for 100 iterations/updates  
[2m[36m(DefaultActor pid=18484)[0m Client 0: recieved 3 trees  
[2m[36m(DefaultActor pid=18485)[0m Client 1: training round complete, 6400 examples processed  
[2m[36m(DefaultActor pid=18483)[0m Client 2: training for 100 iterations/updates  
DEBUG flwr 2024-03-23 20:11:18,116 | 2437557820.py:180 | fit\_round 5 received 3 results and 0 failures  
Server side aggregated 3 trees.  
INFO flwr 2024-03-23 20:12:07,302 | 2437557820.py:51 | fit progress: (5, 0.00013661986646077722, {'accuracy': tensor(0.9987)}), 596.452883256)  
INFO flwr 2024-03-23 20:12:07,319 | 2437557820.py:98 | evaluate\_round 5: no clients selected, cancel  
INFO flwr 2024-03-23 20:12:07,319 | 2437557820.py:79 | FL finished in 596.4698381529997  
INFO flwr 2024-03-23 20:12:07,321 | app.py:226 | app\_fit: losses\_distributed []  
INFO flwr 2024-03-23 20:12:07,321 | app.py:227 | app\_fit: metrics\_distributed\_fit {}  
INFO flwr 2024-03-23 20:12:07,322 | app.py:228 | app\_fit: metrics\_distributed {}  
INFO flwr 2024-03-23 20:12:07,323 | app.py:229 | app\_fit: losses\_centralized [(0, 0.006050774943580482), (1, 0.0008882982860405124), (2, 0.00020238576002490507), (3, 0.00014376200372673287), (4, 0.00013855697251271299), (5, 0.00013661986646077722)]  
INFO flwr 2024-03-23 20:12:07,327 | app.py:230 | app\_fit: metrics\_centralized {'accuracy': [(0, tensor(0.9987)), (1, tensor(0.9987)), (2, tensor(0.9987)), (3, tensor(0.9987)), (4, tensor(0.9987)), (5, tensor(0.9987))]}  
Evaluation on the server: test\_loss=0.0001, test\_accuracy=0.9987  
History (loss, centralized):  
    round 0: 0.006050774943580482  
    round 1: 0.0008882982860405124  
    round 2: 0.00020238576002490507  
    round 3: 0.00014376200372673287  
    round 4: 0.00013855697251271299  
    round 5: 0.00013661986646077722  
History (metrics, centralized):  
{'accuracy': [(0, tensor(0.9987)), (1, tensor(0.9987)), (2, tensor(0.9987)), (3, tensor(0.9987)), (4, tensor(0.9987)), (5, tensor(0.9987))]}

Time = 11m 24.8s