

# Server Homepage

Start

Stop accuracy: 0.9

Maximum epoch: 10

Server timeout second: 5

Client sleep probability: 0.1

Client sleep second: 10

Minimum quorum requirement: 3

Current client count: 5, ID (port):[5001, 5002, 5003, 5004, 5005]

|      | train_count | test_count | skew_label | skew_prop | 0    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    |     |
|------|-------------|------------|------------|-----------|------|------|------|------|------|------|------|------|------|-----|
| 5001 | 500         | 100        | -1         | -1        | NaN  | 0.6  | 0.71 | 0.73 | 0.89 | 0.78 | NaN  | NaN  | NaN  | NaN |
| 5002 | 500         | 100        | -1         | -1        | 0.24 | 0.61 | 0.76 | 0.69 | 0.82 | 0.89 | 0.87 | 0.88 | 0.86 | NaN |
| 5003 | 500         | 100        | -1         | -1        | 0.22 | 0.63 | 0.69 | 0.78 | 0.89 | 0.85 | 0.87 | 0.92 | 0.94 | NaN |
| 5004 | 500         | 100        | -1         | -1        | 0.34 | NaN  | NaN  | 0.84 | 0.89 | 0.89 | 0.9  | 0.95 | 0.92 | NaN |
| 5005 | 500         | 100        | -1         | -1        | 0.32 | NaN  | NaN  | NaN  | 0.81 | 0.82 | 0.9  | 0.92 | 0.91 | NaN |

[21:50:58]-[Server]: Server start.

[21:51:09]-[Server]: Register client 5001 with url: http://127.0.0.1:5001/client-receive

[21:51:09]-[Server]: {5001: 0}

[21:51:10]-[Server]: Register client 5002 with url: http://127.0.0.1:5002/client-receive

[21:51:10]-[Server]: {5001: 0, 5002: 0}

[21:51:12]-[Server]: Register client 5003 with url: http://127.0.0.1:5003/client-receive

[21:51:12]-[Server]: {5001: 0, 5002: 0, 5003: 0}

[21:51:14]-[Server]: Register client 5004 with url: http://127.0.0.1:5004/client-receive

[21:51:14]-[Server]: {5001: 0, 5002: 0, 5003: 0, 5004: 0}

[21:51:16]-[Server]: Register client 5005 with url: http://127.0.0.1:5005/client-receive

[21:51:16]-[Server]: {5001: 0, 5002: 0, 5003: 0, 5004: 0, 5005: 0}

[21:51:22]-[Server]: Init a ML model: CNN( (conv1): Sequential( (0): Conv2d(1, 16, kernel\_size=(5, 5), stride=(1, 1), padding=(2, 2)) (1): ReLU() (2): MaxPool2d(kernel\_size=2, stride=2, padding=0, dilation=1, ceil\_mode=False) ) (conv2): Sequential( (0): Conv2d(16, 32, kernel\_size=(5, 5), stride=(1, 1), padding=(2, 2)) (1): ReLU() (2): MaxPool2d(kernel\_size=2, stride=2, padding=0, dilation=1, ceil\_mode=False) ) (out): Linear(in\_features=1568, out\_features=10, bias=True) )

[21:51:22]-[Server]: Epoch 0: Start epoch 0/10

[21:51:22]-[Server]: Epoch 0: Send model to 5001

[21:51:22]-[Server]: Epoch 0: Send model to 5002

[21:51:22]-[Server]: Epoch 0: Send model to 5003

[21:51:22]-[Server]: Epoch 0: Send model to 5004

[21:51:22]-[Server]: Epoch 0: Send model to 5005

[21:51:26]-[Server]: Epoch 0: Receive in-time response from 5002

[21:51:26]-[Server]: Epoch 0: Add in-time response from 5002 to FedAvg pool as min quorum has not reach

[21:51:26]-[Server]: Epoch 0: Receive in-time response from 5003

[21:51:26]-[Server]: Epoch 0: Add in-time response from 5003 to FedAvg pool as min quorum has not reach

[21:51:27]-[Server]: Epoch 0: Receive in-time response from 5004

[21:51:27]-[Server]: Epoch 0: Add in-time response from 5004 to FedAvg pool as min quorum has not reach

[21:51:27]-[Server]: Epoch 0: Receive in-time response from 5005

[21:51:27]-[Server]: Epoch 0: Receive 4 in-time response

[21:51:35]-[Server]: Epoch 0: current accuracy 0.22

[21:51:35]-[Server]: Epoch 0: Do FedAvg with 3 models

[21:51:35]-[Server]: 0 epochs has 5001 in dropout client list

[21:51:35]-[Server]: Epoch 1: Start epoch 1/10

[21:51:35]-[Server]: Rejoin client : 5001

[21:51:35]-[Server]: Epoch 1: Send model to 5001

[21:51:35]-[Server]: Epoch 1: Send model to 5002

[21:51:35]-[Server]: Epoch 1: Send model to 5003

[21:51:35]-[Server]: Epoch 1: Send model to 5004

[21:51:35]-[Server]: Epoch 1: Send model to 5005

[21:51:39]-[Server]: Epoch 1: Receive in-time response from 5001

[21:51:39]-[Server]: Epoch 1: Add in-time response from 5001 to FedAvg pool as min quorum has not reach

[21:51:39]-[Server]: Epoch 1: Receive in-time response from 5003

[21:51:39]-[Server]: Epoch 1: Add in-time response from 5003 to FedAvg pool as min quorum has not reach

[21:51:39]-[Server]: Epoch 1: Receive in-time response from 5002

[21:51:39]-[Server]: Epoch 1: Add in-time response from 5002 to FedAvg pool as min quorum has not reach

[21:51:40]-[Server]: Epoch 1: Receive 3 in-time response

[21:51:48]-[Server]: Epoch 1: current accuracy 0.6

[21:51:48]-[Server]: Epoch 1: Do FedAvg with 3 models

[21:51:48]-[Server]: 1 epochs has 5004 in dropout client list

[21:51:48]-[Server]: 1 epochs has 5005 in dropout client list

[21:51:48]-[Server]: Epoch 2: Start epoch 2/10

[21:51:48]-[Server]: Epoch 2: Send model to 5001

[21:51:48]-[Server]: Epoch 2: Send model to 5002

[21:51:48]-[Server]: Epoch 2: Send model to 5003

[21:51:52]-[Server]: Epoch 2: Receive in-time response from 5002

[21:51:52]-[Server]: Epoch 2: Add in-time response from 5002 to FedAvg pool as min quorum has not reach

[21:51:52]-[Server]: Epoch 2: Receive in-time response from 5001

[21:51:52]-[Server]: Epoch 2: Add in-time response from 5001 to FedAvg pool as min quorum has not reach

[21:51:52]-[Server]: Epoch 2: Receive in-time response from 5003

[21:51:52]-[Server]: Epoch 2: Add in-time response from 5003 to FedAvg pool as min quorum has not reach

[21:51:52]-[Server]: Epoch 2: Receive 3 in-time response

[21:51:52]-[Server]: Epoch 2: current accuracy 0.69

[21:51:52]-[Server]: Epoch 2: Do FedAvg with 3 models

[21:51:52]-[Server]: 2 epochs has 5004 in dropout client list

[21:51:52]-[Server]: 2 epochs has 5005 in dropout client list

[21:51:52]-[Server]: Epoch 3: Start epoch 3/10

[21:51:52]-[Server]: Rejoin client : 5004

[21:51:52]-[Server]: Epoch 3: Send model to 5001

[21:51:52]-[Server]: Epoch 3: Send model to 5002

[21:51:52]-[Server]: Epoch 3: Send model to 5003

[21:51:52]-[Server]: Epoch 3: Send model to 5004

[21:51:56]-[Server]: Epoch 3: Receive in-time response from 5004

[21:51:56]-[Server]: Epoch 3: Add in-time response from 5004 to FedAvg pool as min quorum has not reach

[21:51:56]-[Server]: Epoch 3: Receive in-time response from 5001

[21:51:56]-[Server]: Epoch 3: Add in-time response from 5001 to FedAvg pool as min quorum has not reach

[21:51:56]-[Server]: Epoch 3: Receive in-time response from 5003

[21:51:56]-[Server]: Epoch 3: Add in-time response from 5003 to FedAvg pool as min quorum has not reach

[21:51:56]-[Server]: Epoch 3: Receive in-time response from 5002

[21:51:56]-[Server]: Epoch 3: Receive 4 in-time response

[21:51:56]-[Server]: Epoch 3: current accuracy 0.69

[21:51:56]-[Server]: Epoch 3: Do FedAvg with 3 models

[21:51:56]-[Server]: 3 epochs has 5005 in dropout client list

[21:51:56]-[Server]: Epoch 4: Start epoch 4/10

[21:51:56]-[Server]: Rejoin client : 5005

[21:51:56]-[Server]: Epoch 4: Send model to 5001

[21:51:56]-[Server]: Epoch 4: Send model to 5002

[21:51:56]-[Server]: Epoch 4: Send model to 5003

[21:51:56]-[Server]: Epoch 4: Send model to 5004

[21:51:56]-[Server]: Epoch 4: Send model to 5005

[21:52:01]-[Server]: Epoch 4: Receive in-time response from 5001

[21:52:01]-[Server]: Epoch 4: Add in-time response from 5001 to FedAvg pool as min quorum has not reach

[21:52:01]-[Server]: Epoch 4: Receive in-time response from 5003

[21:52:01]-[Server]: Epoch 4: Add in-time response from 5003 to FedAvg pool as min quorum has not reach

[21:52:01]-[Server]: Epoch 4: Receive in-time response from 5002

[21:52:01]-[Server]: Epoch 4: Add in-time response from 5002 to FedAvg pool as min quorum has not reach

[21:52:01]-[Server]: Epoch 4: Receive in-time response from 5005

[21:52:01]-[Server]: Epoch 4: Receive in-time response from 5004

[21:52:01]-[Server]: Epoch 4: Receive 5 in-time response

[21:52:01]-[Server]: Epoch 4: current accuracy 0.81

[21:52:01]-[Server]: Epoch 4: Do FedAvg with 3 models

[21:52:01]-[Server]: Epoch 5: Start epoch 5/10

[21:52:01]-[Server]: Epoch 5: Send model to 5001

[21:52:01]-[Server]: Epoch 5: Send model to 5002

[21:52:01]-[Server]: Epoch 5: Send model to 5003

[21:52:01]-[Server]: Epoch 5: Send model to 5004

[21:52:01]-[Server]: Epoch 5: Send model to 5005

[21:52:05]-[Server]: Epoch 5: Receive in-time response from 5001

[21:52:05]-[Server]: Epoch 5: Add in-time response from 5001 to FedAvg pool as min quorum has not reach

[21:52:05]-[Server]: Epoch 5: Receive in-time response from 5002

[21:52:05]-[Server]: Epoch 5: Add in-time response from 5002 to FedAvg pool as min quorum has not reach

[21:52:06]-[Server]: Epoch 5: Receive in-time response from 5005

[21:52:06]-[Server]: Epoch 5: Add in-time response from 5005 to FedAvg pool as min quorum has not reach

[21:52:06]-[Server]: Epoch 5: Receive in-time response from 5004

[21:52:06]-[Server]: Epoch 5: Receive in-time response from 5003

[21:52:06]-[Server]: Epoch 5: Receive 5 in-time response

[21:52:06]-[Server]: Epoch 5: current accuracy 0.78

[21:52:06]-[Server]: Epoch 5: Do FedAvg with 3 models

[21:52:06]-[Server]: Epoch 6: Start epoch 6/10

[21:52:06]-[Server]: Epoch 6: Send model to 5001

[21:52:06]-[Server]: Epoch 6: Send model to 5002

[21:52:06]-[Server]: Epoch 6: Send model to 5003

[21:52:06]-[Server]: Epoch 6: Send model to 5004

[21:52:06]-[Server]: Epoch 6: Send model to 5005

[21:52:10]-[Server]: Epoch 6: Receive in-time response from 5005

[21:52:10]-[Server]: Epoch 6: Add in-time response from 5005 to FedAvg pool as min quorum has not reach

[21:52:10]-[Server]: Epoch 6: Receive in-time response from 5003

[21:52:10]-[Server]: Epoch 6: Add in-time response from 5003 to FedAvg pool as min quorum has not reach

[21:52:10]-[Server]: Epoch 6: Receive in-time response from 5004

[21:52:10]-[Server]: Epoch 6: Add in-time response from 5004 to FedAvg pool as min quorum has not reach

[21:52:10]-[Server]: Epoch 6: Receive in-time response from 5002

[21:52:11]-[Server]: Epoch 6: Receive 4 in-time response

[21:52:18]-[Server]: Epoch 6: current accuracy 0.87

[21:52:18]-[Server]: Epoch 6: Do FedAvg with 3 models

[21:52:18]-[Server]: 6 epochs has 5001 in dropout client list

[21:52:18]-[Server]: Epoch 7: Start epoch 7/10

[21:52:18]-[Server]: Epoch 7: Send model to 5002

[21:52:18]-[Server]: Epoch 7: Send model to 5003

[21:52:18]-[Server]: Epoch 7: Send model to 5004

[21:52:18]-[Server]: Epoch 7: Send model to 5005

[21:52:23]-[Server]: Epoch 7: Receive in-time response from 5004

[21:52:23]-[Server]: Epoch 7: Add in-time response from 5004 to FedAvg pool as min quorum has not reach

[21:52:23]-[Server]: Epoch 7: Receive in-time response from 5003

[21:52:23]-[Server]: Epoch 7: Add in-time response from 5003 to FedAvg pool as min quorum has not reach

[21:52:23]-[Server]: Epoch 7: Receive in-time response from 5002

[21:52:23]-[Server]: Epoch 7: Add in-time response from 5002 to FedAvg pool as min quorum has not reach

[21:52:23]-[Server]: Epoch 7: Receive in-time response from 5005

[21:52:23]-[Server]: Epoch 7: Receive 4 in-time response

[21:52:23]-[Server]: Epoch 7: current accuracy 0.88

[21:52:23]-[Server]: Epoch 7: Do FedAvg with 3 models

[21:52:23]-[Server]: 7 epochs has 5001 in dropout client list

[21:52:23]-[Server]: Epoch 8: Start epoch 8/10

[21:52:23]-[Server]: Epoch 8: Send model to 5002

[21:52:23]-[Server]: Epoch 8: Send model to 5003

[21:52:23]-[Server]: Epoch 8: Send model to 5004

[21:52:23]-[Server]: Epoch 8: Send model to 5005

[21:52:27]-[Server]: Epoch 8: Receive in-time response from 5004

[21:52:27]-[Server]: Epoch 8: Add in-time response from 5004 to FedAvg pool as min quorum has not reach

[21:52:27]-[Server]: Epoch 8: Receive in-time response from 5002

[21:52:27]-[Server]: Epoch 8: Add in-time response from 5002 to FedAvg pool as min quorum has not reach

[21:52:27]-[Server]: Epoch 8: Receive in-time response from 5005

[21:52:27]-[Server]: Epoch 8: Add in-time response from 5005 to FedAvg pool as min quorum has not reach

[21:52:27]-[Server]: Epoch 8: Receive in-time response from 5003

[21:52:27]-[Server]: Epoch 8: Receive 4 in-time response

[21:52:27]-[Server]: Epoch 8: current accuracy 0.86

[21:52:27]-[Server]: Epoch 8: Do FedAvg with 3 models

[21:52:27]-[Server]: 8 epochs has 5001 in dropout client list

[21:52:27]-[Server]: Epoch 9: Start epoch 9/10

[21:52:27]-[Server]: Rejoin client : 5001

[21:52:27]-[Server]: Epoch 9: Send model to 5001

[21:52:27]-[Server]: Epoch 9: Send model to 5002

[21:52:27]-[Server]: Epoch 9: Send model to 5003

[21:52:27]-[Server]: Epoch 9: Send model to 5004

[21:52:27]-[Server]: Epoch 9: Send model to 5005

[21:52:32]-[Server]: Epoch 9: Not enough quorum before timeout (0/3)

[21:52:40]-[Server]: Federated learning aborts at epoch 9 for not enough quorum

[21:52:40]-[Server]: Federated learning ends after 9 epochs with accuracy 0.86