control_experiment_5G_A3_recent

May 29, 2025

[12]:
```
import importlib
import src.plots

importlib.reload(src.plots)
```

[12]:
```
<module 'src.plots' from '/Users/milenaangelova/git-
repo/FedCluLearn/src/plots.py'>
```

[13]:
```
from src.plots import plot_plotly, preprocessing_results
```

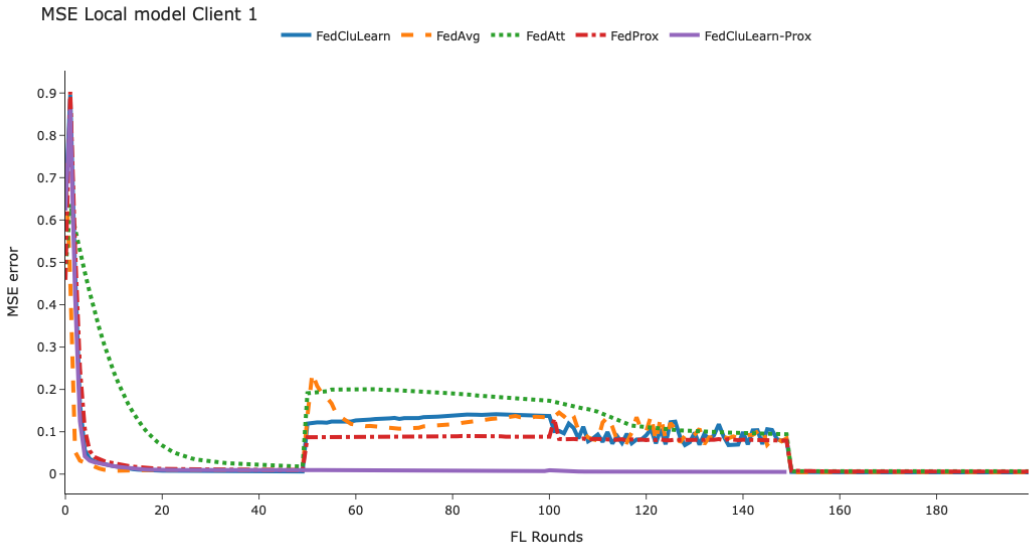
[14]:
```
local_FedAvg = 'results/results_FedAvg_2025-02-07 12:00:47.595969.txt'
global_FedAvg = 'results/global_model_evaluation_FedAvg_2025-02-07 12:00:47.
 ↪595969.txt'
local_FedCluLearn = 'results/results_FedCluLearn_2025-02-07 15:14:25.180267.txt'
global_FedCluLearn = 'results/global_model_evaluation_FedCluLearn_2025-02-07 15:
 ↪14:25.180267.txt'

local_FedAtt = 'results/results_FedAtt_2025-02-15 16:34:45.104528.txt'
global_FedAtt = 'results/global_model_evaluation_FedAtt_2025-02-15 16:34:45.
 ↪104528.txt'
local_FedProx = 'results/results_FedProx_2025-02-16 09:25:39.935276.txt'
global_FedProx = 'results/global_model_evaluation_FedProx_2025-02-16 09:25:39.
 ↪935276.txt'
local_FedCluLearn_Prox = 'results/results_FedCluLearn_Prox_2025-02-26 12:13:55.
 ↪152525.txt'
global_FedCluLearn_Prox = 'results/
 ↪global_model_evaluation_FedCluLearn_Prox_2025-02-26 12:13:55.152525.txt'
```

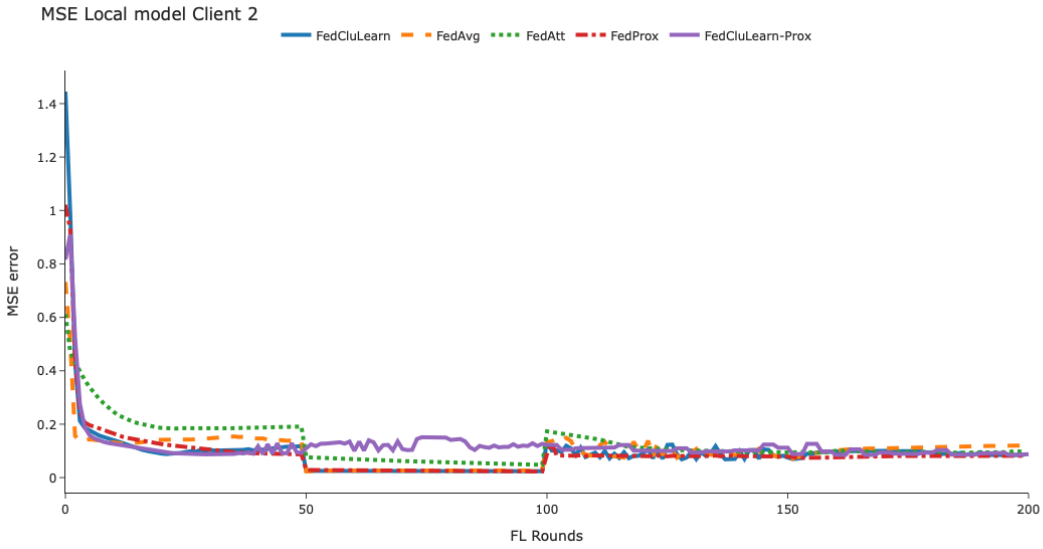
[15]:
```
local_filenames = [local_FedCluLearn, local_FedAvg, local_FedAtt,␣
 ↪local_FedProx, local_FedCluLearn_Prox]
global_filenames = [global_FedCluLearn, global_FedAvg, global_FedAtt,␣
 ↪global_FedProx, global_FedCluLearn_Prox]
```

[16]:
```
mse_column = 'mse'
n_rounds, y = preprocessing_results(filenames=local_filenames,␣
 ↪mse_column=mse_column)
```

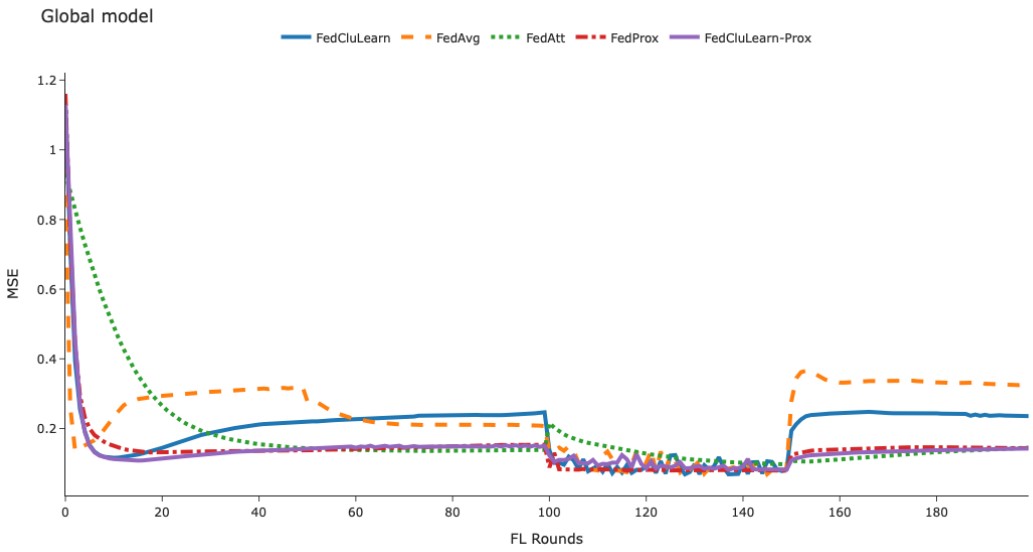
```
plot_plotly(n_rounds, y, title='Avg MSE Local models',␣
 ↪y_axis_title=f'{mse_column.upper()} error', y_axis_max=0.3)
```

[17]:
```
for client_id in [0,1,2]:
    n_rounds, y = preprocessing_results(filenames=local_filenames,␣
 ↪client_id=client_id, mse_column='mse')
    plot_plotly(n_rounds, y, title=f'MSE Local model Client {client_id}',␣
 ↪y_axis_title='MSE error')
```

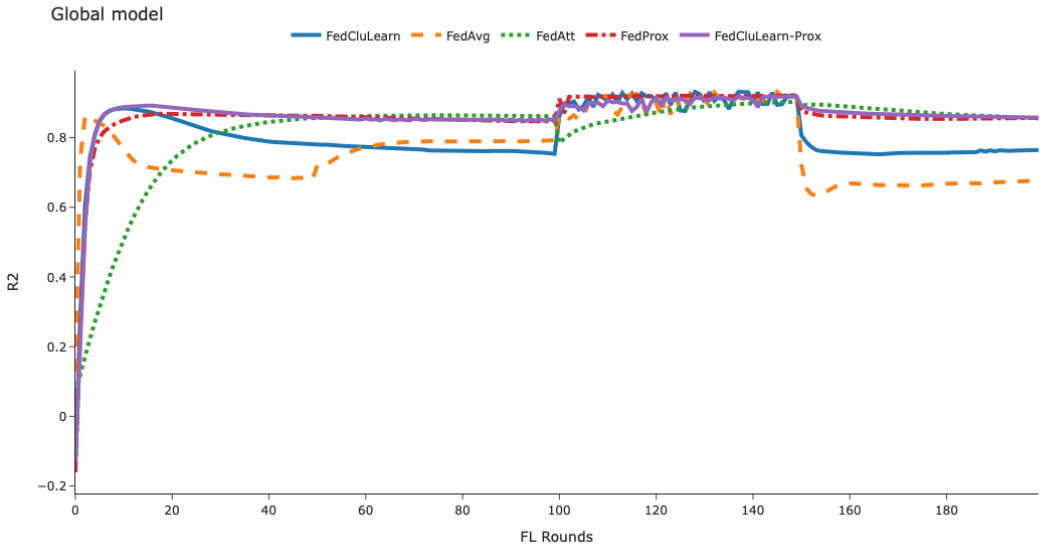




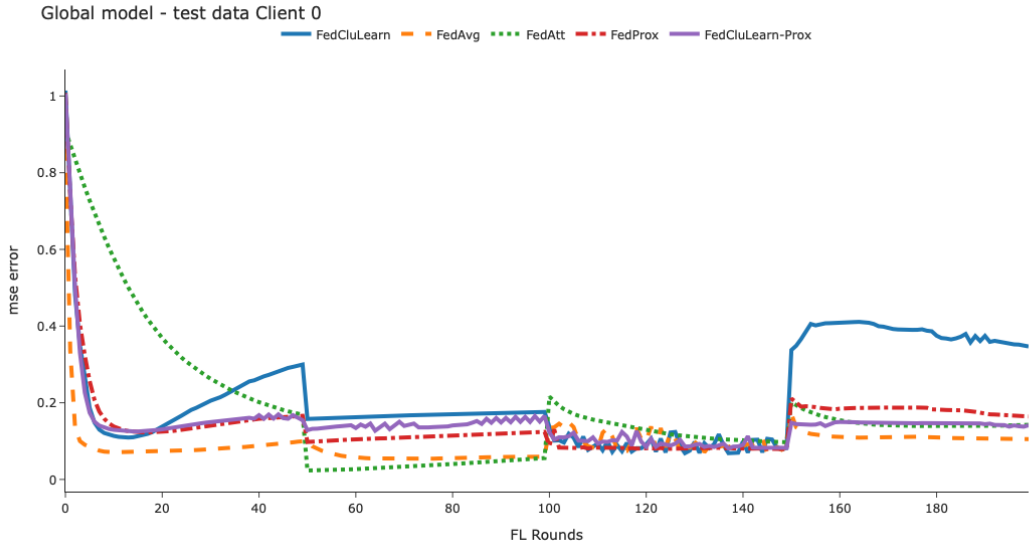
[18]:
```
mse_column = 'mse'
# n_rounds, y = preprocessing_results(filenames=[global_FedCluLearn,␣
 ↪global_FedCluLearn_recent, global_FedCluLearn_percentage, global_FedAvg,␣
 ↪global_FedAtt, global_FedProx, global_FedCluLearn_Prox,␣
 ↪global_FedCluLearn_Prox_recent, None], mse_column=mse_column)
# global_filenames = [global_FedCluLearn, global_FedAvg, global_FedAtt,␣
 ↪global_FedProx, global_FedCluLearn_Prox]
global_filenames = [global_FedCluLearn, global_FedAvg, global_FedAtt,␣
 ↪global_FedProx, global_FedCluLearn_Prox]
n_rounds, y = preprocessing_results(filenames=global_filenames,␣
 ↪mse_column=mse_column)
#Avg {mse_column.upper()} Global model
plot_plotly(n_rounds, y, title=f'Global model', y_axis_title=f'{mse_column.
 ↪upper()}', y_axis_max=1)
```

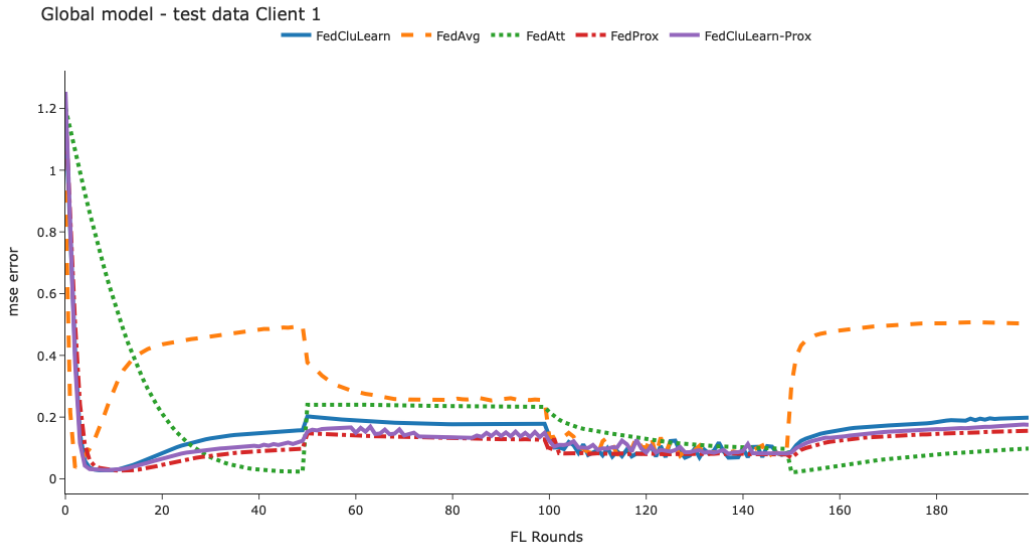


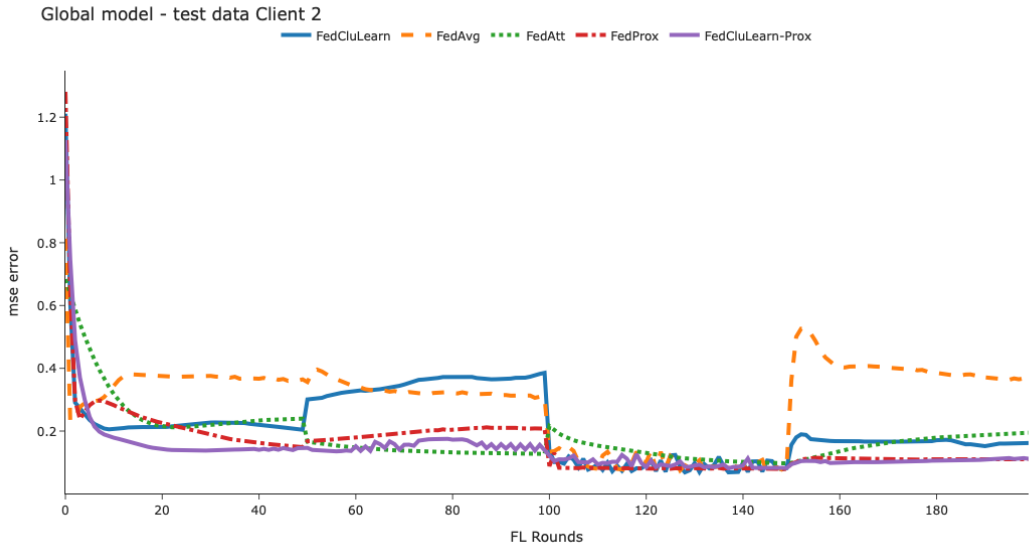
[19]:
```
mse_column = 'r2'
global_filenames = [global_FedCluLearn, global_FedAvg, global_FedAtt,␣
 ↪global_FedProx, global_FedCluLearn_Prox]
n_rounds, y = preprocessing_results(filenames=global_filenames,␣
 ↪mse_column=mse_column)
plot_plotly(n_rounds, y, title=f'Global model', y_axis_title=f'{mse_column.
 ↪upper()}', y_axis_max=1)
```



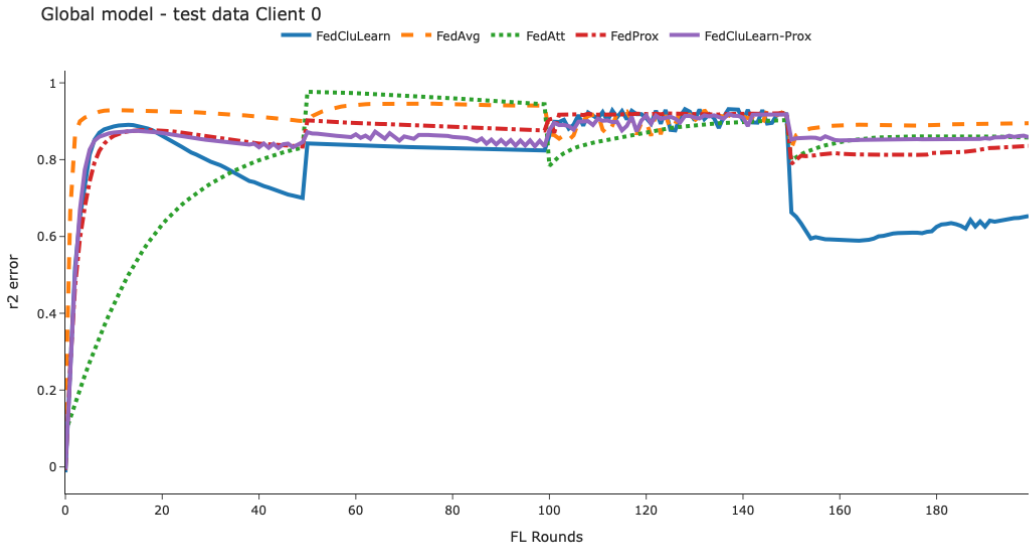
[20]:
```
mse_column='mse'
for client_id in [0,1,2]:
    n_rounds, y = preprocessing_results(filenames=global_filenames,␣
 ↪client_id=client_id,mse_column=mse_column)
    plot_plotly(n_rounds, y, title=f'Global model - test data Client␣
 ↪{client_id}', y_axis_title=f'{mse_column} error')
```

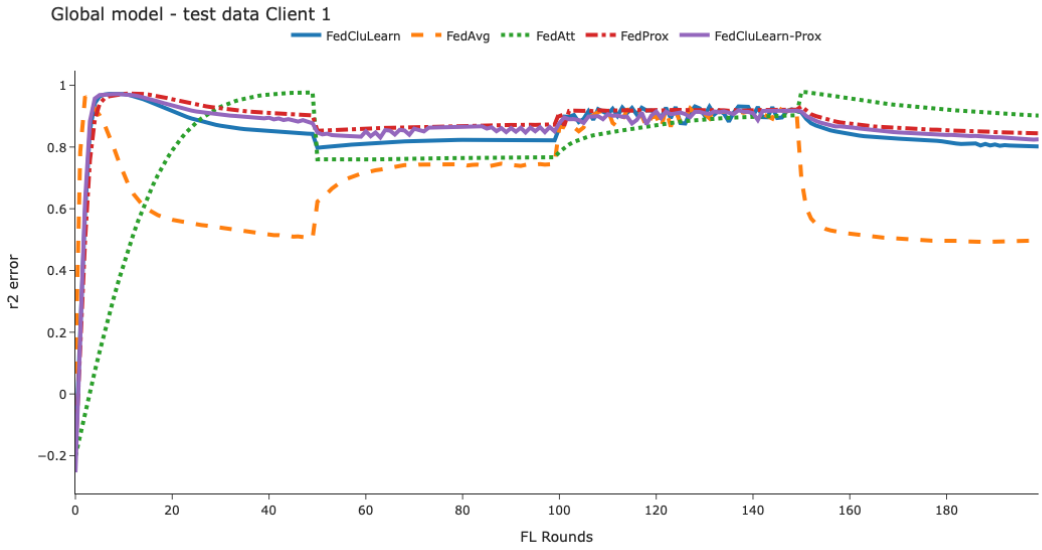


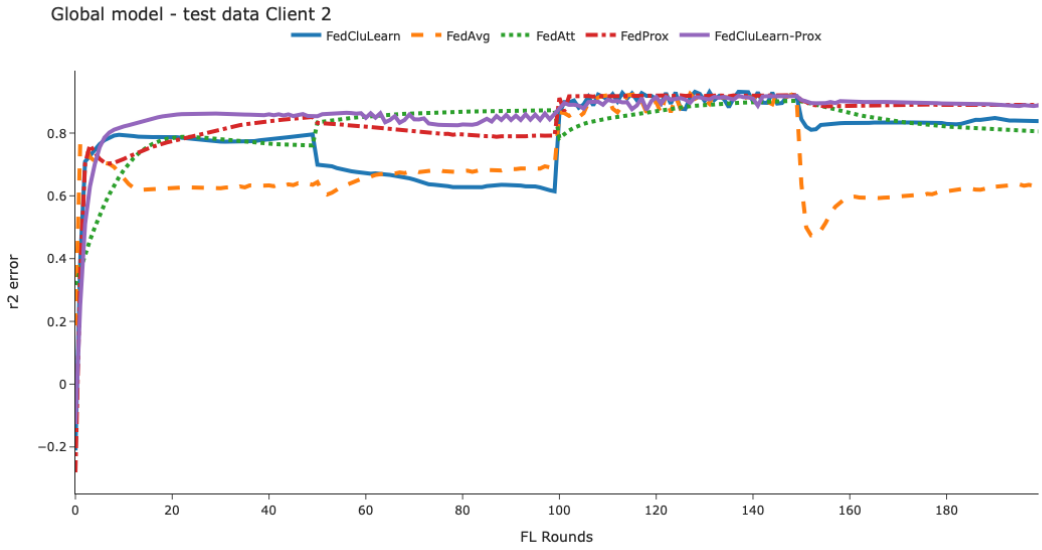




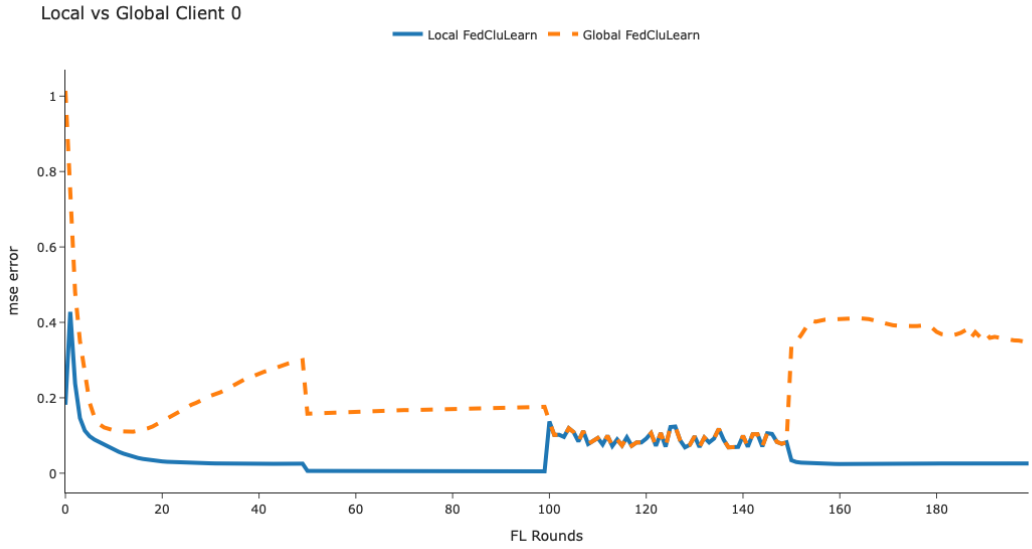
[21]:
```
mse_column='r2'
for client_id in [0,1,2]:
    n_rounds, y = preprocessing_results(filenames=global_filenames,␣
 ↪client_id=client_id,mse_column=mse_column)
    plot_plotly(n_rounds, y, title=f'Global model - test data Client␣
 ↪{client_id}', y_axis_title=f'{mse_column} error')
```

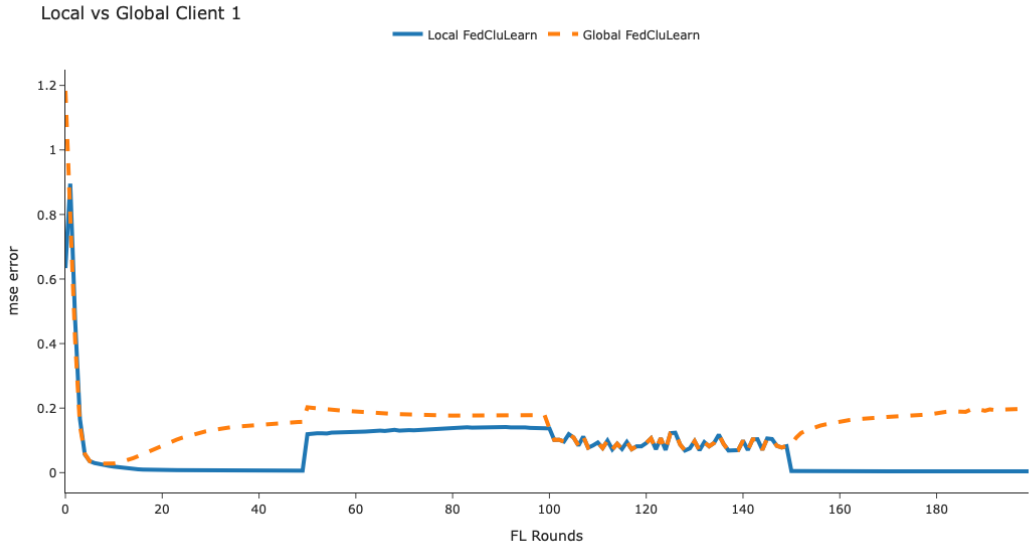

Global model - test data Client 0
FedCluLearn
FedAvg
FedAtt
FedProx
FedCluLearn-Prox
r2 error
FL Rounds

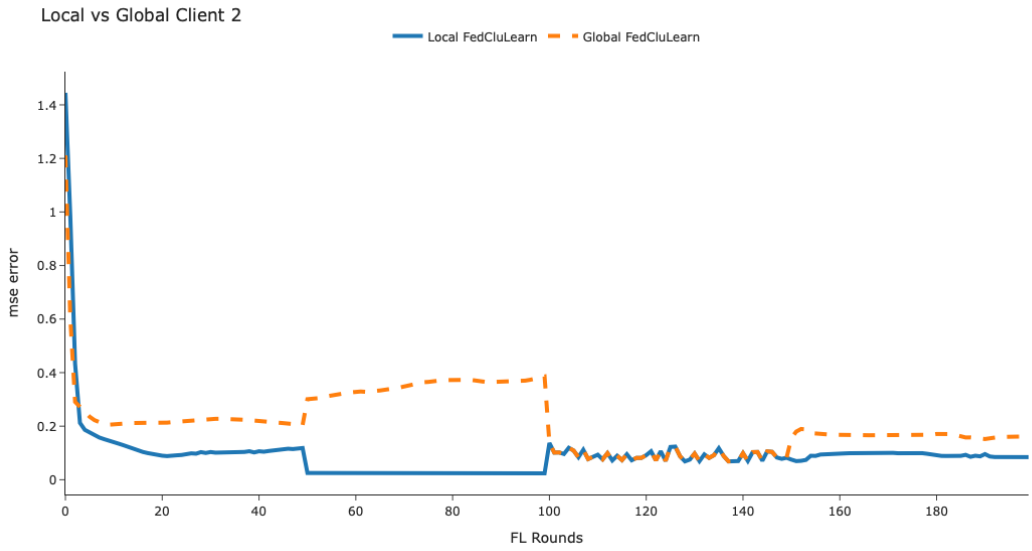

Global model - test data Client 1
FedCluLearn
FedAvg
FedAtt
FedProx
FedCluLearn-Prox
r2 error
FL Rounds



[22]:
```
mse_column='mse'
for client_id in [0,1,2]:
    n_rounds, y = preprocessing_results(filenames=[local_FedCluLearn,␣
 ↪global_FedCluLearn, None, None, None],␣
 ↪client_id=client_id,mse_column=mse_column)
    plot_plotly(n_rounds, y, title=f'Local vs Global Client {client_id}',␣
 ↪y_axis_title=f'{mse_column} error', algo_name1='Local FedCluLearn',␣
 ↪algo_name4='Global FedCluLearn')
```




Local vs Global Client 1
Local FedCluLearn
Global FedCluLearn
mse error
FL Rounds
0
0.2
0.4
0.6
0.8
1
1.2
0
20
40
60
80
100
120
140
160
180


Local vs Global Client 2
Local FedCluLearn
Global FedCluLearn
mse error
FL Rounds
0
0.2
0.4
0.6
0.8
1
1.2
1.4
0
20
40
60
80
100
120
140
160
180