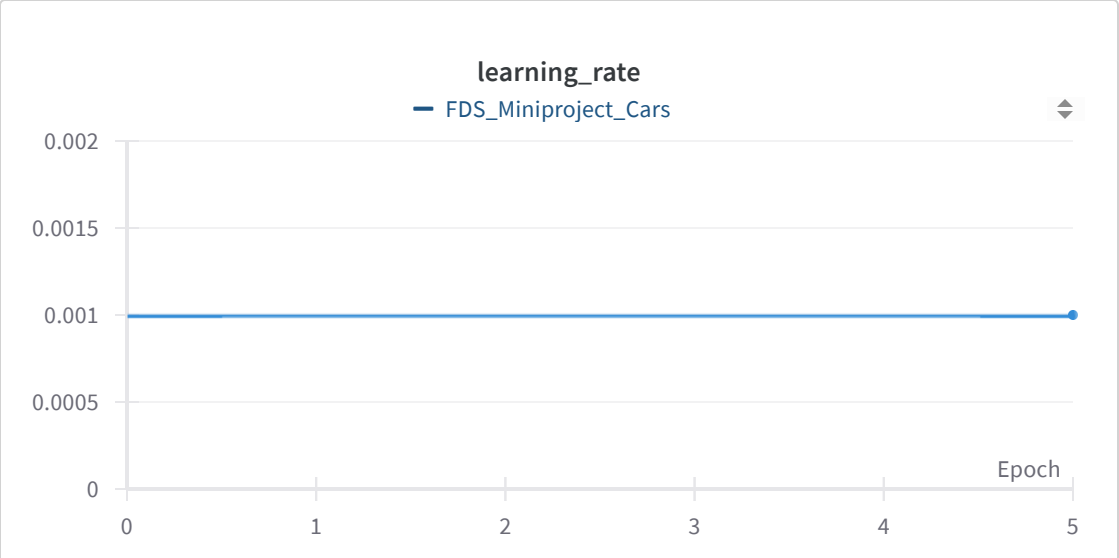
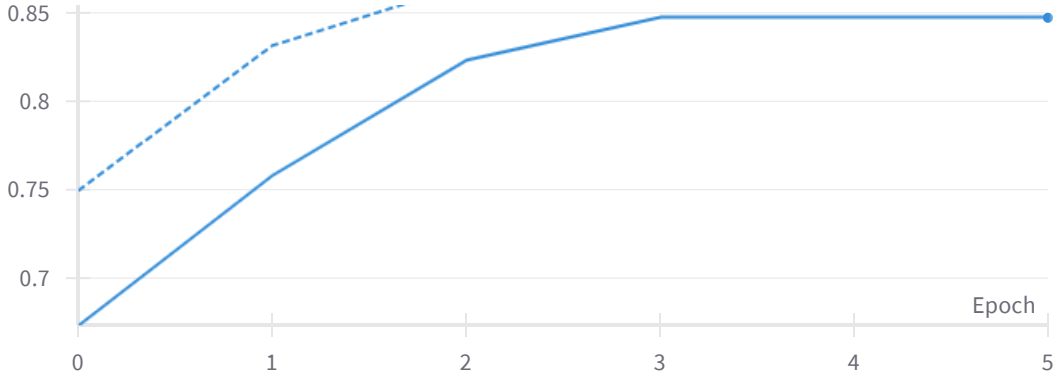
Dynamic Graph Convolutional Neural Network on ShapeNet's Cars Class

DGCNN (Dynamic Graph Convolutional Neural Network) operates on ShapeNet's 3D Cars class model using graph convolutions, extracting relationships among points. By discerning local and global features, it excels in 3D shape classification, segmentation, and retrieval tasks. Leveraging ShapeNet's diverse dataset, DGCNN demonstrates robust performance in understanding and processing complex 3D structures, establishing itself as a formidable model for tasks involving 3D object analysis and recognition.

Mirsha Morningstar

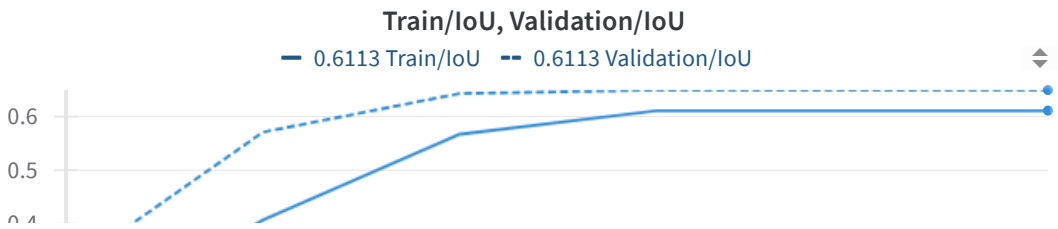
Performance Metrics

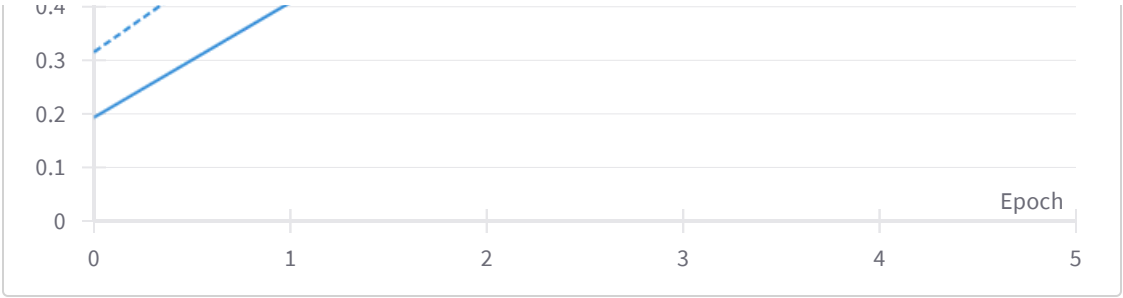




FDS_Miniproject_Cars

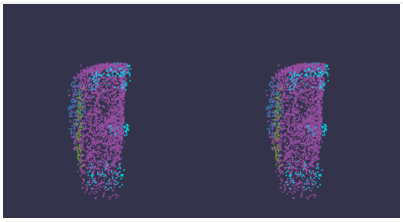
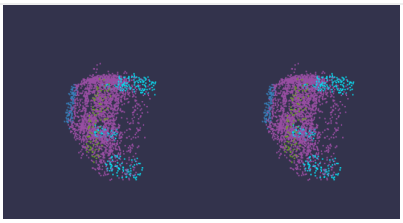
META	
runtime	22m 56s
CONFIG (19 collapsed)	
SUMMARY	
Evaluation	table-file
Train	
Accuracy	0.8472
IoU	0.6113
Loss	0.3845
Validation	
Accuracy	0.8703
IoU	0.6497
Loss	0.3115
_runtime	1370.483
_step	5
_timestamp	1705894665.895
_wandb	
runtime	1368
learning_rate	0.001





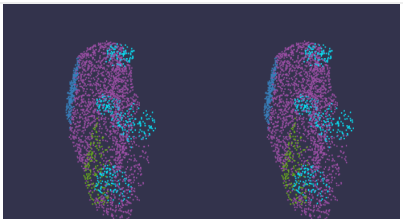
Visualization

runs.summary["Evaluation"]

	Epoch	Ground-Truth	Prediction	Accuracy	IoU
6	1			0.8183	0.2848
7	1			0.7988	0.277

6 - 7 of 40 Export as CSV Columns... Reset t

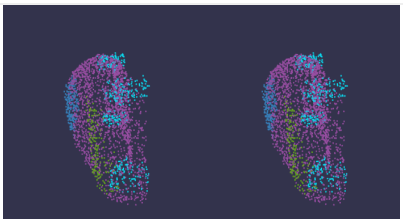
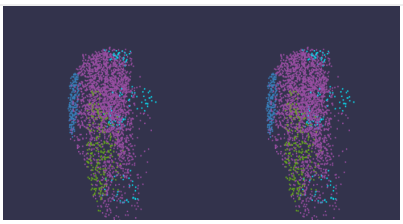
runs.summary["Evaluation"]

	Epoch	Ground-Truth	Prediction	Accuracy	IoU
12	2			0.8722	0.7182
	2			0.8326	0.4954

13					

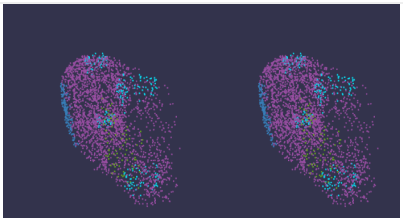
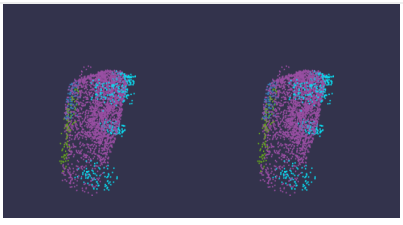
12 - 13 of 40 Export as CSV Columns... Reset

runs.summary["Evaluation"]

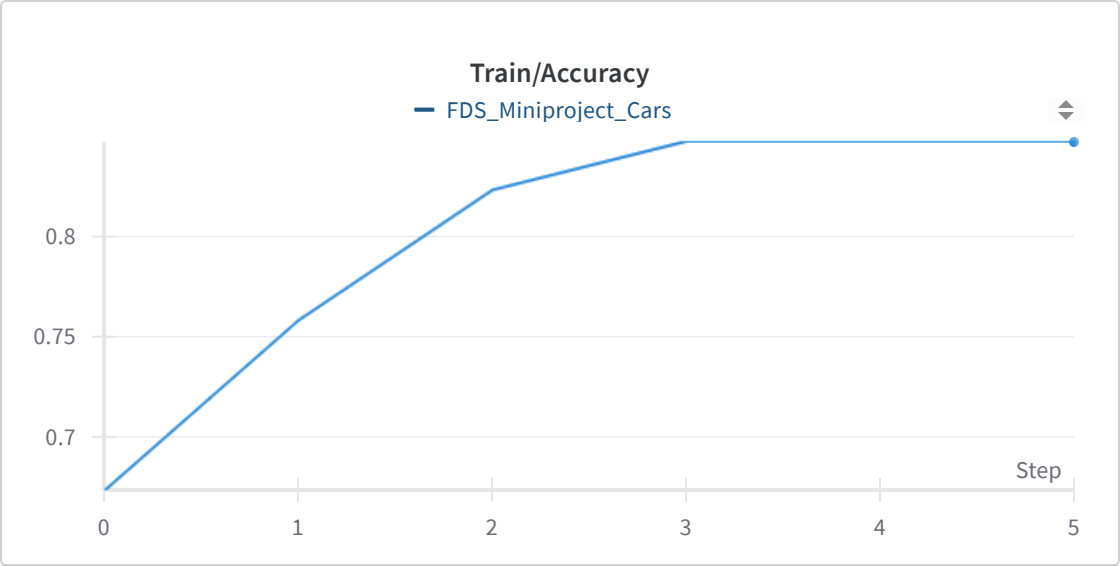
	Epoch	Ground-Truth	Prediction	Accuracy	IoU
22	3			0.8991	0.7625
23	3			0.8711	0.6177

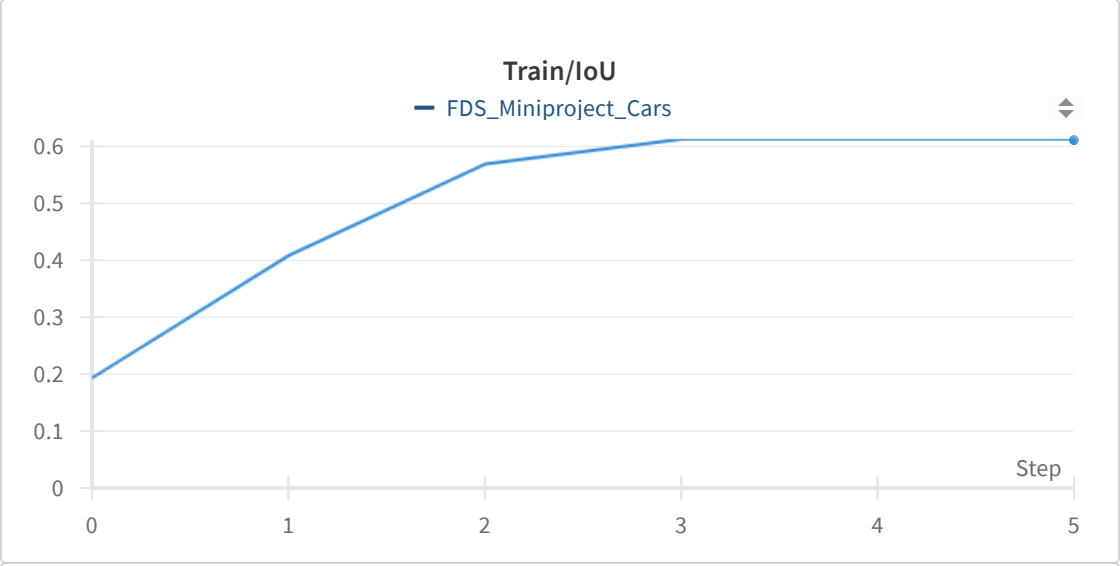
22 - 23 of 40 Export as CSV Columns... Reset

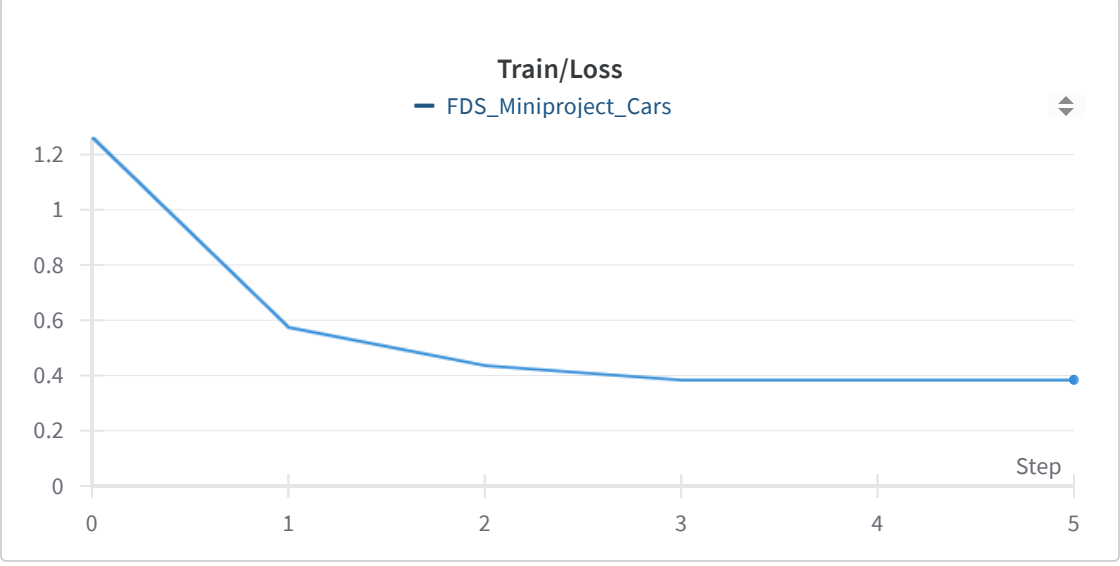
runs.summary["Evaluation"]

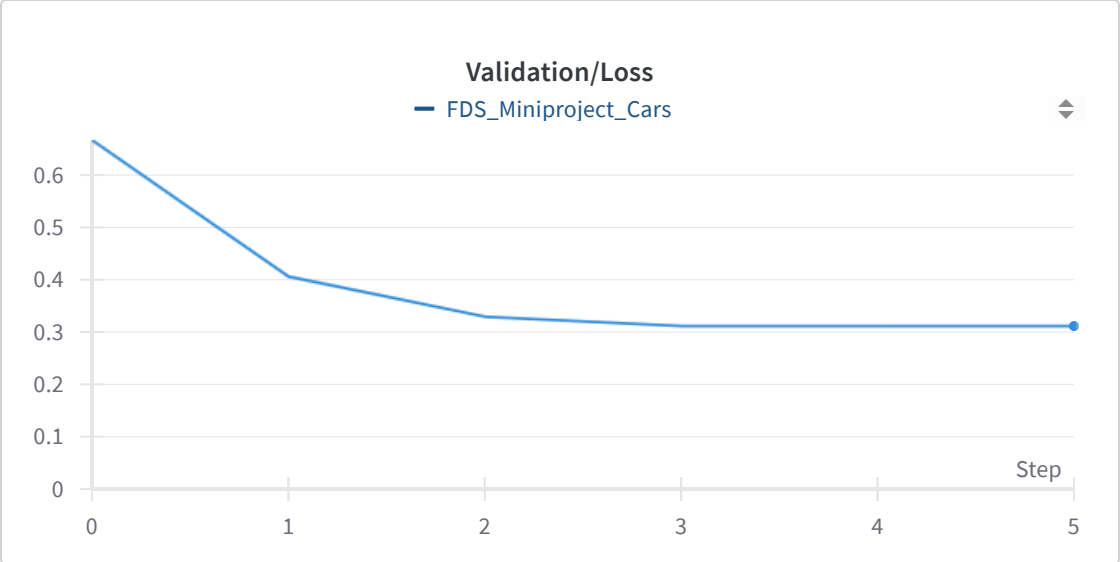
	Epoch	Ground-Truth	Prediction	Accuracy	IoU
36	4			0.8964	0.6769
37	4			0.895	0.6557

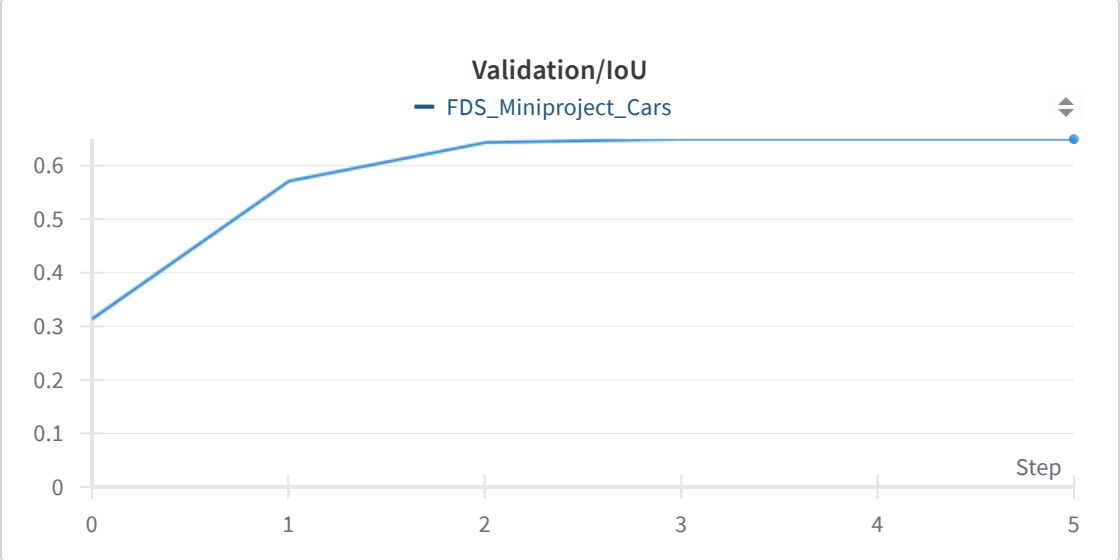
36 - 37 of 40 Export as CSV Columns... Reset

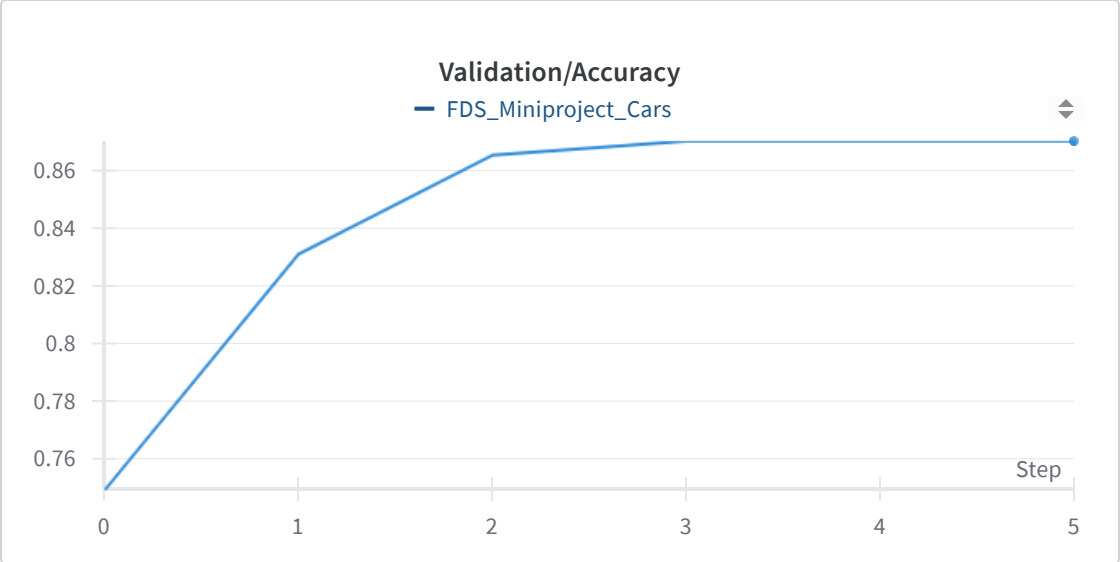

Train/Accuracy
FDS_Miniproject_Cars
0.8
0.75
0.7
Step
0
1
2
3
4
5

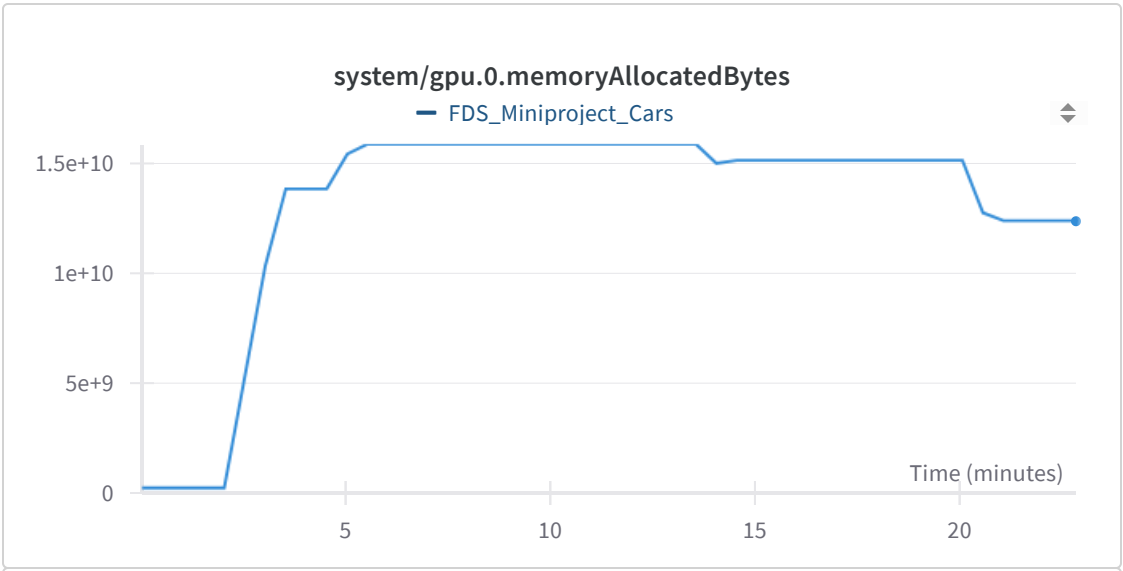

Train/IoU
FDS_Miniproject_Cars
0.6
0.5
0.4
0.3
0.2
0.1
0
Step
0
1
2
3
4
5

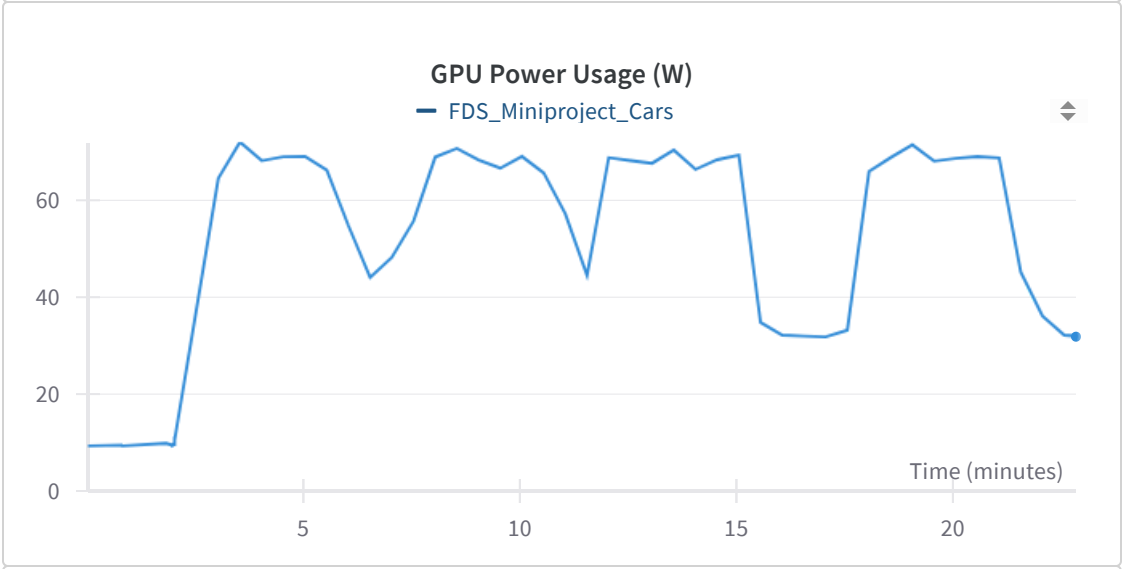

Train/Loss
FDS_Miniproject_Cars
1.2
1
0.8
0.6
0.4
0.2
0
Step
0
1
2
3
4
5

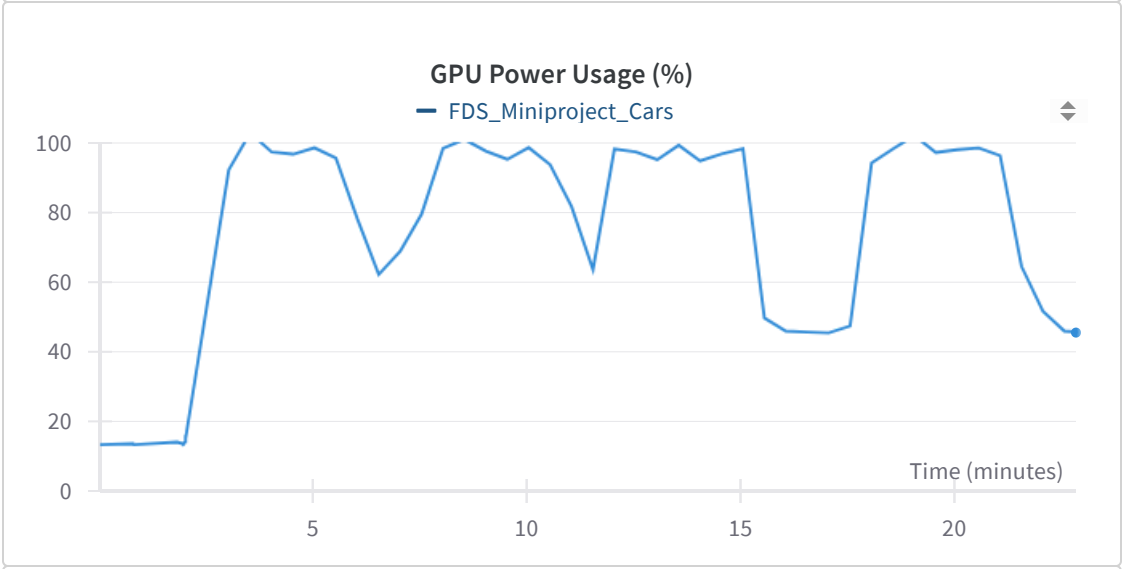

Validation/Loss
FDS_Miniproject_Cars
0.6
0.5
0.4
0.3
0.2
0.1
0
Step
0
1
2
3
4
5

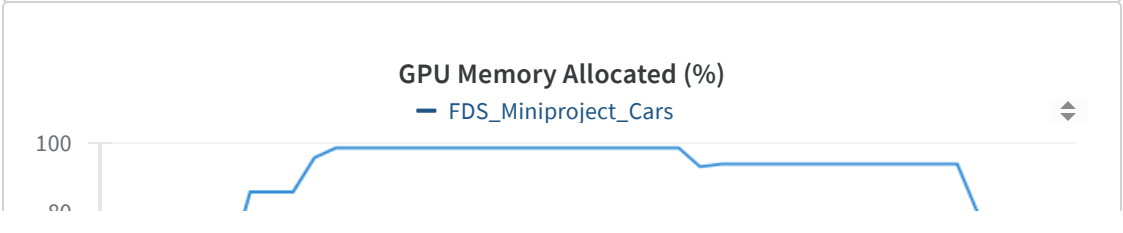

Validation/IoU
FDS_Miniproject_Cars
0.6
0.5
0.4
0.3
0.2
0.1
0
Step
0
1
2
3
4
5

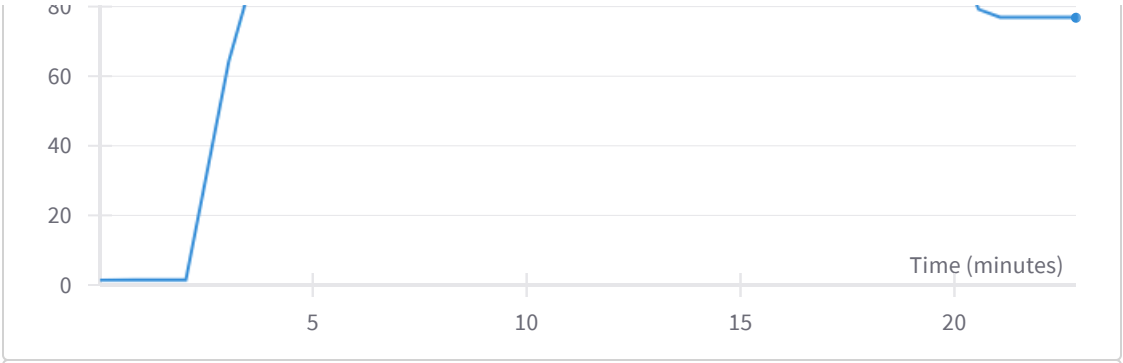

Validation/Accuracy
FDS_Miniproject_Cars
0.86
0.84
0.82
0.8
0.78
0.76
Step
0
1
2
3
4
5

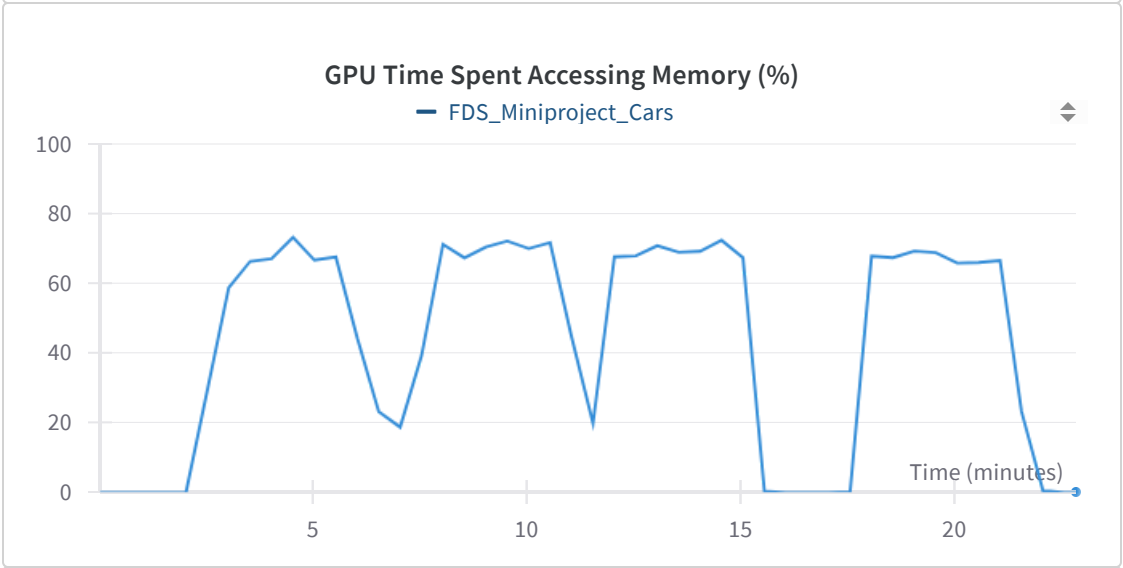

system/gpu.0.memoryAllocatedBytes
FDS_Miniproject_Cars
1.5e+10
1e+10
5e+9
0
Time (minutes)
5
10
15
20

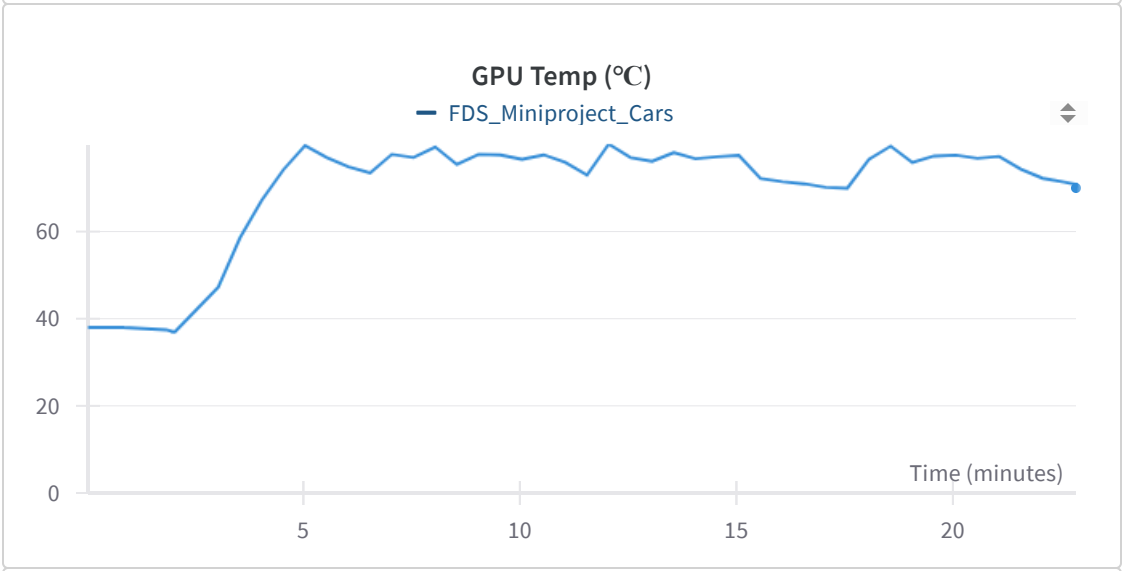

GPU Power Usage (W)
FDS_Miniproject_Cars
60
40
20
0
Time (minutes)
5
10
15
20

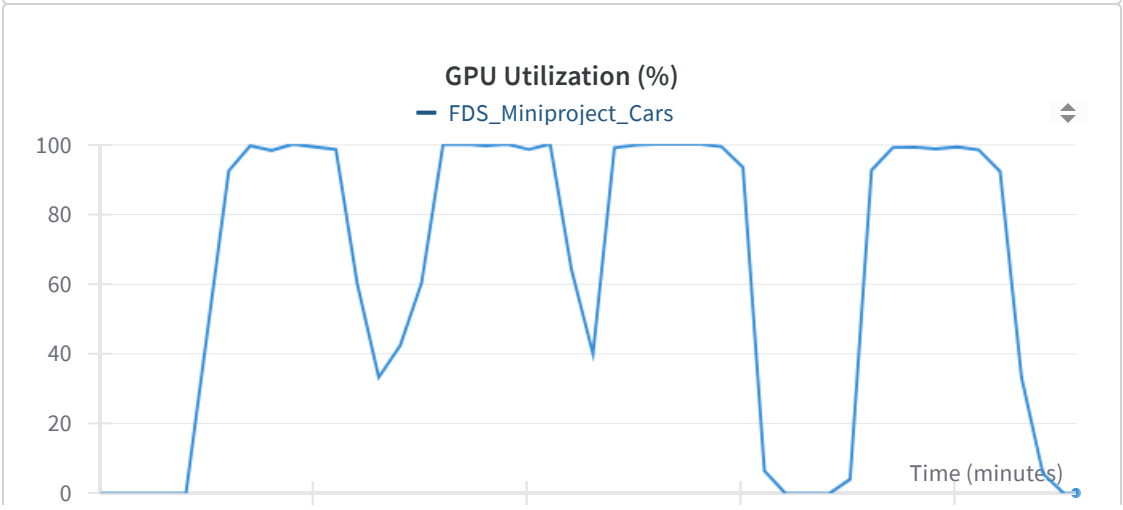

GPU Power Usage (%)
FDS_Miniproject_Cars
100
80
60
40
20
0
Time (minutes)
5
10
15
20

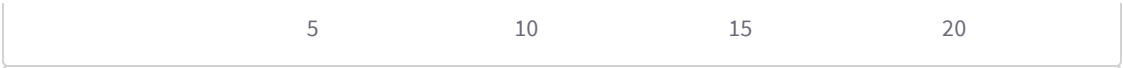

GPU Memory Allocated (%)
FDS_Miniproject_Cars
100

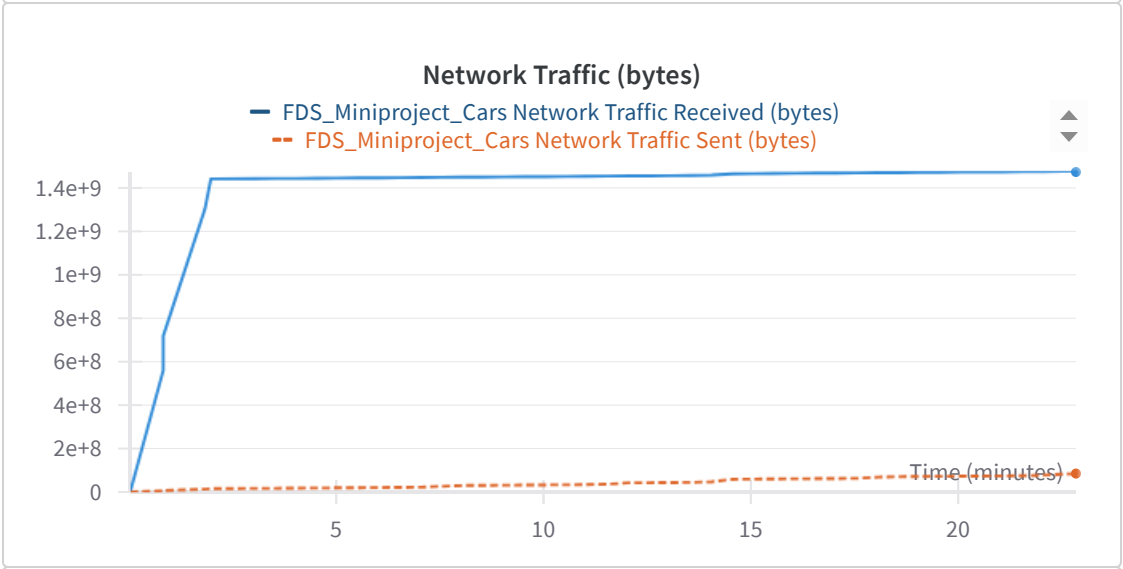

80
60
40
20
0
Time (minutes)
5
10
15
20

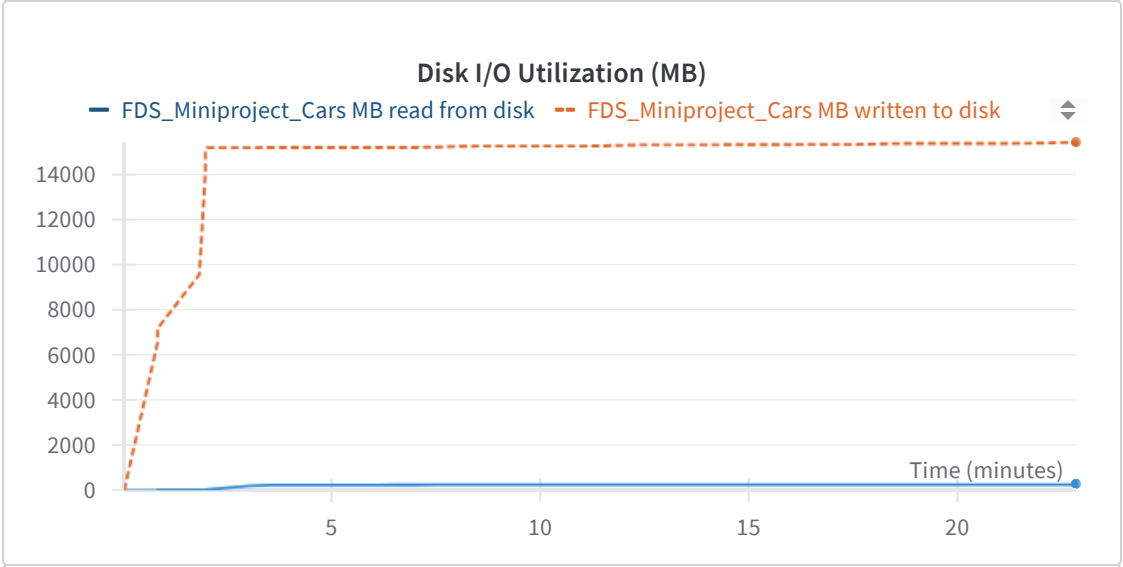

GPU Time Spent Accessing Memory (%)
FDS_Miniproject_Cars
100
80
60
40
20
0
Time (minutes)
5
10
15
20

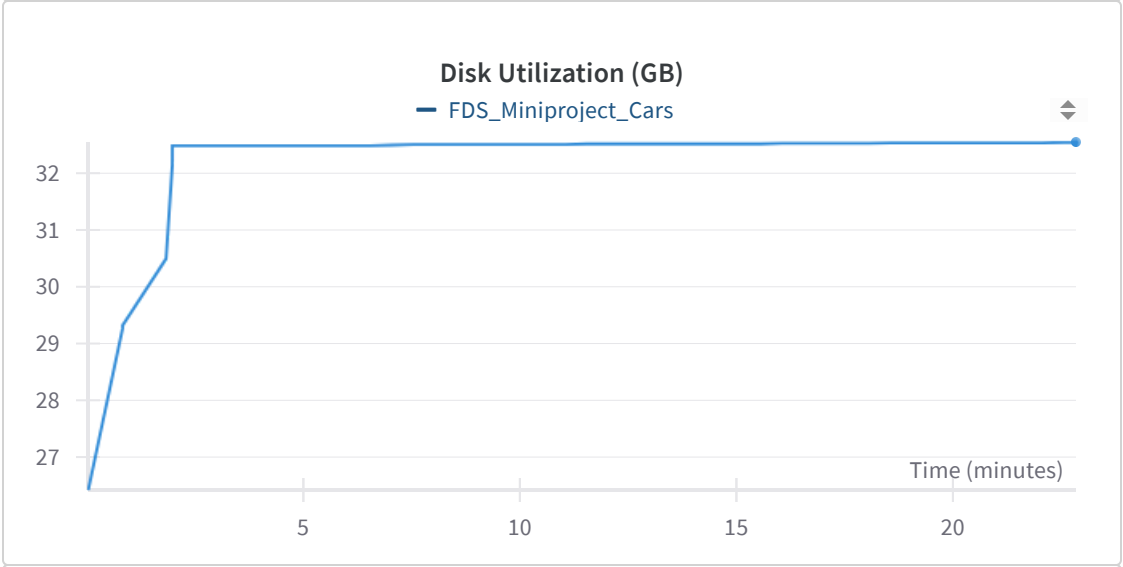

GPU Temp (℃)
FDS_Miniproject_Cars
60
40
20
0
Time (minutes)
5
10
15
20

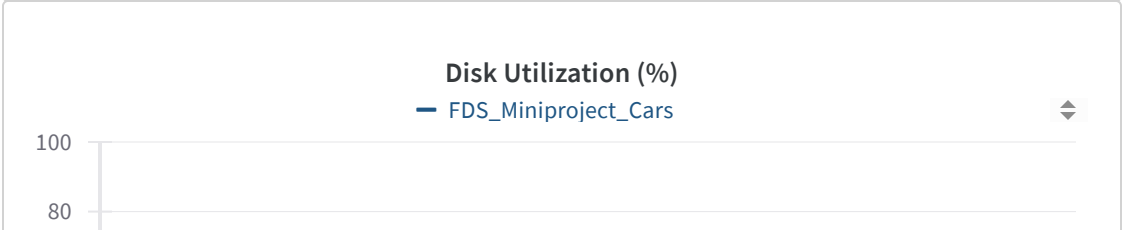

GPU Utilization (%)
FDS_Miniproject_Cars
100
80
60
40
20
0
Time (minutes)

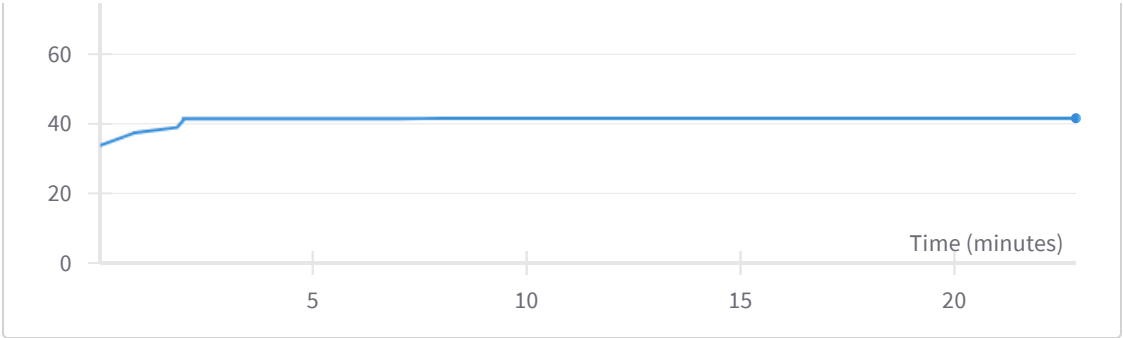

5
10
15
20

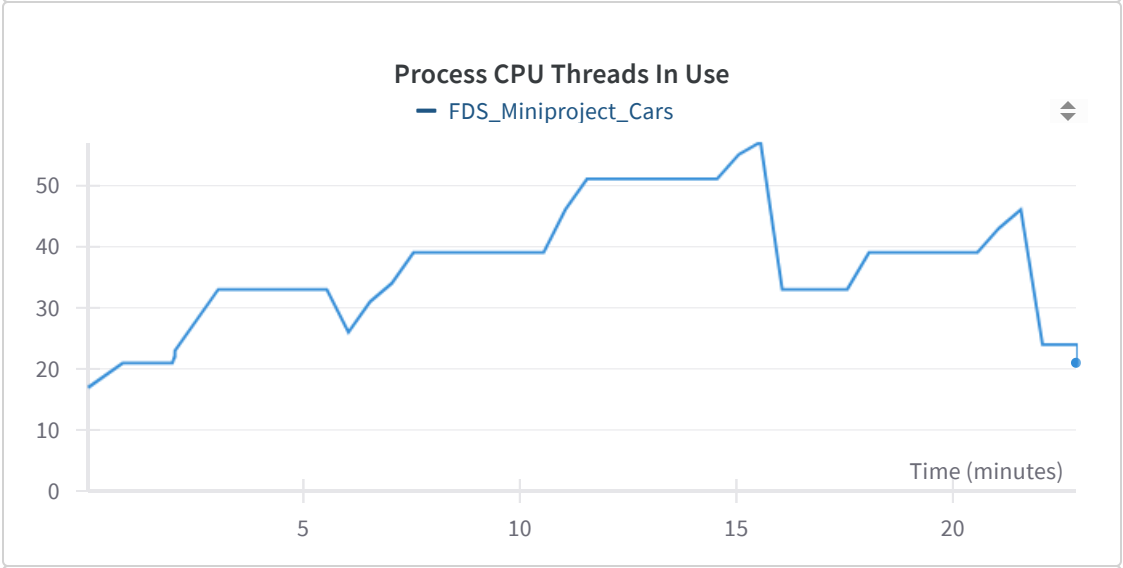

Network Traffic (bytes)
FDS_Miniproject_Cars Network Traffic Received (bytes)
FDS_Miniproject_Cars Network Traffic Sent (bytes)
1.4e+9
1.2e+9
1e+9
8e+8
6e+8
4e+8
2e+8
0
Time (minutes)
5
10
15
20

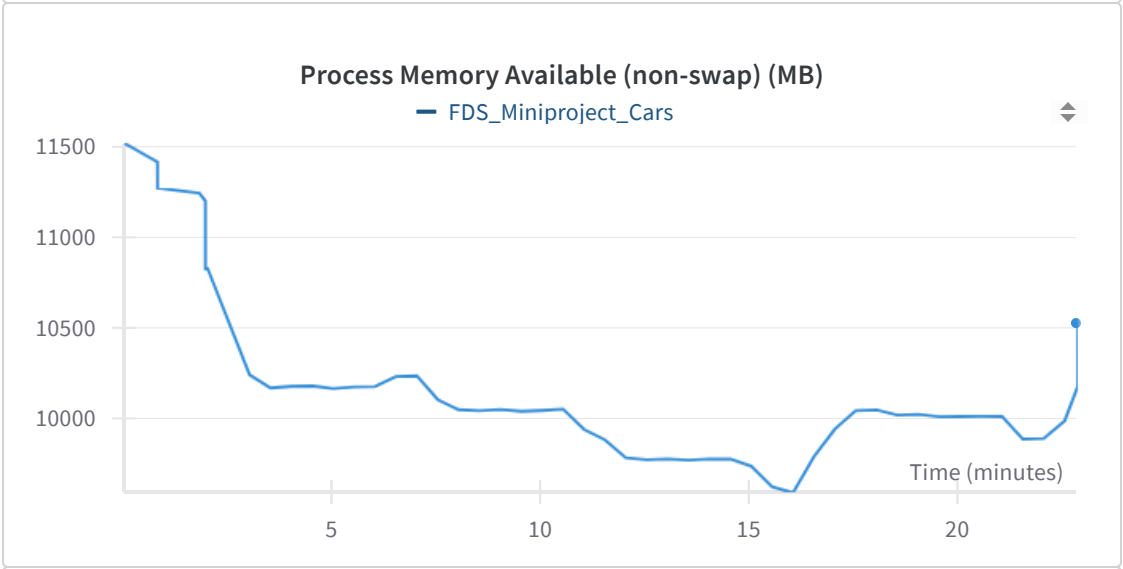

Disk I/O Utilization (MB)
FDS_Miniproject_Cars MB read from disk
FDS_Miniproject_Cars MB written to disk
14000
12000
10000
8000
6000
4000
2000
0
Time (minutes)
5
10
15
20

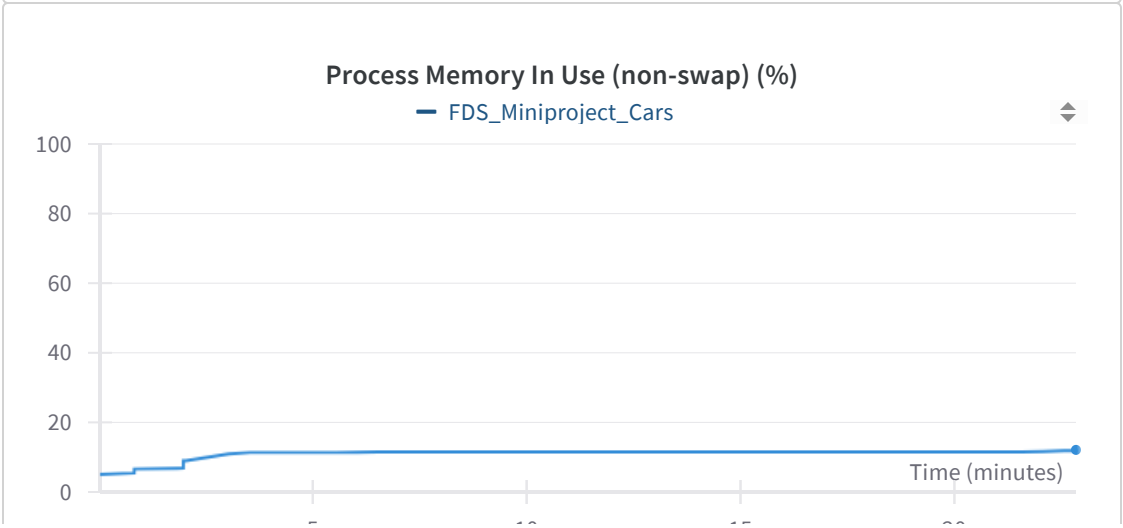

Disk Utilization (GB)
FDS_Miniproject_Cars
32
31
30
29
28
27
Time (minutes)
5
10
15
20


Disk Utilization (%)
FDS_Miniproject_Cars
100
80

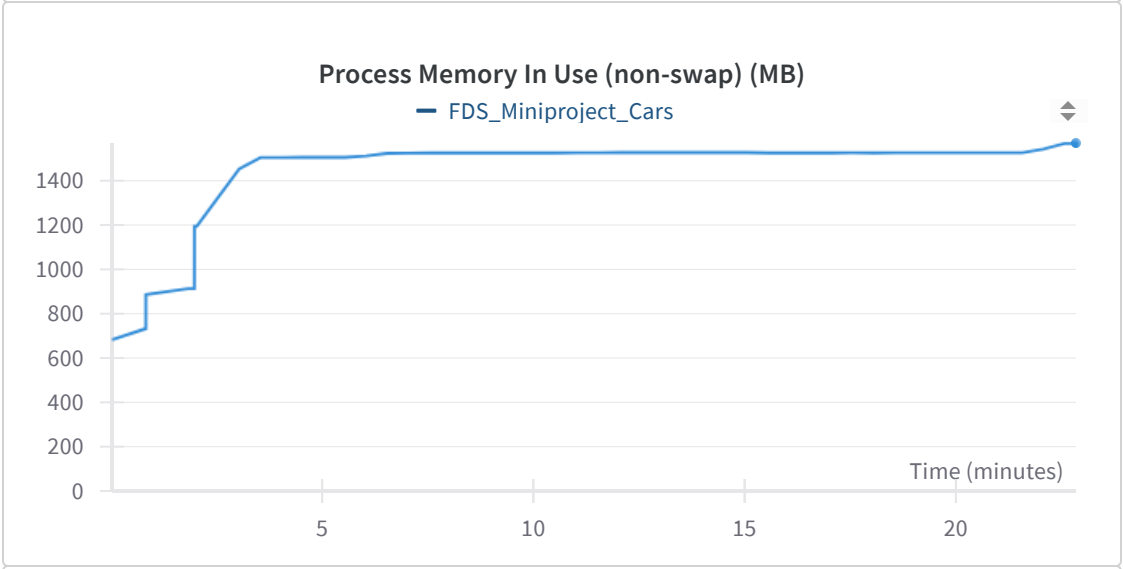

60
40
20
0
Time (minutes)
5
10
15
20

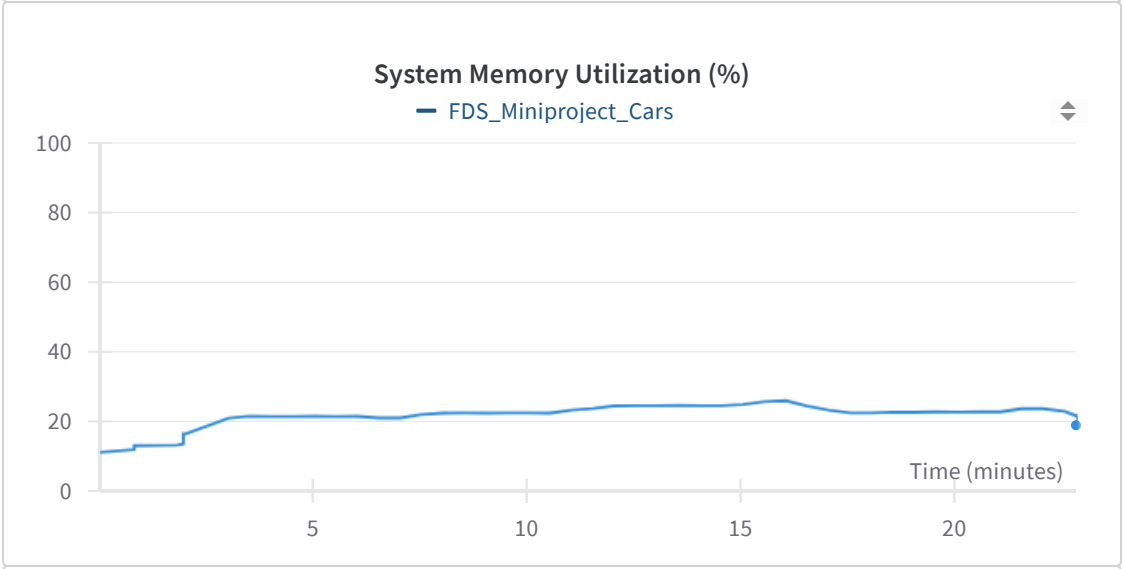

Process CPU Threads In Use
FDS_Miniproject_Cars
50
40
30
20
10
0
Time (minutes)
5
10
15
20

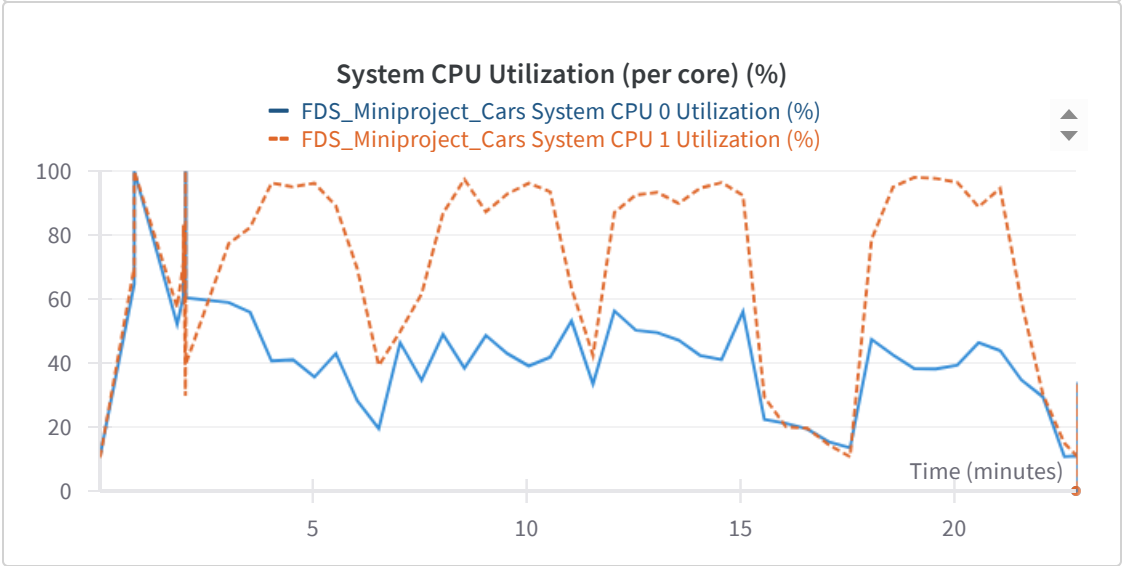

Process Memory Available (non-swap) (MB)
FDS_Miniproject_Cars
11500
11000
10500
10000
Time (minutes)
5
10
15
20

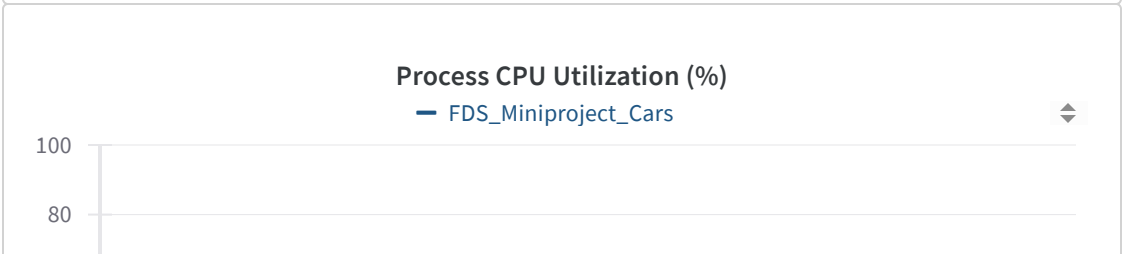

Process Memory In Use (non-swap) (%)
FDS_Miniproject_Cars
100
80
60
40
20
0
Time (minutes)

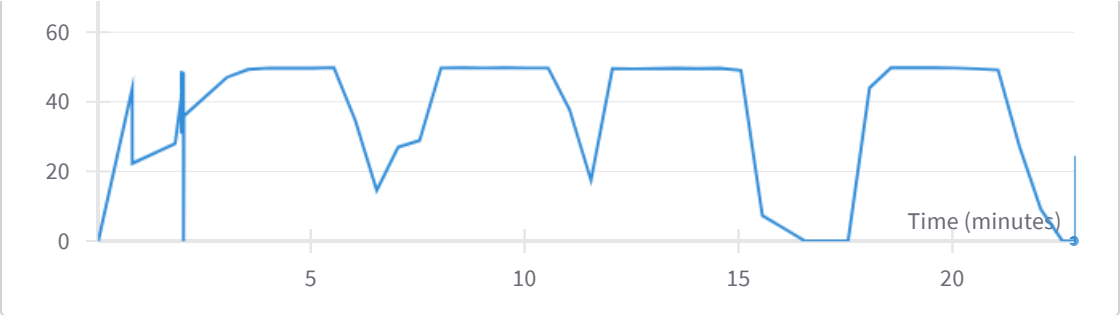

5
10
15
20


Process Memory In Use (non-swap) (MB)
FDS_Miniproject_Cars
1400
1200
1000
800
600
400
200
0
Time (minutes)
5
10
15
20


System Memory Utilization (%)
FDS_Miniproject_Cars
100
80
60
40
20
0
Time (minutes)
5
10
15
20


System CPU Utilization (per core) (%)
FDS_Miniproject_Cars System CPU 0 Utilization (%)
FDS_Miniproject_Cars System CPU 1 Utilization (%)
100
80
60
40
20
0
Time (minutes)
5
10
15
20


Process CPU Utilization (%)
FDS_Miniproject_Cars
100
80



Created with ❤️ on Weights & Biases.

https://wandb.ai/team-dubakur/FDS_Miniproject_Cars/reports/Dynamic-Graph-Convolutional-Neural-Network-on-ShapeNet-s-Cars-Class--Vmlldzo2NTkxNDUx