GPU available: True (cuda), used: True

TPU available: False, using: 0 TPU cores

HPU available: False, using: 0 HPUs

You are using a CUDA device ('NVIDIA GeForce RTX 3090') that has Tensor Cores. To properly utilize them, you should set `torch.set\_float32\_matmul\_precision('medium' | 'high')` which will trade-off precision for performance. For more details, read https://pytorch.org/docs/stable/generated/torch.set\_float32\_matmul\_precision.html#torch.set\_float32\_matmul\_precision

LOCAL\_RANK: 0 - CUDA\_VISIBLE\_DEVICES: [0]

| Name | Type | Params | Mode

------------------------------------------------------------------------------------------------

0 | train\_metrics | MetricCollection | 0 | train

1 | val\_metrics | MetricCollection | 0 | train

2 | input\_embeddings | \_MultiEmbedding | 0 | train

3 | static\_covariates\_vsn | \_VariableSelectionNetwork | 0 | train

4 | encoder\_vsn | \_VariableSelectionNetwork | 210 K | train

5 | decoder\_vsn | \_VariableSelectionNetwork | 105 K | train

6 | static\_context\_grn | \_GatedResidualNetwork | 1.7 K | train

7 | static\_context\_hidden\_encoder\_grn | \_GatedResidualNetwork | 1.7 K | train

8 | static\_context\_cell\_encoder\_grn | \_GatedResidualNetwork | 1.7 K | train

9 | static\_context\_enrichment | \_GatedResidualNetwork | 1.7 K | train

10 | lstm\_encoder | LSTM | 6.7 K | train

11 | lstm\_decoder | LSTM | 6.7 K | train

12 | post\_lstm\_gan | \_GateAddNorm | 880 | train

13 | static\_enrichment\_grn | \_GatedResidualNetwork | 2.1 K | train

14 | multihead\_attn | \_InterpretableMultiHeadAttention | 1.7 K | train

15 | post\_attn\_gan | \_GateAddNorm | 880 | train

16 | feed\_forward\_block | \_GatedResidualNetwork | 1.7 K | train

17 | pre\_output\_gan | \_GateAddNorm | 880 | train

18 | output\_layer | Linear | 63 | train

------------------------------------------------------------------------------------------------

342 K Trainable params

0 Non-trainable params

342 K Total params

1.370 Total estimated model params size (MB)

5711 Modules in train mode

1. Modules in eval mode

Metric val\_loss improved. New best score: 6.507

📉 Epoch 1: train\_loss=6.6092 | val\_loss=6.5071

Metric val\_loss improved by 1.147 >= min\_delta = 0.005. New best score: 5.360

📉 Epoch 2: train\_loss=4.8030 | val\_loss=5.3604

Metric val\_loss improved by 1.334 >= min\_delta = 0.005. New best score: 4.027

📉 Epoch 3: train\_loss=3.3404 | val\_loss=4.0266

Metric val\_loss improved by 1.414 >= min\_delta = 0.005. New best score: 2.613

📉 Epoch 4: train\_loss=2.3796 | val\_loss=2.6128

Metric val\_loss improved by 1.174 >= min\_delta = 0.005. New best score: 1.439

📉 Epoch 5: train\_loss=1.4792 | val\_loss=1.4387

Metric val\_loss improved by 0.632 >= min\_delta = 0.005. New best score: 0.806

📉 Epoch 6: train\_loss=0.7740 | val\_loss=0.8064

Metric val\_loss improved by 0.196 >= min\_delta = 0.005. New best score: 0.610

📉 Epoch 7: train\_loss=0.4694 | val\_loss=0.6103

Metric val\_loss improved by 0.046 >= min\_delta = 0.005. New best score: 0.564

📉 Epoch 8: train\_loss=0.4543 | val\_loss=0.5639

Metric val\_loss improved by 0.024 >= min\_delta = 0.005. New best score: 0.539

📉 Epoch 9: train\_loss=0.5961 | val\_loss=0.5394

Metric val\_loss improved by 0.033 >= min\_delta = 0.005. New best score: 0.507

📉 Epoch 10: train\_loss=0.4269 | val\_loss=0.5069

Metric val\_loss improved by 0.041 >= min\_delta = 0.005. New best score: 0.466

📉 Epoch 11: train\_loss=0.4170 | val\_loss=0.4656

Metric val\_loss improved by 0.106 >= min\_delta = 0.005. New best score: 0.360

📉 Epoch 12: train\_loss=0.3216 | val\_loss=0.3596

Metric val\_loss improved by 0.086 >= min\_delta = 0.005. New best score: 0.274

📉 Epoch 13: train\_loss=0.2434 | val\_loss=0.2738

Metric val\_loss improved by 0.017 >= min\_delta = 0.005. New best score: 0.257

📉 Epoch 14: train\_loss=0.2683 | val\_loss=0.2566

Metric val\_loss improved by 0.011 >= min\_delta = 0.005. New best score: 0.245

📉 Epoch 15: train\_loss=0.1898 | val\_loss=0.2454

Metric val\_loss improved by 0.010 >= min\_delta = 0.005. New best score: 0.235

📉 Epoch 16: train\_loss=0.2417 | val\_loss=0.2350

`Trainer.fit` stopped: `max\_epochs=16` reached.

En bild som visar linje, Graf, diagram, nummer

Automatiskt genererad beskrivning

Fixat UTC 30 epoch

En bild som visar linje, Graf, diagram, nummer

Automatiskt genererad beskrivning

Metric val\_loss improved. New best score: 6.328

📉 Epoch 1: train\_loss=6.5858 | val\_loss=6.3279

Metric val\_loss improved by 1.145 >= min\_delta = 0.005. New best score: 5.183

📉 Epoch 2: train\_loss=4.8177 | val\_loss=5.1831

Metric val\_loss improved by 1.315 >= min\_delta = 0.005. New best score: 3.868

📉 Epoch 3: train\_loss=3.3269 | val\_loss=3.8684

Metric val\_loss improved by 1.357 >= min\_delta = 0.005. New best score: 2.511

📉 Epoch 4: train\_loss=2.3590 | val\_loss=2.5110

Metric val\_loss improved by 1.102 >= min\_delta = 0.005. New best score: 1.409

📉 Epoch 5: train\_loss=1.4852 | val\_loss=1.4094

Metric val\_loss improved by 0.573 >= min\_delta = 0.005. New best score: 0.836

📉 Epoch 6: train\_loss=0.7729 | val\_loss=0.8361

Metric val\_loss improved by 0.176 >= min\_delta = 0.005. New best score: 0.660

📉 Epoch 7: train\_loss=0.4705 | val\_loss=0.6605

Metric val\_loss improved by 0.041 >= min\_delta = 0.005. New best score: 0.619

📉 Epoch 8: train\_loss=0.4561 | val\_loss=0.6194

Metric val\_loss improved by 0.012 >= min\_delta = 0.005. New best score: 0.608

📉 Epoch 9: train\_loss=0.6010 | val\_loss=0.6078

Metric val\_loss improved by 0.049 >= min\_delta = 0.005. New best score: 0.559

📉 Epoch 10: train\_loss=0.4318 | val\_loss=0.5590

Metric val\_loss improved by 0.045 >= min\_delta = 0.005. New best score: 0.514

📉 Epoch 11: train\_loss=0.4186 | val\_loss=0.5139

Metric val\_loss improved by 0.133 >= min\_delta = 0.005. New best score: 0.381

📉 Epoch 12: train\_loss=0.3231 | val\_loss=0.3807

Metric val\_loss improved by 0.068 >= min\_delta = 0.005. New best score: 0.313

📉 Epoch 13: train\_loss=0.2457 | val\_loss=0.3130

Metric val\_loss improved by 0.019 >= min\_delta = 0.005. New best score: 0.294

📉 Epoch 14: train\_loss=0.2802 | val\_loss=0.2943

📉 Epoch 15: train\_loss=0.1915 | val\_loss=0.2915

Metric val\_loss improved by 0.009 >= min\_delta = 0.005. New best score: 0.285

📉 Epoch 16: train\_loss=0.2509 | val\_loss=0.2854

Metric val\_loss improved by 0.020 >= min\_delta = 0.005. New best score: 0.266

📉 Epoch 17: train\_loss=0.2272 | val\_loss=0.2657

📉 Epoch 18: train\_loss=0.2868 | val\_loss=0.3709

📉 Epoch 19: train\_loss=0.1774 | val\_loss=0.2899

📉 Epoch 20: train\_loss=0.1986 | val\_loss=0.2723

📉 Epoch 21: train\_loss=0.2216 | val\_loss=0.2726

Metric val\_loss improved by 0.011 >= min\_delta = 0.005. New best score: 0.254

📉 Epoch 22: train\_loss=0.2201 | val\_loss=0.2545

📉 Epoch 23: train\_loss=0.2539 | val\_loss=0.2990

📉 Epoch 24: train\_loss=0.2079 | val\_loss=0.2905

📉 Epoch 25: train\_loss=0.2589 | val\_loss=0.3143

📉 Epoch 26: train\_loss=0.2143 | val\_loss=0.2779

Monitored metric val\_loss did not improve in the last 5 records. Best score: 0.254. Signaling Trainer to stop.

📉 Epoch 27: train\_loss=0.1972 | val\_loss=0.2639