Parameter Info

A Banksformer

Table 1: Banksformer Parameters used in our experiments

Parameter	Value
Decoder stack size	4
n_{heads}	4
d_{model}	128
d_{ff}	32
Number of decoder layers	4
Dropout rate	0.1
Optimizer	Adam (Kingma and Ba, 2015)
Learning rate (Adam)	0.001
beta_1 (Adam)	0.9
beta_2 (Adam)	0.999
epsilon (Adam)	1e-07

B DoppelGANger

The following parameters were used with the DoppelGANger (Lin et al., 2020) implementation available here `https://github.com/fjxmlzn/DoppelGANger`

- Lmax (maximum length of transaction): 100 for uk dataset and 700 for czech dataset
- number of epoches: 1000
- batch size: 200
- sample_len: 10 (The time series batch size)
- learning rate (g_lr, d_lr, attr_d_lr) : 0.0005
- d_gp_coe, attr_d_gp_coe = 10.0 Weight of gradient penalty loss in Wasserstein GAN and for the auxiliary discriminator)
- g_attr_d_coe: 1 (Weight of the auxiliary discriminator in the generator's loss)
- dp_delta: 1e-5 (The delta for DP)
- Generator
  - feature_num_units=100
  - feature_num_layers=2
  - attribute_num_units=100
  - attribute_num_layers=3
- Discriminator and Attribute Discriminator
  - num_layers=5
  - num_units=200
  - attribute_num_units=100
  - total_generate_num_sample = 5000

C TimeGAN

TimeGAN Yoon et al. (2019) parameters use in our experiments. A version of TimeGAN is available at https://github.com/jsyoon0823/TimeGAN

- seq_len: 20 for uk dataset and 80 for czech dataset
- module: gru
- hidden_dim: 24
- num_layers: 4
- iterations: 10 epochs
- batch_size: 64

References

Kingma, D. P. and Ba, J. (2015). Adam: A method for stochastic optimization. *CoRR*, abs/1412.6980.

Lin, Z., Jain, A., Wang, C., Fanti, G., and Sekar, V. (2020). Using gans for sharing networked time series data: Challenges, initial promise, and open questions. In *Proceedings of the ACM Internet Measurement Conference*, IMC '20, page 464–483, New York, NY, USA. Association for Computing Machinery.

Yoon, J., Jarrett, D., and van der Schaar, M. (2019). Time-series generative adversarial networks. In Wallach, H., Larochelle, H., Beygelzimer, A., d'Alché-Buc, F., Fox, E., and Garnett, R., editors, *Advances in Neural Information Processing Systems*, volume 32. Curran Associates, Inc.