TransFusion: Generating Long, High Fidelity Time Series using Diffusion Models with Transformers -Supplementary Materials

ORCiD ID:

1 Dataset and Preprocessing

Before proceeding with the experiment, we normalized the datasets in a way that the range of the values is between [0,1]. We followed the same procedure of TimeGAN [8] for normalizing the datasets. The stock, air quality, and energy datasets are available online.

- Google Stock Data: Link[1]
- Air Quality [2]: Link[2]
- Energy [1]: Link[3]

2 Hyperparameters

We use pytorch [6] to implement TransFusion. We take a hidden dimension of 256, a batch size of 256, attention head is 8 and 6 transformer encoder layers. We use the $Adam$ optimizer with a learning rate of $1e - 4$. We train TransFusion for 5000 epochs.

We used publicly available source code to implement the benchmarks. We used the same training setups and hyperparameters as the respective original papers.

- C-RNN-GAN [5]: https://github.com/olofmogren/c-rnn-gan
- TimeGAN [8]: https://github.com/jsyoon0823/TimeGAN
- EBGAN [9]: https://github.com/buriburisuri/ebgan
- CoTGAN [7]: https://github.com/tianlinxu312/cot-gan
- GT-GAN [4]: https://github.com/Jinsung-Jeon/GT-GAN
- WaveGAN [3]: https://github.com/chrisdonahue/wavegan

References

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