

Review of: "Multivariate Time-Series Data Generation in Generative Adversarial Networks"

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Potential competing interests: No potential competing interests to declare.

The following are comments on "Multivariate Time-Series Data Generation in Generative Adversarial Networks".

The main idea of the work (using a GAN to generate time-series data) is interesting. The author has a wide understanding of the relevant theories. However, the theoretical work in the paper is not original or discussed in sufficient depth.

Therefore, the manuscript is not suitable for acceptance and it is recommended that it be submitted to another journal.

More specific comments

(1) In the abstract of the paper, it is pointed out that the performance of GAN can be improved by using historical time series (instead of real data). However, the feedback mechanism is part of your proposed method, and it seems that you still need to use real data to achieve feedback, which leads to a conclusion that is not rigorous enough.

(2) The structure of the article needs major revision. There is too much content in the first part. Deleting the content that is not relevant to the article or moving some paragraphs to the background knowledge will make the article look better. The second part does not introduce the working principle of LSTM. The evaluation indexes in the fourth part have been used before the definition, and the comparative experiment has not been evaluated by a unified evaluation index, which makes the conclusion unreliable.

(3) There are some minor problems in the format, such as the citation position of references (for example, reference [6]), the table 8 is divided into two parts, the case of words in sentences, and the abbreviation of proper nouns after they first appear should be unified, rather than mixed.

(4) In this paper, KL divergence is used for feedback, and the evaluation index in the table also uses KL divergence. Is there any literature to prove that this will not affect the experimental results in this way?

(5) PCA is not defined. The reason of dimension reduction using PCA and its influence on the model are not discussed.

(6) The paper should provide necessary pictures to visually show the effect of the method proposed by the author. For example, the change trend of accuracy and loss with the number of iterations, whether the convergence rate is related to the number of LSTM layers, etc.

(7) It is suggested to reconsider the sentences of the paper and use a more concise and accurate review to avoid ambiguous descriptions.