

Review of: "Adoption of Machine Learning Methods for Crop Yield Prediction-based Smart Agriculture and Sustainable Growth of Crop Yield Production – Case Study in Jordan"

Tishya Manna¹

¹ Sri Sri University, Cuttack, India

Potential competing interests: No potential competing interests to declare.

Dear authors,

Please kindly apply these recommendations:

1. The Abstract is too long, but some important information is not clear. For example, as a research paper, the principle of the proposed method should be very clear.
2. The Introduction section is too long. More importantly, the domain-related research progress should be introduced in detail.
3. I recommend providing a more detailed and compelling explanation of the motivation, objective, and novelty behind your work, highlighting the significance and relevance of your research. It would be nice to present the results of previous research more clearly in the table as metadata for a clearer presentation in the section of literature review by mentioning the author, year, title of the paper, journal name, parameters, methods, objectives, performance, and limitations.
4. The main problem addressed in your work would benefit from a more thorough and elaborate explanation to ensure readers fully understand its complexity and importance.
5. Follow uniformity in citing the references throughout the article. Somewhere it has been cited by using numbers and somewhere by using the names.
6. Abbreviations give full names only when they first appear.
7. Some figures are blurred, such as Figures 1 and 2.
8. Your work would benefit from a more thorough and elaborate explanation through a research flow diagram in the proposed methodology section to ensure readers fully understand its complexity and importance.
9. Equations should be written in a mathematical font.
10. Why is Pearson's Correlation Coefficient method applied? And after evaluating the correlation between attributes, what are the resultant parameters?
11. What are the splitting criteria that have been opted for the training and testing phase?
12. Inadequate or subpar training data can significantly impede the performance of machine learning models, particularly machine learning models, which rely heavily on a substantial volume of accurately labeled data to facilitate effective learning and model generalization. Give the justification in this aspect.

13. I strongly encourage you to thoroughly review and enhance the methodology section to demonstrate a comprehensive understanding of your research. The authors pay less attention to data pre-processing, data cleaning, feature selection, and data normalization. Some important information is missed. For example, the authors should describe in detail the feature selection techniques. What are the significant features? Mention the normalized dataset in the figure.
14. The paper lacks innovation, only a simple amalgamation of machine learning techniques. What are your contributions? Authors should have clearly defined contributions.
15. In the proposed methodology, it is necessary to include the values of parameters and formulations for each method. Selecting an appropriate model architecture and tuning hyperparameters pose significant challenges. Give the proper justification with this research.
16. Kindly refer to other papers for writing the Experimental setup. The computational complexity of the proposal should be included.
17. I strongly recommend thoroughly reviewing the mathematical concept of each machine learning model that you have opted for. Derive all the models with mathematical explanations.
18. It would be nice to make a picture of the algorithm of the realized research.
19. Despite achieving high performance on training data, machine learning models may struggle with generalization to unseen examples, necessitating the application of regularization methods and early stopping techniques to combat overfitting.
20. The data and analyses should be better presented. Add more discussion with output on the training and testing phases in the results section. The model's performance is showing an overfitting issue. Rethink about the model's performance. How to deal with overfitting issues in the present research?
21. Add comparisons with existing approaches in a separate section and highlight the novelty of the proposed approach.
22. The authors will have to demonstrate the impact and insights of the research. The authors need to clearly provide several solid future research directions. Clearly state your unique research contributions in the conclusion section. Add the limitations of the model.