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Pawel Zarkowski
Diagnostics
MDPI Diagnostics Editorial Office
St. Alban-Anlage 66,
4052 Basel, Switzerland

Dear Pawel,

Subject: Response to Reviewer-2 Comments for Manuscript ID diagnostics-2898829 titled "Innovative Machine Learning Strategies for Early Detection and Prevention of Pregnancy Loss: The Vitamin D Connection and Gestational Health"

We appreciate the opportunity to submit our manuscript to the Diagnostics Journal and are grateful for the insightful comments and suggestions from the reviewers. We believe that addressing these points has significantly improved our manuscript. Below, we outline our responses to the comments and describe the adjustments made to the manuscript.

1. **Formatting Issues:** We have corrected all the formatting issues as suggested:
 - Adjusted the formatting on page 4, lines 190-191, and on page 10, lines 237 and 245.
 - Removed the redundant spacing on page 10, line 245, and adjusted the image placement as recommended.
2. **Inappropriate Section Title (Section 5.1):** We revised the title of Section 5.1 to better reflect the content regarding model performance on different datasets.
3. **Figure Redrawing:** All figures, including Figure 1, have been redrawn for clearer presentation as advised.
4. **Reference Serial Number Loss:** We have corrected the citation format to ensure all references are cited in serial number form, facilitating easier navigation and comprehension.
5. **Dataset Limitations:** We acknowledged the limitation regarding the dataset size and have added a subsection discussing potential impacts on model generalization. Furthermore, we provided plans for future studies to validate our findings with larger datasets.
6. **Model Training Details:** Additional details regarding model training parameters, including the learning rate and regularization techniques, have been incorporated to provide a clearer understanding of our approach.
7. **Overfitting Concerns:** We addressed the issue of overfitting by including dropout in our models and elaborating on this strategy in the revised manuscript.
8. **Citing Novel Work:** We have added references to the suggested literature, enriching the context and background of our study.

9. Model Accuracy Concerns: We revisited our algorithms and identified a pre-processing error that affected model performance. Corrections were made, and the manuscript now includes updated and improved accuracy values.

10. Dataset Description: A comprehensive description of the dataset, including its distribution and feature specifics, has now been included.

11. Testing Results: We provided detailed testing results, including confusion matrices, to offer a complete view of our model's performance.

12. Use of Deep Learning on Small Datasets: We clarified our rationale for the chosen approach and discussed to mitigate dataset size constraints.

Minor Issues:

- We have made all the necessary corrections and clarifications as highlighted by the reviewer, including adjustments to lines 190-191, redrawing Figure 1, and elaborating on Table 13 and its significance.

Quality of English Language:

- We have thoroughly reviewed and revised the manuscript to correct the minor language errors and ensure clarity and readability.

We hope that our revisions adequately address the concerns raised by the reviewers. We believe that these changes have substantially improved our manuscript, making it a valuable contribution to Diagnostics Journal. We appreciate the reviewers' constructive feedback and are open to any further suggestions.

Thank you for considering our revised manuscript. We look forward to your positive response.

Sincerely,

Md Abu Sufian
First Author