



UGANDA CHRISTIAN UNIVERSITY

A Centre of Excellence in the Heart of Africa

SCHOOL OF RESEARCH & POSTGRADUATE STUDIES DISSERTATION CORRECTION COMPLIANCE FORM (POST VIVA FORM)

Date: 06/08/2026

Name of Candidate: PHILIP ARINAITWE

Reg.No: M24M19/032

Title of Dissertation: ENHANCING FOOD SECURITY FORECASTING IN UGANDA: A GEOSPATIAL ANALYTICS FRAMEWORK WITH CROP YIELD INTEGRATION

S/N	COMMENTS BY EXTERNAL EXAMINER	ACTION TAKEN	INDICATOR
1	Refine the wording of the problem statement to make it more objective and research-focused.	The Problem Statement was refined to a more objective and research-focused one.	Page 1,2 - 1.2
2	Justify the choice of the hybrid LSTM-XGBoost model, particularly in comparison with Transformer-based models discussed in the literature.	Literature Review, Methodology, Limitations and Recommendations modified to capture the reasoning behind the choice of the hybrid LSTM-XGBoost as well as offer the adoption of the transformers for future work.	Page 7,8 - 2.4 Page 13 - 3.6.6 Page 33 - 5.4 Paragraph 4 Page 34 - 6.1 Paragraph 6
3	Strengthen the interpretation of the results by explaining why the hybrid model is considered superior despite Table 4.7 appearing to favour the persistence model.	Conclusive explanation given for the choice of the hybrid model over the persistence model for food security yet the persistence in Table 4.7 appears to show a better performance.	Page 25,26 - 4.4.2
4	Correct the inconsistency in Table 4.8, where accuracy is discussed but not reported	Accuracy added to table 4.8.	Page 26
5	Deepen the critical analysis in the discussion to provide a more evaluative interpretation of the findings.	More points added to the discussion for the model performance, impact of crop yield data and limitations.	Page 30 - 33

S/N	COMMENTS BY INTERNAL EXAMINER	ACTION TAKEN	INDICATOR
1	Research poster needs to be concise	Research Poster updated to be concise	Page 44 - Appendix D
2			

S/N	COMMENTS BY VIVA VOCE PANNEL	ACTION TAKEN	INDICATOR
1	Revise the literature review and methodology to explain why Transformer-based forecasting models were not implemented or evaluated, despite being identified in the literature as effective techniques. Where appropriate, discuss the limitations, feasibility considerations, or future work related to incorporating Transformer models.	Literature Review, Methodology, Limitations and Recommendations modified to capture the reasoning behind the choice of the hybrid LSTM-XGBoost as well as offer the adoption of the transformers for future work.	Page 7-8, 2.4 Page 13, 3.6.6 Page 33, 5.4 Paragraph 4 Page 34, 6.1 Paragraph 6
2	Strengthen the methodology by providing a clear justification for the adoption of the hybrid LSTM-XGBoost model. Explain how this approach was derived from the literature, preliminary experiments, or theoretical considerations, and discuss why it was considered suitable for the forecasting problem.	Literature Review, Methodology, Limitations and Recommendations modified to capture the reasoning behind the choice of the hybrid LSTM-XGBoost as well as offer the adoption of the transformers for future work.	Page 7-8, 2.4 Page 13, 3.6.6 Page 33, 5.4 Paragraph 4 Page 34, 6.1 Paragraph 6
3	Expand the methodology section to include a detailed description of the LSTM architecture, explaining the rationale for the selected hyperparameters and design choices, including the 18-step input window, 54 input features, 24-dimensional embeddings, network configuration, and any optimization procedures employed.	The LSTM architecture detailed design description was added to the methodology under a new subsection 3.6.6.1 explaining the rationale behind the different configuration settings and parameters used.	Page 13-14, 3.6.6.1
4	Review and strengthen the presentation and discussion of the ROC analysis. Clearly explain how the ROC curves and related evaluation metrics were generated, interpret the results accurately, and discuss their implications for assessing model performance and predictive capability.	The explanation for the ROC analysis and how they were generated was explained clearly and added to the discussion.	Page 21-23, 4.3.4
5	Adjust the title from the word "Optimising"	Title changed to "Enhancing Food Security Forecasting in Uganda: A Geospatial Analytics Framework with Crop Yield Integration"	

Candidate's Name PHILIP ARINAITWE

Signature



Supervisor's Name/ Signature IAN RAYMOND OSOLO

NB: Post Viva compliance form is designed to capture all the corrections recommended by internal examiner (supervisor), external examiner and viva panel.