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Minutes of the Final Oral Defense
The Capstone/Thesis Final Oral Presentation

Date/Time	April 1, 2024 2:30 PM
Program	BSCS
Title	**Optimized Convolutional Neural Network for Music Genre Classification**
Researchers	Evan Bonso, Charleslexcel Mendoza, George Vincent Peña
Prepared by:	Ms. Barbosa (released 04.08.24_f; with complete rating) Thesis and Capstone 2 – Process Flow

Revision Log
Please affix your signature once you ACCEPT the changes made/revised research document per the minutes or your comments/suggestions/requirements.

		Signature	*Date Complied*
Adviser	**Ms. Yara**	_____	_____
Panel Members	**Ms. Barbosa**	_____	_____
	Mr. Ardeña	_____	_____
	Dr. Vilchez	_____	_____

Endorsement for Public Presentation/Defense

		Signature	*Date Endorsed*
Adviser	**Ms. Yara**	_____	_____

Item No.	ITEMS FOR REVIEW	Status* [C/NC/NA]	Page No. If Complied	Adviser's Signature
1	**TITLE PAGE** • Review title; must be less than 20 words. • Change title to ***"Music Genre Classification Using Ensemble Learning"***			
2	**EXECUTIVE SUMMARY (for IT/IS/EMC) / ABSTRACT** • Not more than 200 words; not indented; concise single ¶; past tense; general objective/purpose; method; key findings; implications and/or contribution.			

3	**CATEGORIES AND SUBJECT DESCRIPTORS** • Review ACM Computing Classification Scheme found at https://dl.acm.org/ccs; for example: • Information systems→Database management system engines→Database management system engines • Computing methodologies→Parallel computing methodologies→Parallel algorithms→Massively parallel algorithms			
4	**GENERAL TERMS** • Review terms; must be any of the following: Algorithms, Management, Measurement, Documentation, Performance, Design, Economics, Reliability, Experimentation, Security, Human Factors, Standardization, Languages, Theory, Legal Aspects, Verification.			
5	**KEYWORDS** • *Keywords are your own designated keywords separated by semicolons (";"). Limit to 5 keywords.*			
6	**INTRODUCTION**			
7	**PURPOSE AND DESCRIPTION** • *The first paragraph presents the purpose of the study.* • *Also, discuss the global significance (contribution to literature/field of knowledge) and social value (contribution to humanity and community; anchor this to CCE research agenda or SDG) of the study.* • *The second paragraph describes what the project is all about.*			
8	**GENERAL/SPECIFIC OBJECTIVES OF THE STUDY**			
9	**SCOPE AND LIMITATIONS** • *1st paragraph for the scope; 2nd paragraph for the limitation(s);*			
10	**METHODOLOGY** • In 2. Methods, add short discussion to describe the fig. 1. This will be an overview of the entire project flow only. • Then discuss each step: 2.1 Dataset ○ Why do we need noise sample/category? 2.2 Data Pre-processing; show raw file and its new form after pre-processing.			

	2.3 Feature Extraction; show results after feature extraction `(mfccs, chroma, spectral_contrast, tonnetz)` 2.4 Data Split (train, validation, test) 2.5 Training Environment • Discuss the following (suggested order): 2.6 Model Development 2.6.1 Build CNN (for feature extraction /proposed model); Is it really pre-processed audio file being fed to CNN model? ***Also, show that the model does not have classification layer. Review your actual code – audio files were pre-processed & feature extraction were applied.*** Then, discuss how this is implemented and show the results after CNN-feature extraction. Discuss also how ***early stopping*** was used. *2.6.1.1 Model Architecture; discuss input layers, dropout layers, etc.* *2.6.1.2 Hyper-parameter Tuning for CNN (feature extraction) if there is any; then discuss quality of extracted features* 2.6.2 Build SVM and RF Classifier *2.6.2.1 SVM; how it was implemented + Hyperparameter Tuning; and present its performance and execution time.* *2.6.2.2 RF Classifier; how was it implemented and present its performance and execution time.* 2.6.3 Ensemble Method; discuss XGBoost and *the ensemble technique used (stacking?);* and how it is implemented in your project; and present its performance.			
11	**RESULTS AND DISCUSSION** • 3 Results and Discussion 3.1 Performance of Baseline and Proposed Model ○ Discuss comparison between traditional (baseline) CNN and proposed model. Use chart for this. *How was objective #4 attained? Show how final model (using XGBoost) performs based on* ***accuracy, efficiency, and other pertinent performance metrics (specify this/these) to ascertain its efficacy****.* ▪ confusion matrix – provide brief description on this; discuss results.			

	▪ precision, recall, F1-score and support; provide brief description on these; discuss results. ○ *How effective is the proposed (ensemble) model vs base models (RF & SVM) and traditional (baseline) approach?* ○ *How does the performance of proposed compare to baseline?* ○ *How does feature-extraction "ensemble mode" improve the accuracy? different hyperparameter affects performance?* ○ How did your proposed model perform: ▪ when input data is a "noise music"; ▪ when input data is "music with noise"; <u>3.2 Model Deployment/Testing</u> ○ Discuss here simulator and its results. ○ Add discussion on how it will be applied /used in real-world (esp. if commercialized).			
12	**CONCLUSION AND RECOMMENDATION** • *4 Conclusion and Recommendation* *4.1 Conclusion* *4.2 Recommendation*			
13	**TABLES AND FIGURES** • Captions are in Times New Roman 9-point bold; numbered (e.g., "Table 1" or "Figure 1") • Captions for figures are centered beneath the image or picture. • Captions for tables are centered above the table body			
14	**REFERENCES** • All IEE format in-text citations must appear in the reference section. • Follow IEEE referencing style; • Cited sources are within the five (5) years recency period; at least 80% of the sources from journal.			
15	**OTHERS** • Page numbering: bottom-center-align. • Paragraph alignment – Justify. • Remove **propose/proposal/proponents** – use "**study**", "researchers" instead. • Use third person point of view.			

	• Use the ***past tense*** to report what happened in the past: what you did, what someone reported, what happened in an experiment, and so on. • Use the ***present tense*** to express general truths, such as conclusions or interpretations (drawn by you or by others) and atemporal facts (including information about what the paper does or covers). ***Please see other comments as written in the document.***			
16	**EVALUATION** ☐ Accepted ☐ Accepted with minor revision ☒ Accepted with major revision ☐ Re-defense	-	**-**	**-**

Legend: [C] Complied, [NC] Not Complied, [NA] Not Applicable