CHRIST
(DEEMED TO BE UNIVERSITY)
BANGALORE | DELHI NCR | PUNE

Notice for the PhD Viva Voce Examination

Ms Affreen Ara, Registration Number: 1870077, PhD Scholar at the School of Engineering and Technology, CHRIST (Deemed to be University), will defend her PhD thesis at the public viva-voce examination on Tuesday, 27 October 2026, at 10.30 am in CDI Conference Room, Block V, Bangalore Kengeri Campus, CHRIST (Deemed to be University), Bengaluru - 560074, Karnataka, India.

Title of the Thesis	:	**Emotion Analysis of Music Lyrics Using Machine Learning Techniques**
Discipline	:	**Computer Science and Engineering**
External Examiner - I	:	**Dr Venkatesh M** Associate Professor Department of Computer Science and Engineering University of Visvesvaraya College of Engineering Bengaluru - 560001 Karnataka
External Examiner - II	:	**Dr Linesh Raja** Associate Professor Department of Computer Applications Manipal University Jaipur Jaipur - 303007 Rajasthan
Supervisor	:	**Dr Rekha V** Associate Professor Department of AI and Data Science Engineering School of Engineering and Technology CHRIST (Deemed to be University) Bangalore Kengeri Campus Bengaluru - 560074 Karnataka

The members of the Research Advisory Committee of the Scholar, the faculty members of the Department and the School, interested experts, and research scholars of all the branches of research are cordially invited to attend this open viva–voce examination.

Registrar (Academics)

Place: Bengaluru
Date: 12 October 2026

ABSTRACT

Music Emotion Recognition (MER) is an important research area in affective computing, with applications in personalized music recommendation, playlist generation, and digital mental health. The research focuses on three major objectives: developing an emotion mapping algorithm for Hybrid Lexicons, identifying discriminative features for lyric-based emotion recognition, and optimizing deep learning models for emotion classification. A novel Emotion Space Distance–K Nearest Neighbor (ESD-KNN) method is proposed for emotion mapping, incorporating similarity-based imputation and hybrid distance measures. The method achieved a Pearson correlation of 0.98 and a coefficient of determination (R^2) of 96.5%, while substantially reducing Mean Absolute Error compared with existing approaches.

A multi-level feature extraction framework integrating lexical, stylistic, and affective lexicon features was developed for emotion classification. Experiments using MER and Mood Lyrics datasets demonstrated that affective lexicons, particularly the Dictionary of Affect in Language (DAL), significantly improved classification performance, achieving a mean accuracy of 90%. PCA-based feature reduction further enhanced performance, with 40 components achieving 97–98.13% accuracy using Gradient Boosting, Decision Tree, and Random Forest models.

Deep learning models, including MLP, LSTM, CNN, BERT, and DistilBERT, were also evaluated. DistilBERT/BERT-based models achieved 98.39% accuracy, while the proposed Attention-based Late Fusion model achieved the highest accuracy of 98.45%, with a test loss of 0.03 and convergence within 15 epochs. The findings demonstrate that psychologically grounded feature engineering combined with attention-based fusion can provide highly accurate and interpretable lyric-based MER, with potential applications in personalized music services, digital mental health, and emotion-aware technologies.

Keywords: *Music Emotion Recognition, Emotion Mapping, VAD Model, Feature Engineering, Machine Learning, Deep Learning, Transformer Models, Attention Mechanism.*

Publications:

1. **Ara, A.**, Rekha, V., "Enhancing Music Emotion Classification Using Multi-Feature Approach", International Journal of Advanced Computer Science and Applications (IJACSA), Vol. 15, No. 9, 2024, https://doi.org/10.14569/IJACSA. 2024.0150981
2. **Ara, A.**, Rekha, V., "Enhancing Music Emotion Recognition with LSTM: Evaluating Various Embedding Techniques", SSRG International Journal of Electronics and Communication Engineering,12(6), pp. 293–03/2025, https://doi.org/10.14445/23488549/IJECE-V12I6P123
3. **Ara, A.**, Rekha, V., "A Study of Emotion Classification of Music Lyrics using LSTM Networks" Proceedings - 2024 5th International Conference on Mobile Computing and Sustainable Informatics, ICMCSI 2024, 2024, pp. 126–131, https://doi.org/10.1109/ICMCSI61536.2024.00026
4. **Ara, A.**, Gopalakrishna, R., "A Study on Emotion Identification from Music Lyrics", Lecture Notes on Data Engineering and Communications Technologies, 2021, 72, pp. 396–406, https://doi.org/10.1007/978-3-030-70713-2_37