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MoodifyLK: Sinhala Music Emotion Classification Based on Deep Learning

A Dissertation by

Mr. Lahiru Tissera

Supervised by

Mr. Pramuka Weerasinghe

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ABSTRACT

In the Sri Lankan context, the classification of Sinhala songs has received limited attention from researchers. Manually classifying music resources can be a tedious and labor-intensive task. Applying neural networks to the music classification process is a highly explored machine learning domain. However, compared to the main domain, this sub-domain is underexplored due to the changing nature of music and a lack of interest in this area. With the emergence of new technologies in the field of machine learning and the discovery of new sub-domains of music classification, there is still much to explore in this field.

The author's goal in this study was to design a classification system that automates Sinhala music classification by emotions using deep neural networks and music information retrieval. Such a system would provide Sinhala music enthusiasts with the ability to perform classification and prediction tasks without requiring prior technical knowledge. As there has been limited research in this area and no other similar existing systems were found, the proposed system represents a valuable contribution to the Sri Lankan music domain.

In the current study, the author trained and evaluated five convolutional neural network (CNN) models using a Sinhala music sample dataset. After comparing the accuracy of each model, it was found that the ResNet50 model was the most suitable for the music emotion classification system, achieving an accuracy of 83%.

Keywords – Deep Learning, Machine Learning, Music emotion classification systems, Music Emotion Recognition, Convolutional Neural Networks, Support Vector Machines, K-Nearest Neighbors