

Universiti Teknologi MARA

**Malay Traditional Musical Instruments
Recognition using Pre-Trained
Convolutional Neural Network**

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ABSTRACT

This research was about Malay Traditional Musical Instruments recognition. Currently, a website to retrieve musical instrument by using an image has been developed but only focuses on the western musical instrument. There is a website that contains information about Malay traditional musical instruments, but it only provides brief information about the instruments. In this paper, we propose a framework of deep learning for Malay Traditional Musical Instruments recognition by using Pre-Trained Convolutional Neural Network (CNN). The process that involved to build this prototype are collecting the dataset, importing libraries and splitting the dataset, applying a Pre-Trained CNN which is inception, and training the network. An intermodal dataset that contains ten classes of four categories of Musical Instruments used to train the network. A total of 4000 images were used in training and testing set respectively. All the images from each class were resized to 227×227 pixel. For retrieval, best results are achieved when class-based predictions are used. An average classification accuracy of 99.77% and a mean average precision of 0.69 is achieved for retrieval task. Finally, besides recognizing the uploaded image, this prototype also can uncover general knowledge and understanding of Malay traditional musical instruments.

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CHAPTER 1

INTRODUCTION

This chapter provides the background and rationale for the study. It also gives details of the problems, objectives, scope and significance of this proposal.

1.1 Background of Study

Heritage can be defined as our inheritance of the past, what endures in the present, and what continues into the future; allowing the generations to gain knowledge, wonder at and benefits from(UNESCO, 2002). It could be in the form of customs, culture, locality, buildings, archives and musical instruments. Traditional musical instruments are good examples of this as they exude unique architectural, aesthetic, political and social features of a different time (Robiah,2016).

Hence, historical musical instruments are physical links to our past. Yes, we have all heard that before. It is not just about saving material, but about saving the layers and layers of information about our lives and those of our ancestors. Musical instruments and the natural history of a nation have a very high value and are unique. It is an identity that can be introduced to the world. It affirms our identity as people because it creates a comprehensive framework for the preservation of cultural heritage that has cultural significance and historical value. The importance of intangible cultural heritage is not the cultural manifestation itself but rather the wealth of