

## TIMBRAL SPECTROGRAM OF THE BONANG FROM MALAYSIAN GAMELAN

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### ABSTRACT

This study explores timbral visualization to recognize the sound from Malaysian Gamelan and provide detailed description of the sound. The timbre of two sets of *bonang* (*bonang penerus* and *bonang barung*) are used to perceive the sound recorded from the Malaysian Gamelan. The higher pitch *bonang penerus* are smaller in size than the *bonang barung*. The *bonang penerus* plays a part that is similar to the *bonang barung* with frequency twice as *bonang barung*. The timbral characteristics precisely and objectively describes the sound characteristics of a *boning* that was always faced by ethnomusicologists in fieldwork activities. The sound profile from each set of *boning* shows different characteristics which indicate that the recognition process showed a high recognition rate. From the finding *bonang penerus* showed a clear fundamental frequency indicated by the 'brightest colors' in the spectrogram (yellow and red). *Bonang barung* showed a strong attack and decay rapidly. The sustainability or the rapid decay is also indicated by the *Q* factor. *Q* factor for *bonang penerus* range from 20.20 to 23.87 whereas the *Q* factor for *bonang barung* is slightly small from 12.70-17.00.

Keywords : *Bonang* , Music, *Q* factor, Spectrogram

## 1. INTRODUCTION

Java and Bali have music technology that is very similar compared with other part of Southeast Asia. Their instruments are mainly from bamboo, wood and metal namely bronze. Gamelan which is an ensemble of bronze gong instruments is one common feature of music throughout Java and Bali. A gong is a circular flat surface metal percussion instrument with the edge of the surface turned over to form a lip or a flange. Sometimes the lips are very deep and the instrument looks more like an overturned kettle or pot. Gongsmiths added a raised knob (called a boss) to the centre of the surface to obtain the gong's pitch. The thickness of the gong's various surfaces along with its size and weight also determines its pitch. The gong is hit on the boss with a padded mallet to produce a sound with a clearly identifiable pitch. The softness or hardness of the mallet affects its timbre i.e. the quality or colour of the sound. The quality that distinguishes one set of gamelan instruments from the other is its tuning (Spiller, 2004). Each instrument in a gamelan is unique and carefully tuned to match the others and therefore rarely possible to exchange instruments between gamelan. Gamelan tuning follows the general outlines of one of two tuning called pelog and slendro. Each of the bronze gongs in a gamelan is tuned permanently to a discrete pitch. Gamelan tuners do not