**Emir:** Good evening panelists, I’m Emir Mendoza.

**Graciel:** I’m Graciel Nuncio.

**Fritz:** I’m Fritz Calimag.

**Mitch:** I’m Mitchell Ong.

**Emir:** And we’ll be presenting our thesis, entitled Identifying music features that define rules in classifying musical themes.

**Next Slide**

**Emir:** Presented right in front of you is our outline of our presentation. We will be discussing The Overview of Technology all the way to our methodology and we will be ending with showing you our preliminary results.

**Next Slide(Musical Themes)**

**Emir: Im emir,**

**Next Slide(Thematic Analysis)**

**Emir:**

**Next Slide(Music Emotion Recognition)**

**Emir:**

**Next Slide(Children’s Music)**

**Graciel:** We will be following the framework according to Kim 2019 which has found a way to build a model on classifying musical themes in children’s stories.

Like Kim 2019, we will be gathering samples of music from videos of chinese children’s stories and classify them into 4 themes.

**Next Slide(Theme Examples)**

**Graciel:** So let's talk about themes, there are themes in parties, in movies, in tv series, and we would like to focus on children’s themes. Here we have 4 specific themes which are the Upbeat, Fast, High Pitch cheerful, the theme with big drums bravery, fearful with long notes and extremes and mellow sounding love.

**Next Slide(Statement of the Problem)**

**Mitch:** There have been several studies in the classifying music. (points to the table in the slides). These studies use different techniques in classifying music but the common thing among them is that n

or

Yang et al. Formulated MER as a regression problem to predict the arousal and valence values, meanwhile Hu and Downie Trained a multi-modal mood classifier using both audio and lyric features. Lastly, L. Lu, Liu, and Zhang presented a framework for automating the process of detecting moods from acoustic music data using features extracted. These works contributed objective approaches to music classification and could still be improved mostly in terms of accuracy in classifying, music features used and the range of themes.

**Next Slide(General Objective)**

**Mitch:**

**Next Slide(Specific Objective 1)**

**Fritz:** Our first objective for our thesis is to identify musical features that can be used in the machine learning task in classifying themes. In order for us to complete this objective we are going to be extracting music samples that embody a specific theme, these themes will be limited to themes such as Cheerful, Brave, Love, and Fearful. Lastly our dataset will have at least 400 music samples in order to have a decent dataset.

**Next Slide(Specific Objective 2)**

**Fritz:** Our next objective is to build and train multiple machine learning models that will classify music in children’s stories into four different themes. This will be done by following a cross validation technique called K-fold cross validation. The dataset for the model will also be split into 3 parts which are Training, Testing, Validation. We will also be following the work of Kim by utilizing Neural Networks in these machine learning models.

**Next Slide(Specific Objective 3)**

**Fritz:** Our last objective is to derive rules that help in classifying musical themes from the results of the machine learning model. In order to derive these rules we will be utilizing the most significant musical features that were selected based on their respective Info gain score and ranker. Also in order to validate the correctness and acceptability of the model’s current iteration we will be following a comprehensive experiment design with a musical expert that was utilized in the work of Kim.

**Next Slide(Significance of the Study)**

**Graciel:** This will help lots of people. Educators will gain insight on which music to choose for their students based on the theme. Additionally, composerts benefit this as well. And we are aware that there are limited studies on cross-cultural and children’s themes. So future or current researchers may benefit from this study.

**Next Slide(Methodology: Timetable of activities)**

**Graciel:** This is our timetable.

**Next Slide(Methodology: Pipeline)**

**Graciel:** So we will start with data collection through getting music samples from youtube. Then, extract features from JAudio which will output a csv file. After that, we will validate it with at least three music experts. Then we will proceed with model building through decision trees as proof of concept and then proceed to machine learning tasks through neural networks and then validate again with the experts and fine tune out model, lastly, once we are satisfied with our results, we can derive features that define rules in classifying musical themes.

**Next Slide(Theoretical Framework: Litmap)**

**Fritz:** Presented in front of you is a layout of our theoretical framework which we outlined with answering three simple questions which are what, how, and why.

**Next Slide(Theoretical Framework: Musical Features and Rules)**

**Fritz:** First we look at the of what.

**Next Slide(Theoretical Framework: Machine Learning Techniques)**

**Emir:**

**Next Slide(Theoretical Framework: Helping Computers)**

**Fritz:**

**Next Slide(Whole Litmap again)**

**Fritz & Emir:**

**Next Slide(Transition Slide for preliminary results)**

**Fritz:** Following the methodology that we have presented earlier this is our Preliminary Results.

**Next Slide(Dataset Collection)**

**Graciel:** We have gathered 413 music samples from 57 videos in youtube by downloading them and then chopping them by an open source application called Audacity. We will then classify them into the four themes.

**Next Slide(Feature Extraction)**

**Graciel:** We used a software called JAudio to extract the features which outputted an xml file then we convert it to a csv file then we proceed with our machine learning tasks. We wanted to extract the default features selected by jAudio for today’s proof of concept in the upcoming models we will be building, we will be getting from other features based on ranker and based on info gain.

**Next Slide(Initial Results: Decision Trees(J48))**

**Mitch:**

**Next Slide(Initial Results: Decision Trees(J48) Confusion Matrix)**

**Mitch:**

**Next Slide(Initial Results: Random Forest)**

**Mitch:**

**Next Slide(Initial Results: Random Forest Confusion Matrix)**

**Mitch:**

**Next Slide(End of Presentation)**

**Fritz:** That concludes our presentation.

**Next Slide(Question and Answer)**

**Fritz:**We will now be open for Q&A. Thank You.