

School of Computer Science and Engineering College of Engineering

# **Percussion Mobile Application** for Automatic Assessment of Percussion Rhythm Imitation for Beginner Percussion Players

Student: Bachhas Nikita

=	⇒
Home	Pre-recorded Recordings Select or search for a pre-recorded recording to get started
👋 Hi Nikita7856, welcome to Beats!	Q Search
Pre-recorded Recordings Live Recordings	Fleetwood Mac: Michael Jackson: Tusk Billie Jean
Imitation Scores:	Queen: Another One Bites the Dust Phil Collins: You Can't Hurry Love
You currently have no scores to display. To get started, click on either Pre-recorded Recordings or Live Recordings.	Bread & Butter Big Bell Bounce
	Hit Hat Hotness Terrific 2 Beat
	Tom Tom Time Useful Unheats
NTU Final Year Project 2022-2023 Developed By: Bachhas Nikita	NTU Final Year Project 2022-2023 Developed By: Bachhas Nikita

#### Supervisor: A/P Goh Wooi Boon

#### **Project Objectives:**

This project aims to develop a mobile application that allows new percussionists to learn basic percussion skills and music theory through continuous practice and imitation. Beginners can experience and learn without paying exorbitant fees to percussion teachers. Users can listen to any recording and then attempt to imitate them. The application will then compare the two recordings and provide a comparison score.

### **Comparison Algorithm:**

 Queen Another One Bites the Dust
 Ye

 Queen A
 Queen A

 Play Sound
 Duration: 0:17

Your Comparison score for: Queen Another One Bites the Dust Scoring System One

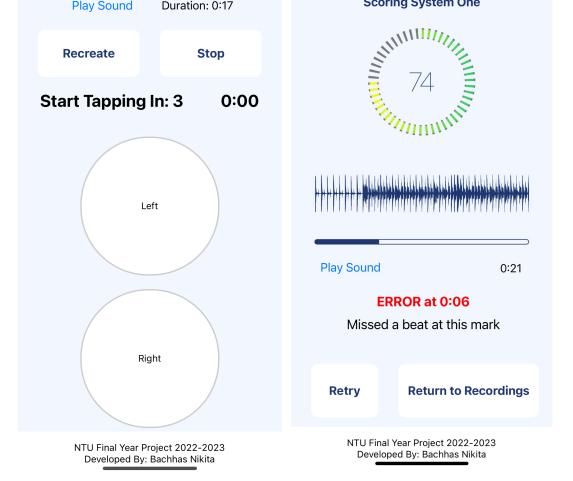
 $\leftarrow$ 

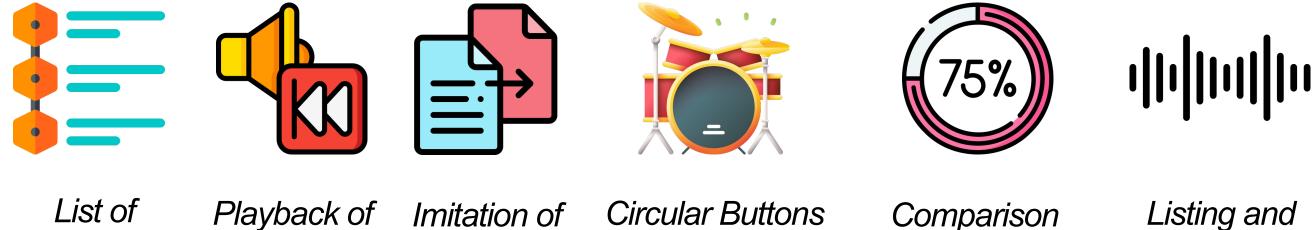
Two features are tested: **Frequency** (i.e., tempo) and **Timbre** (i.e., beats played). The imitation score is calculated by finding the percentage of similarity in tempo and the percentage of similar beats between the imitated and the original beat. The final imitation score is then calculated using Linear Programming, following the structure of A = Bx + Cy.

## **Main Features**

Recordings

Recording





Recording

to Imitate Drums



#### https://www.ntu.edu.sg/scse