



Vietnamese-German University

## MUSIC SHEET UNDERSTANDING AND TONE MODULATION

July 19, 2021



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## **II Disclaimer**

This report is a product of our team's work, unless otherwise referenced. In addition, all opinions, results, conclusions, and recommendations are of our own and may not represent the policies or opinions of the Vietnamese-German University's Department of Engineering or the University as a whole.

### **III Abstract**

### **IV Introduction**

The topic of recognizing musical sheets, i.e., Optical Music Recognition (OMR), is not a novel field of research. The term OMR first appeared in a paper written by MIT scientists in the 60s. During the last three decades until now, OMR is an ever increasingly developing field and is capable of solving many problems that involves with music

More specifically, the current OMR systems of today are capable enough to recognize a printed musical sheet and digitize it. The resulting output could be a .midi file, or other types of sound files such as .wav, .mp3. The vast majority of those researches are dedicated for the common user, even for users who are not educated on musical theory, but there is still a lack of product that can be used for professional or enthusiast musicians. In reality, a common problem that is encountered is the modulation of music tones, i.e., up or down semitone, tone for the whole music sheet. Currently in order to obtain a music sheet with a few tones higher or lower the musician has to manually retype the entire musical sheet by hand, which is labor intensive.

#### **i Our solution**

We propose an algorithm that can take it a pdf file as it input, then shift the tone of the entire song up or down to the number of tones, semitones according to the musician's need.

## **V Proposed Method**

To achieve our desired result we need to first remove the lines on each staff, second we translate the pictorial images of the note into text based notation, finally we will run our algorithm to shift our tones

### **i Line Removal**