TEJASWINEE KELKAR

HOW MELODY MOVES THE BODY: RELATIONSHIPS BETWEEN EMBODIMENT AND MELODIC CONTOUR
OTHER INTERACTIONS TO NOT FOCUS ON?

MELODY

AFFECT

EFFORT

LANGUAGE, PROSODY

METRIC SHAPE + MELODY

ACCENT STRUCTURE

MOTION

PYTHON MOCAP TOOLBOX IMPLEMENT
What is the shape of a melody, and how is our thinking about this shape embodied, is the key question I have tried to handle in this thesis. Thinking intermodally between melody as a simple sequence of pitches, and melody as the realization of musical energy moving through musical space, has been the main idea i (am trying) to explore. The experiments handled in the thesis concern themselves with large and intentional movement as in sound-tracing, small and involuntary movement as in musical chills, and memory and motion related research pertaining to novice singers reproducing known melodies.

The main set of experiments is where we asked people to trace melodic fragments as they heard them. As another approach to understand contour and how melodies are remembered, i (will) analyze the memory for melodic contour using two datasets: one repeating familiar melodies 3 times, and another repeating unknown complex melodies immediately after they hear them. A third dataset is in the form of a study where participants brought 3 pieces of music that give them the chills, and pointed to when, while listening to the music.

Contd...
ABSTRACT

For the sound-tracing experiments, the stimulus material consists of vocal samples, in order to bridge the disparity between the sounding body, and the acting body. These melody-motion pairs are analyzed in a series of methods:

1. Comparing them using contour models proposed in musicology
2. Understanding styles of hand movement pertaining to these tracings
3. Metaphoric representations of melodies
4. What do people do with the rest of the body while in the experiment setting?
5. Whether there is evidence for a mental model for melodic contour due to consistent repetition
6. How strongly are melody and motion correlated with respect to different features
7. Can these correlations be used to build a retrieval system

Thereafter, we understand the role of melodic contour in the analysis of:

8. Singing back familiar and unfamiliar melodies
9. Melodic shapes in musical chills

We conclude that melodic contour is a robust feature of melodic (musical) perception, and that embodiment gives us a window to access how contour is perceived, which could be applied to various systems.
OVERVIEW

EXPERIMENT 1
(32 PEOPLE TRACING 32 MELODIES)

1. Comparison of motion with old Contour Models
2. Enumeration of Hand Strategies
3. Metaphors in tracings
4. Correlation of Music & Tracings with multiple labeling

EXPERIMENT 2
(20 PEOPLE TRACING 32 MELODIES) + REPETITIONS + SINGING BACK (9 PEOPLE)

5. Body use in melodic tracings
6. Retrieval + User study for tracing-melody pairs
7. Singing back + Dataset from "Analysis of Intonation Trajectories in Solo Singing"
8. Melodies at chill moments
9. Repetitions: are people consistent?
10. Modeling intermittent motor control

CHILLS
50 PEOPLE 3 SONGS EACH

ORNAMENT REPETITION
1. Exploring melody and motion features in “sound-tracings”,
   14th Sound and Music Computing Conference 2017

2. Representation Strategies in Two-handed Melodic Sound-Tracing,
   MOCO 2017

   Applied Sciences

4. Evaluating a collection of Sound-Tracing Data of Melodic Phrases
   Submitted at ISMIR 2018
5. **Body use in melodic tracings**
   Small conference paper

6. **Retrieval + User study for tracing-melody pairs**
   TISMIR?

7. **The role of contour in non-expert singing of familiar and unfamiliar melodies**
   Empirical Musicology Review?

8. **Melodies and very small moments in musical chills**
   Frontiers?

9. **Repetitions: are people consistent, and how do we measure consistency?**
   Not sure.

10. **Modeling intermittent motor control and key postures using Delta Lognormal**
    Not sure.
THANK YOU