

# Figure Skating Choreography Off the Ice

## README

### CONTENTS

- **scripts** - scripts I wrote or modified
  - **script.sh** - shell script; runs main.py and speech.py concurrently
  - **main.py** - main script that
    - has the Kivy widget
    - displays information on screen
    - reads speech transcript from **transcript** pickle file
    - keeps the state of system
    - writes choreography file to a file **outputs** folder
  - **music.py** - handles playing audio and processes speech to navigate to different times in the music
  - **gesture.py** - handles data from the Leap Motion and gesture recognition; also determines what the corresponding element is according to the gesture and speech
  - **speech.py** - handles speech recognition
    - modified from Google Cloud Speech sample script
    - writes transcript to **transcript** pickle file
  - **video.py** - stitches together videos from **data** folder based on choreography file in **outputs** folder
  - **transcript** - pickle file that **speech.py** writes and **main.py** reads
  - **done** - pickle file
- **common** - scripts originally written by Eran Egozy (21M.385 - Interactive Music Systems) to handle audio playing, the Kivy framework, and Leap Motion functions.
  - I added a function in **gfxutil.py** to have text on the right side of the screen
- **data** - input files
  - video files for stitching together videos (.mp4)
  - audio files for music (.wav)
- **outputs** - output file of the system from previous uses; for each use, there is a pickle file that has the choreography, and a video file (.mp4) of the same name

### HOW TO USE on Mac OS

#### SETUP

- Runs in Python 2.7
- pip install

- imageio
- moviepy
- pyaudio
- --upgrade google-cloud-speech
- Need to have Google Cloud Speech API credentials and GOOGLE\_APPLICATION\_CREDENTIALS variable set to path to JSON file with key (downloaded from Google Cloud account project)
- Uses Leap Motion
- Requires microphone (laptop microphone OK, prefer headphones due to music playing at same time)

## USAGE

1. Put the music file (.wav) you want to use in the data folder, or use one provided:
  - memory
  - porunacabeza
  - sayyouwontletgo
  - shelter
  - steiner
  - thisisme
  - floras
2. Navigate to scripts folder. In Terminal, execute: `chmod u+x script.sh`
3. Run `./script.sh choreofilename audiofilename`
  - choreofilename can be any name you want
  - audiofilename should be the name of the audio file you want, without the .wav extension
4. Create choreography! See final paper - System - System Usage for how to use the system. The screen that pops up should also provide useful information. Note that speech recognition lasts only 65 seconds.
5. Say “done” or press the spacebar when done, then exit the window. The video should start rendering.
6. When the video is done rendering, find it in the outputs folder, and visualize the choreography you made!