

SSI 2019 Project

A Timbre Conversation

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Concept

Human seem to have a magic instinct in recognizing timbre difference. However, this instinct ability also gave us challenge in communicating about timbre. In human society, we extensively use descriptive language to share our feelings of different timbre. With this type of language, we develop consensus and create some kind of romance towards sounds and music. However, in human-computer interaction, communication of timbre is not easy, since our descriptive language could be too vague to be translated into cold and straight calculation and numbers.

Human already spent a lot of time making efforts to train computers to understand our languages. As nowadays computers started to be capable for unsupervised learning, they might be capable to figure out a way to communicate their “feelings” to us using their own language. A day might come when computers start to ask themselves “how can I make myself more understandable to you?” and make effort for it.

Function

This product demonstrated a potential machine expression of their timbre perception. It is a dialogue-like system which listen to you and give reply after you finished. Since it tries to learn, its reaction is also affected by former participants

Your dominant peak of voice, overall peak strength and overall loudness will affect the response in the conversation.

Materials and methods

This product can perform without any extensions other than a laptop (with pure-data installed). A microphone or earphone can be used to reduce feedback problem.

The building blocks of this products pay tributes to lab 1-5 in the SSI course. Here are some key features I learnt from the labs.

Lab1: In order to take turns in the conversation, the system stop recording after 3 seconds of silence and replay it.

Lab2: Use abstractions and periodic objects to manage input and output.

Lab3 & 4: Use different envelopes and space effects to distinguish different attributes in the reply.

Lab5: Find dominant peaks and their amplitudes.

Further possible improvement

1. More parameters can be used to make the language more human-friendly.
2. More average history data could be applied to space parameters
3. Music-like chords could be applied to indicate different dominant peaks in the timbre pattern.