



Bachelor Thesis / Master Thesis

Automatic singing difficulty analysis of songs with statistical support of information retrieval

Task:

Singing is an essential form of relaxation in life. Various computer-aided technologies continue to provide people with better entertainment in amateur singing, such as automatic scoring, song recommendation, real-time fusion technology, among others. As professional, fast transposition (pitch-shifting) techniques become more advanced and readily available, people can sing almost all popular songs they like.

However, none of those mentioned above techniques can tell an amateur singer how difficult a song is for singing. You will help to study this problem by conducting informatics perception from music data, extracting (even inventing) valuable features, and innovatively using radar charts to show each song's singing difficulty criteria. This is a helpful technique for amateur singers — they may have some confident skills to show off (portamento/wide register/fast tempo...) and weaks in others. The vast majority of people can choose songs absolutely “safe” for them to sing based on the difficulty criteria reflected on the radar map.

Requirements:

- Good programming skills in Python
- Ability to summarize the literature
- Ability to find, organize, and apply open databases
- Ability to plan and organize one-on-one short-term experiments or interviews
- A love of music, and interest in computer-assisted amateur music life
- Simple music theory knowledge (optional)

When:

- As soon as possible

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