
Pattern recognition system

Exercise Project

REPORT ASSIGNMENT N°4

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I Song Database

For this assignment we have constituted a song database on which try and train our HMM. As our feature extractor is based on the pitch of the note, we have chosen to hum the songs of the database. Also, our feature extractor uses an offset of semitons so we have tried to focus on songs which have a pretty well defined melody. The songs we have chosen are :

- Highway to hell - ACDC
- House of the rising sun - Animals
- Satisfaction - Rolling stones
- California Dreaming - The Mamas and the Papas
- I get around - Beach Boys
- Hit the road jack - Ray Charles
- Horse with no name - America
- Smoke on the water - Deep purple
- Trio n°2 in E-flat major - Schubert

Each one of these songs have been recorded by both member of the project groupe, 8 times each. The recordings were done on a computer, in a quiet environment. We have tried to vary significantly the way we were humming the songs in the different recordings so that our HMM is more robust. For example, we have transposed the song in different ways along the recordings because we have built our HMM to be independent of this parameter.

As we are one male and one female in the project group, we assume that our HMM should be able to recognize a song sang by both a man and a woman.