Journal of Acoustical Engineering Society of Iran, Vol. 9, No. 1, 2021

(Research Article)
The feasibility of automatic identification of principal Gushehs of Shur Dastgāh, using the musical audio features

A. Vafaeian[*1], K. Borna[2], H. Sajedi[3], D. Alimohammadi[4], P. Sarai[5]

1. PhD in Knowledge and Information Studies, Kharazmi University
2. Faculty Member of Electronic Engineering, Faculty of Engineering, Shahed University
3. Faculty Member of Computer Sciences, Faculty of Mathematical Sciences and Computer, Kharazmi University
4. Faculty Member of Knowledge and Information Studies, Kharazmi University
5. Faculty Member of Music Department, Faculty of Art, Islamic Azad University Central Tehran Branch

Received: 2021/02/03, Accepted: 2021/04/22
DOR 20.1001.1.23455748.1400.9.1.6.8

Abstract

The main aim of this study is to investigate the importance of the 21 temporal, spectral, and cepstral features in detecting the principal Gushehs of Shur. In the present study, a dataset was created, including 173 pieces of music, consisting of six principal Gushehs of Shur Dastgāh, played by four musical instruments: Tar, Setar, Santur, and Barbat, based on Mirzaabdollah Radif (Repertoire). To investigate the significance of each temporal, spectral, cepstral feature in identifying the six principal Gushehs of Shur, the 21 musical features (extracted from the literature) were scored by using the Fisher scale. Then, the LDA classifier was trained, and then three superior and best-scored features (out of 21 ones) were selected to measure the classifier capability of six Gushehs detection for each of four instruments separately and also for all instruments. Findings show that among the 21 features, cepstral features gained the highest scores in distinguishing the six Gushehs and were better off than spectral and temporal features; but in general, none of them could distinguish the Gushehs from each other. Though, despite the acceptable efficiency of musical features in automatic detection of Western music, it is not efficient in Persian traditional music.

Keywords: Iranian traditional music, Music information retrieval, Automatic detection, Musical feature extraction, Classifier.

pp. 18-27 (In Persian)

[*] Corresponding author E-mail: amirvafa@gmail.com

[Downloaded from joasi.ir on 2026-11-14]

[DOR: 20.1001.1.23455748.1400.9.1.6.8]