

Accepted Manuscript

Analysis of the Hilbert Spectrum for Text-Dependent Speaker Verification

Rajib Sharma, Ramesh K. Bhukya, S.R.M. Prasanna

PII: S0167-6393(17)30116-4
DOI: [10.1016/j.specom.2017.12.001](https://doi.org/10.1016/j.specom.2017.12.001)
Reference: SPECOM 2508

To appear in: *Speech Communication*

Received date: 26 March 2017
Revised date: 23 November 2017
Accepted date: 1 December 2017

Please cite this article as: Rajib Sharma, Ramesh K. Bhukya, S.R.M. Prasanna, Analysis of the Hilbert Spectrum for Text-Dependent Speaker Verification, *Speech Communication* (2017), doi: [10.1016/j.specom.2017.12.001](https://doi.org/10.1016/j.specom.2017.12.001)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Highlights

- The constituents of the Hilbert spectrum of the speech signal, i.e., the instantaneous frequencies and energies of its intrinsic mode functions (IMFs), are used for extracting features for Text-Dependent Speaker verification (TDSV), under mismatched and practical testing scenarios.
- The IMFs of the speech signal are obtained using Modified Empirical Mode Decomposition (MEMD). Seven different features are obtained from the instantaneous frequencies and energies of the IMFs.
- Though the seven features are not effective individually, in combination with the MFCCs they provide enhanced performance of the TDSV system. The seven features are useful at very low dimensions (≤ 4). Thus, only the first few IMFs are useful in extracting features.
- The performances of the TDSV system on the RSR2015 corpus show that the seven experimental features are effective not only for clean speech, but when the testing utterances are corrupted by Babble noise (simulating interference from adjacent speakers).
- The performances of the TDSV system on the IITG corpus show that the seven experimental features are effective under telephone channel conditions, and under changing channel conditions and environmental noise.

Download English Version:

<https://daneshyari.com/en/article/6960850>

Download Persian Version:

<https://daneshyari.com/article/6960850>

[Daneshyari.com](https://daneshyari.com)