

A simple toolbox for speech processing on SCILAB

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Abstract

We develop a toolbox for speech processing, a new tool for SCILAB that provides a fundamental and convenient interface for scilab programmers working on speech, signal and voice processing. The toolbox is based on well-established theories of signal processing and includes various modeules like Audio File Input/output, Frequency Scales, Fourier/DCT/Hartley Transforms, Random Number and Probability Distributions, Vector Distances, Speech Analysis, LPC Analysis of Speech, Speech Synthesis, Speech Enhancement, Speech Coding, Speech Recognition etc.

SCILAB is a famous and open-source software for scientific computing taken in charge since 2003 by Scilab Consortium (www.scilab.org). SCILAB has been extensively received by scientists, engineers and technicians, and practitioners in both academia and industry. With the enhancement of the toolbox, programmers focus on speech processing can easily build softwares like a musical player as well as do experiments and verifications for their prospective theories.

We also implement a demo software concerning speech recognition from a voice database with the toolbox and SCILAB fundamental tools while maintaining considerably low error rate. (We still need to verify it with sufficient test cases). However, the most important point is that every one can build this within a relatively short time.

Key words: speech processing, scilab, voicebox