

Description of the library of functions for compressing the sparse approximation (SA) of a signal

The library contains MATLAB functions implementing the methods described in the paper:

A SIMPLE SCHEME FOR COMPRESSING SPARSE APPROXIMATION OF
MELODIC MUSIC

Laura Rebollo-Neira
Mathematics Department
Aston University
and

Ivandro Sanches
Centro Universitario F. E. I.
São Bernardo do Campo, São Paulo, Brazil.

The whole library is available for download on the website

<http://www.nonlinear-approx.info/examples/node07.html>

The approximation routines are dedicated to be applied with trigonometric dictionaries and take advantage of the FFT.

Path instruction. On the main directory write:
`P=genpath('SACodec'); addpath(P).`

The main directory is named
SACodec.

In addition to the scripts for encoding/decoding **SACodec** contains 3 sub-directories:

Pursuit-Approx

Clips

Tools

The files description are given below.

SACodec

Contains the scripts:

[Run-SA-Encoder](#) (Run this script to encode the SA of a clip; change the values of TABLE and CLIP, inside the script, to reproduce the outputs of a particular table and clips. By default it runs with TABLE=3 and CLIP=11). Running this script creates the file [SA-encoded1-file.mat](#) in this directoty.

[get-settings-table1](#), [get-settings-table2](#), [get-settings-table3](#) contain the parameters for reproducing the 3 tables.

[SA-Encoder](#) is called by Run-SA-Encoder.

[Run-SA-Decoder](#) (Run this script to decode the encoded file)

[SA-Decoder](#) is called by SA-Decoder.

[Test-Outputs](#) is called by SA-Decoder to calculate the compression rates and compare with MP3.

Pursuit-Approx

Contains the functions to approximate the signal using the OHBW-OOMP approach dedicated to the trigonometric dictionary.

Tools

Contains auxiliary functions which are called by the main routines

Clips

It is split in 4 subdirectories:

[Original-wav](#) Original clips in WAV format.

[SA-Table1](#) Split in 4 subdirectories:

[SA-enc-mat](#) All the SA encoded files (for Table 1).

[SA-rec-wav](#) All the SA recovered signal in WAV format.

[MP3-128](#) All the MP3 files for TABLE 1

[MP3-128-rec-wav](#) All the MP3 recovered signals
in WAV format.

[SA-Table2](#) and [SA-Table3](#) have the same description of [SA-Table1](#) but for TABLE 2 and 3 respectively.