Forensic Audio Enhancement Toolbox for Speech Enhancement
Technology #10701

Applications

Applications for this technology are found in studio recording, speech enhancement in forensic audio recordings, and hearing aid development.

Problem Addressed

The Forensic Audio Enhancement Toolbox is a software toolbox designed for the enhancement of single channel audio signals corrupted by a variety of noise environments typically found in forensic recordings. These are wideband noise, stationary tones, and interfering pulses.

Technology

The Toolbox contains a tool for each type of noise: stationary tone suppression, wideband noise reduction, and prototype pulse suppression. In addition to these modules, the toolbox contains supporting software for sample rate conversion and high pass filtering. The tone suppression algorithm has a much higher frequency resolution than existing technologies, and it allows the user to set a threshold, relative to the local spectral average, that will only select those tones, harmonic and in-harmonic, that require suppression. The wideband noise reduction algorithm preserves perceptually important nonstationarities in the speech signal, such as plosive bursts, formant transitions, and vowel onsets, while suppressing additive noise. The pulse suppression tool assists the user in generating a representative prototype pulse that is then used as a matched filter to detect and suppress interfering pulses.

Advantages

- Optimized for forensic audio recordings, providing effective speech enhancement in noisy environments
- Reduces multiple types of noise, providing a versatile method to enhance speech even when many sources of noise are present

Categories For This Invention:

Lincoln Laboratory
Software (Copyright)
Other (Software)

Intellectual Property:

Copyright Software

255 Main Street, room NE 18-501
Cambridge, MA 02142-1601
Phone: 617-253-6966 Fax: 617-258-6790
http://tlo.mit.edu
Contact the Technology Manager: tlo-inquiries@mit.edu
Inventors:
Thomas Quatieri
Robert Dunn

External Links:
Lincoln Laboratory
http://www.ll.mit.edu/