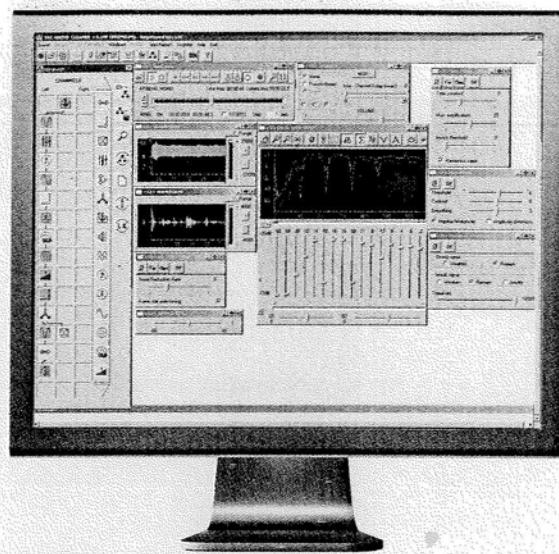
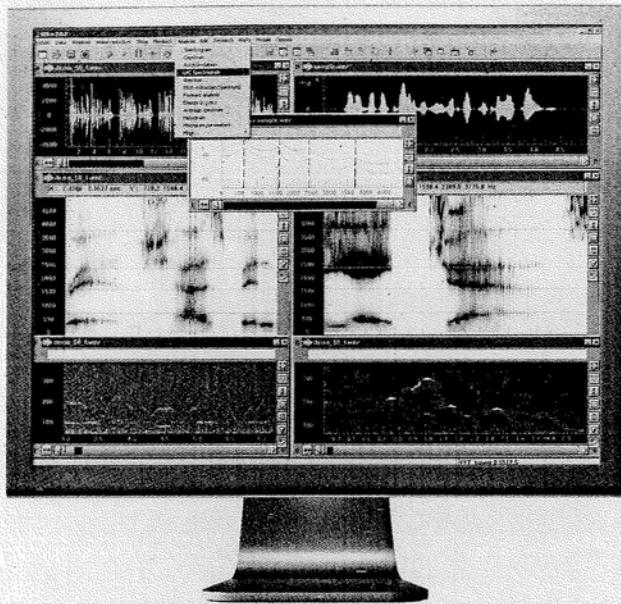


IKAR Lab

Most popular audio forensic lab in the world. 350 installations in more than 60 countries worldwide

- Speaker identification
- Speech enhancement and audio restoration
- Authenticity analysis of audio recordings
- Analysis of acoustic environment
- Testing and identification of audio equipment
- Transcription of law quality records



SIS

Audio visualization and editing



SIS is the core software of IKAR Lab audio forensic package. It encompasses rich functionality for audio signal visualization, analysis and editing.

SIS operates with all audio formats and can capture audio from .avi video format. It is also converts analog-to-digital signals with any sample rate.

Editing

- Signal normalization
- Speaker separation
- Mixing
- Modulation
- Slowing/speeding up speech tempo without pitch distortion
- Re-sampling
- Signal synchronization
- Splitting stereo signals or merging of two mono signals into stereo
- Phase change
- Waveform reversing
- Service real-time marks decoding

Signal visualization and analysis

- Waveform
- FFT and LPC sonograms
- FFT power spectrum average
- Cepstrum
- Autocorrelation
- Pitch
- Formants
- Energy
- Histogram and histograms correlation
- Windows overlaying for different types of analysis
- Windows synchronization in time and spectral domains for speakers comparison
- Automatic comparison of pitch statistics for two speakers and text report
- Vertical and horizontal marks with text comments
- Brightness, contrast and normalization adjustments for visual speech representation

Sound Cleaner

Real-time noise cancellation

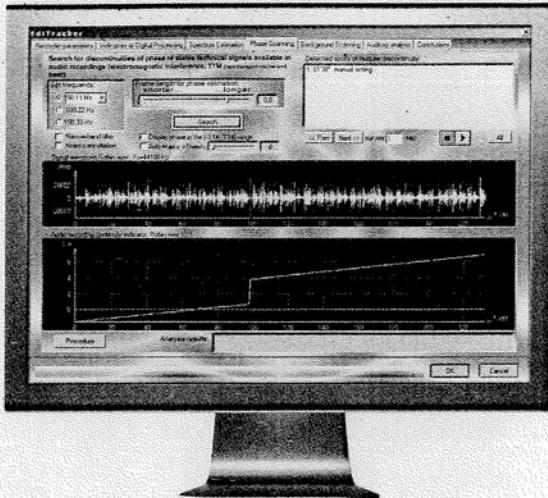


Sound Cleaner is a state-of-the-art real-time noise cancellation and speech enhancement software. Sound Cleaner uniquely combines all up-to-date noise filtering algorithms and speech enhancement tools in one product. Through the filtering workflow, each module can be easily activated and combined with others so that all the changes in the audio could be intelligibly heard on-the-fly.

- Typical processing schemes for common noise cancellation
- Filters adaptation to cancel noise while maintaining useful signal (speech)
- Easy to use, ability to adjust noise cancellation filters on-the-fly
- Operation with sound from different sources: analog outputs, microphone, file

Adaptive filters

- Parametric equalizer
- 2 adaptive filters of broadband noises
- Harmonic filter
- Adaptive inverse filter
- Adaptive filter of regular noises
- Impulse noise filter
- Dynamic filter (weak signal amplifying/weakening, strong signal weakening)
- Stereo signal filtering (time and frequency processing)
- Anti-reverberation filter
- Amplifier
- Tempo correction without pitch distortion
- Binaural listening support ("pseudo-stereo")



EdiTracker

Audio authentication

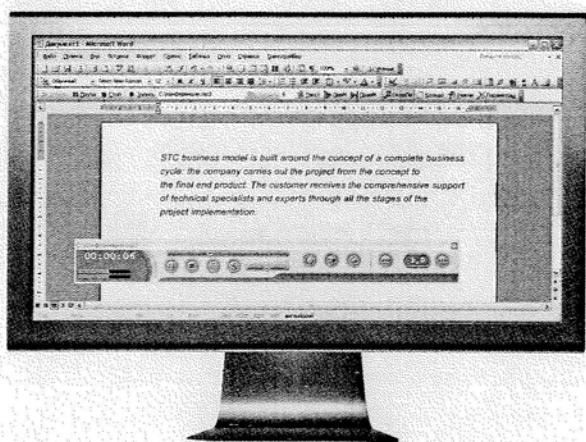


EdiTracker designed for audio authenticity analysis is a unique software module for SIS. Paired with SIS functionality it significantly increases IKAR Lab capabilities in terms of audio authentication.

EdiTracker provides six different methods of investigation, automatically searches for suspicious areas of phonogram fragments, visualize all the steps of research and generates text reports.

This entire comprehensive tool set considerably improves the speed and the reliability of expert operations.

- Calculation of a recorder's parameters
- Finding the traces of previous digital processing
- Finding the traces of tampering by the harmonics phase shift
- Background noise scanning
- Automatic logging of each type of analysis for final protocol
- Built-in instructions for each type of analysis



Caesar

Quick speech-to-text transcription



Caesar software combines multi-functional digital voice recorder and text editor. It ensures fast and easy audio playback and transcription in one software interface. The text is automatically linked to the audio for quick reference to the corresponding fragment in the track.

- Control by hotkeys
- Speech slowing without pitch distortion
- Linking audio fragments to text for convenient search
- Foot pedal for playback control (optional)

Equipping Audio Forensic Laboratory

Depending on the volume of collected audio materials, a forensic audio laboratory can be flexibly configured to meet the needs of any organization.

The typical mid-size laboratory can support all basic audio examinations challenges with two workstations.

The following considerations should be taken into account:

Audio forensic science stands at the junction of diverse disciplines including physics, audio engineering, linguistics, and law. Since it can be quite a challenge for one specialist to master equally all this information, normally at least two analysts are involved in a case investigation. They are one audio engineer and a language specialist. Their parallel and independent work can significantly increase reliability of the conclusion.

Forensic Audio Lab for Two Operators

Workstation 1

Duties

- Sound input from various audio sources
- Audio recording equipment testing
- Audio duplication
- Speech enhancement
- Text transcription
- Speaker ID
- Reporting

Equipment

- Calibrated I/O device STC-H246
- SIS
- Sound Cleaner
- Caesar
- Specialized audio playback systems that match the type of recordings expected to be received in a laboratory.
- High-quality wiring, connectors, and adapters to manage all required equipment connections
- Sealed headphones and well-padded loudspeakers

Workstation 2

Duties

- Sound input from various audio sources
- Speech enhancement
- Speaker ID
- Audio authenticity
- Reporting

Equipment

- Calibrated I/O device STC-H246
- SIS
- EdiTracker
- Trawl Lab
- Sound Cleaner
- Sealed headphones and well-padded loudspeakers

Additional equipment

- Digital photo camera
- Safe for evidences storage
- Printer
- Analog and digital audio recordable media
- Local area networking (LAN) equipment,
- Equipment for expert report hard copy production (local network laser printer)
- Professional digital voice recorder for voice samples recording

Training, Theoretical and Practical Support

Audio forensic training is a part and parcel of audio lab efficiency work. STC courses are designed to provide the student with detailed theoretical and hands on training on the suite of audio forensic products and methods used for different types of examinations.

Training: Forensic acoustics

Duration: 5 days

- The theory and practice of noise cancellation and low-quality speech decoding
- Sound Cleaner: real-life audio files processing
- Articulation and speech production
- Forensic voice identification: different approaches and methods applied
- Spectrographic ID analysis in SIS
- Real-life examples and practice
- Authentication: theory and practice
- Audio authenticity instrumental analysis using SIS and EdiTracker
- Real-life examples and practice
- Making a report

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