

Digital Recording System Identification Based on Audio File

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Abstract : The objective of this work is to develop a theoretical framework for reliable digital recording system identification from digital audio files alone, for forensic purposes. A digital recording system consists of a microphone and a digital sound processing card. We view the cascade as a system of unknown transfer function. We expect same manufacturer and model microphone-sound card combinations to have very similar/near identical transfer functions, bar any unique manufacturing defect. Input voice (or other) signals are modeled as non-stationary processes. The technical problem under consideration becomes blind deconvolution with non-stationary inputs as it manifests itself in the specific application of digital audio recording equipment classification.

Keywords : blind system identification, audio fingerprinting, blind deconvolution, blind dereverberation

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