Automatic processing of audiometry sequences for objective screening of hearing loss

Audiology is the branch of science that deals with hearing, balance, and related disorders. Detecting patients with slow responses to auditory stimuli is relevant because this slowness could be due to other cognitive problems or conditions, which should be studied carefully. In this paper, we present an automatic methodology for processing video sequences recorded during the performance of hearing tests to patients. This screening method allows us to measure the patient’s response times to the auditory stimuli sent to them, and based on these times, to identify those patients with response times abnormally slow. The method is tested on individuals taken at random from a standard population, and based on the obtained results, it is confirmed that the proposed method is valid for the automatic detection of patients with slow response times, and it also serves to the experts as a tool for the accurate and objective measurement of these times.

Methods for evaluating and improving audiometric examinations - ORL system Fowler

Abstract:

The purpose of this work is to design the system, which eliminates redundant and repetitive tasks in the certain types of hearing function examinations. Proposed system reduces time needed to examine patient and also provides the full digitization of the results. The obtained database can recently become the base for subsequent processing in artificial intelligence expert systems. Such systems can increase diagnostic potentials. In cooperation with physicians, the above mentioned system began to be developed. Beside the steps automatizing examination there will be also described expert system based on the obtained data. The system is focused on pointing the examination which can reveal otosclerosis diagnosis.

# A comprehensive cloud-based remote hearing diagnosis system

Abstract:

Although emerged for around a decade, tele-hearing systems have been limited to pure-tone audiometry because of the technical complexity involved in the other hearing test modalities. This paper presents a comprehensive remote hearing system that integrates two of the most needed test modalities: pure-tone audiogram and speech test. Inheriting the browserserver architecture from an earlier effort, the proposed system consists of an application server, audiologist terminal, and patient-side equipment, which further includes a commercial audiometer and an “in-house” console device that is capable of data and audio signal exchange required by speech tests and facilitates convenient communication between the audiologist and patient, making test sessions go smoothly.