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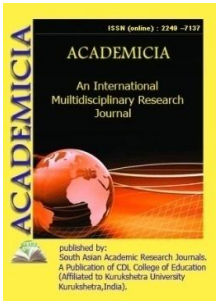


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# THE NEED FOR A SPEECH DETECTION PROGRAM IN THE PROCESS OF SOCIAL INTEGRATION

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## ABSTRACT

*The article is devoted to the development of software for computer linguistics, which highlights the level of research on the problem in world and Uzbek linguistics. Types of speech-related computer programs according to the methods of creation, technology and function are discussed. The study discusses the role of speech recognition software in the development of Uzbek computer linguistics, the mechanism and possibilities of creating a program for digitizing voice messages.*

**KEYWORDS:** *Language, Speech, Computer Linguistics, Speech Synthesizer, Speech Recognition Software, Artificial Intelligence, Audio Information, Digital Technology, Linguistic Software, Speech Corpus.*

## INTRODUCTION

Ensuring the integration of language into modern media has become one of the priorities of socio-political activities, with a special focus on the development of a system of economic and cultural relations based on digital technologies. The results of research in computer linguistics are extremely important for innovative solutions to problems in this area. To date, a number of scientific and practical results have been achieved in world computer linguistics: an automatic translation system in natural language, an automatic search system for textual information, automatic analysis and synthesis of spoken speech, optimized human-machine (computer) communication, natural language processing (Natural Language Processing) system was formed. In the world of computer linguistics, the implementation of research such as text editing software, speech synthesizer, text corpus, software for linguistic-statistical analysis of texts, abstracting texts has contributed to the creation of large-scale linguistic databases. [1]

M.Ayimbetov [2, 47], S.Rizaev [3, 50], S.Muhamedov, A.Pulatov, S.Muhamedova, A.Rahimov, N.Abdurahmanova, who conducted linguostatistical researches on the basis of Uzbek language materials in the formation of computer linguistics in our country, The scientific researches of M.Abjalova are of special importance. S.Muhamedov and R.Piotrovsky's study "Engineering Linguistics [4, 25] and the experience of system-statistical research of Uzbek texts" [5, 420] discusses linguistic models, modeling and its general principles.

N.Abdurahmanova's research draws conclusions on the creation of linguistic support for machine translation, provides morphological and syntactic models of Uzbek and English, bilingual affixes, morphological dictionary, linguistic support of verb phrases, simplicity of English translation of models , based on the principles of morphological, syntactic-semantic analysis of texts for machine translation, developed recommendations for the coordination of paradigmatic (associative) relations on the principles of linguistic software for electronic dictionaries and software [6, 141-148].

The research conducted by M. Abjalova created the theoretical basis for the formation of the linguistic support of the system of automatic editing and analysis in Uzbek computer linguistics; the principles of morpheme valence, categorization, syntagmatic and methodological separation of words in the formation of the linguistic supply of automatic editing and analysis are developed, based on the importance of linguistic module and modulation; the provision of grammatical categories of the Uzbek language on official and scientific texts, grouping by word groups, the formation of models of connection by conjugation, adaptation and management in the sentence structure; graphic editing, morphological and syntactic analysis modules have been developed to provide automatic editing / analysis technology and software excellence [7, 104-106].

In recent years, in Uzbek computer linguistics, special attention is paid to the development of speech-related programs. In particular, as part of a practical research project at the AlisherNavoi Tashkent State University of Uzbek Language and Literature, a program was developed to translate the Uzbek text into a voice message - the first interpretation of the national speech synthesizer (M.Kurbanova, B.Mahsudov, E.Isoev, 2020), TTSuzbot telegram launched online via the bot. This software product is a user-friendly interface, especially for blind people to work independently with electronic text in Uzbek.

## THE MAIN FINDINGS AND RESULTS

Speech-related computer programs also play an important role in translating a voice message into text. This process is carried out through the speech recognition system [8]. This system is a technology designed to be able to receive verbal expressions of all level units of a program or machine language system and to convert them into a machine-readable format. Although there are interpretations of speech recognition software in English, Russian, Japanese, Korean, Chinese and other languages in world computer linguistics, this issue is one of the problems in Uzbek computer linguistics.

The first device for voice recognition was created in 1952, which detected numbers pronounced by humans. In 1963, a miniature detection device called the "Septron", a fiber-optic memory device developed by engineers at Sperry Corporation, was introduced in the United States.

They served to carry out this or that sequence of actions according to certain sentences pronounced by the human operator. “Septrons” are designed to automate voice dialing in the recorded wired area and to automatically record the text that is pronounced on the teletype (in the voice control of complex military equipment); aviation (in the creation of “smart avionics” subject to the orders of pilots and crew members), used in automated control systems.

Commercial programs for speech recognition originated in the 1990s. Typically, they are used by users who cannot type large amounts of text because of a hand injury. These programs (e.g., Voice Navigator) [9] convert the user's voice to text.

It is well known that speech recognition software is widely used in search engines in the global network. Initially, Google researchers developed a voice search for the Chrome Internet browser and the Android mobile device. Sophisticated technologies have been added to the Google search engine’s voice software for Android and Apple Phones. The user can use them to press a phone button and express an optional question through sounds. The audio is then converted to a digital file that is intelligible to the software and sent to a Google server.

An important aspect of Microsoft-Tell Me, which serves as a speech recognition program, is the natural interaction of tools used in daily activities. “Tell me” works on the basis of human voice, which means that the user can send a voice message and receive any information on a mobile device. In this case, the user says a message; the phone receives this information in the form of text. South Korean Information Technology Research Institute in collaboration with Google search engine English, Korean and Chinese speech recognition device and developed voice technology that allows viewers to search for a television program using the IPTV system. The advantage of these technologies is that they add many applications to the automatic speech recognition program for the “provision of voice functions”.

Innovative technologies require the creation of speech corpora at the initial stage of the formation of a speech recognition system based on modern research methods. To do this, tens of thousands of different types of sentences are selected according to the options of phonemes available in the language, adapted to different speech styles, structure, purpose of expression, and their audio database is created. Because each person’s voice is individual and the program is not limited to recognizing only the same voice, each speech in the database is read by several speakers who differ in factors such as age, gender, and region.

Unlike audiobooks, there are certain technical requirements for this program, in the process of preparing audio information on speech parameters, it is necessary to remove the noise in it using a sound processing program. Each sentence and its phonetic expression are stored in a separate file and compared with each other using machine learning technology. To do this, you will also need to include transcripts of linguistic materials in the program database.

Pronunciation and spelling dictionaries serve as a valuable lexicographic source in the formation of the speech recognition system. When compiling dictionaries for the program, special attention should be paid to the orthography of words. Machine learning technology determines the specific phonetic laws, orthopedic norms, and linguistic features in general through the practically independent study of language.

At the next stage of the activity, acoustic and linguistic models will be developed and program algorithms will be developed based on the results obtained in this regard. This creates the initial interpretation of the speech recognition program.

Voice recognition technology is one of the fastest growing areas of artificial intelligence. This technology is improving qualitatively in the XXI century. As a result, new approaches to the processing of natural language are emerging.

## CONCLUSION

Speech recognition software Voice control of mobile phones and other automated technical devices by persons with limited hand movements; voice input and editing of text on a computer; independent use of search engines in the global network; providing information and advice, ordering for branded services; conducting public surveys, conducting surveys, reading audio sources by people with hearing impairments into text, entering the diagnoses of patients in the form of text by voice on an electronic record sheet, preparation of audio recordings of interviews, text of meeting minutes and transcripts, teaching students to pronounce correctly, plays an important role in increasing their literacy rate. In this regard, the creation of an interpretation of the speech recognition program in our national language is one of the urgent tasks in Uzbek computer linguistics.

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