

# Application of Intelligent Speech Recognition Technology in Public Security Work

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**Abstract:** At present, the public security organs have achieved some results in the construction of information technology. However, due to the lack of professional institutional systems, insufficient technical application capabilities, and inadequate equipment resources, the application of speech recognition technology in public security work only stays at Speechprint identification level. It is imperative to promote the research of intelligent speech recognition technology for public security work. Building a comprehensive police speech capability platform, developing intelligent speech recognition police work application function modules, continuously innovate the ideas of grassroots public security work, inject strong power into the development of public security police work and promote police services transformation of the model.

## 1. Introduction

In the current public security work, speech recognition is mainly used in speechprint identification, including through speech recognition and speech database of speech signal processing, analysis and identification, analogy, speech identification and confirmation, and then to criminal investigation provide investigation direction and clues, determine the trajectory course, fixed the evidence materials, etc. [1]

With the rise of artificial intelligence to the national development strategy, we have entered a new era characterized by data-driven features. Therefore, it is necessary to promote the application and research of intelligent speech recognition technology in the public security work and inject new vitality into the public security work.

## 2. The Connotation of Intelligent Speech Recognition Technology

Speech Recognition technology, also known as Automatic Speech Recognition (ASR), aims to transform the lexical content of human Speech into computer-readable input, such as keys, binary codes or sequences of characters. [2] The connotation of speech recognition in public security work is closer to the identification of speechprint, including the processing, analysis, identification and analogy of speech signals through speech recognition technology and speech database, and the identification and confirmation of speech speakers, so as to provide the investigation direction and clues, and determine the track route fixed evidence materials and so on. In the era of Internet artificial intelligence, the connotation of speech recognition is developing to the intelligent direction, providing speech services for various police types and departments, such as speech input of mobile police terminal equipment, speech query and retrieval, real-time translation of spoken language, interrogation records, 110 reception and handling of police, meeting transcriptions and so on. So as to better serve the changing public security work.

### **3. Significance Analysis of Intelligent Speech Recognition Technology Applied in Public Security Work**

#### **3.1 Urgent Needs of National Strategic Development**

Scientific and technological progress is profoundly changing and affecting every corner of the economy and society. The informatization work of public security has also entered the era of big data and intelligence. With the rise of artificial intelligence to the national development strategy, public security organs at all levels should also follow the trend, enter a new era characterized by data-driven features, constantly promote the application research of intelligent speech technology, and inject a strong impetus to grass-roots police work.

#### **3.2 Urgent Needs of Improving the Actual Police Efficiency**

In the daily work of public security organs, such as receiving and handling police, case handling and other actual police operations, the introduction of intelligent speech technology will greatly reduce the time of recording materials, improve accuracy and standardization, simplify the processing process, and improve the speed of case information collection, processing, circulation and inquiry, so as to effectively release the police force.

#### **3.3 Urgent Needs of Solving Problems Such as Job Entry and Confidentiality**

- a. solves the problem of information input in public security work
- b. solves the problem of public security leaks
- c. solves the problem of fuzzy speech in public security work
- d. solves the problem of speech command transmission, recognition and conversion between mobile police terminal and big data platform of public security

### **4. Build a Platform for Comprehensive Police Speech Capability**

#### **4.1 Application Scenario**

##### **4.1.1 Speech Input of Mobile Police Terminal Equipment**

For mobile police terminals such as police pass, which do not support speech input function, the police version of speech input method needs to be directly converted into text by police oral speech, instead of keyboard and handwriting input, to achieve fast text input function in mobile application scenarios.

##### **4.1.2 Real-time Translation of Mobile Police Terminal**

When encountering foreigners or uighurs in the working scenarios such as road patrol inventory, household interview and entry and exit, the mobile police terminal shall realize the function of real-time translation between Chinese and English and uyghur , and provide the spoken language translation service between Chinese and other languages, so as to assist the police to complete the communication work.

##### **4.1.3 Interrogation Transcripts**

The old policeman's typing speed is slow, the production of recording efficiency is low, if the manual information input work was converted into the speech control computer automatic identification input, then it will greatly improve the work efficiency, improve the professional happiness of the police.

##### **4.1.4 110 Police Reception and Handling**

In the process of daily police receiving, 110 police officers need to record the police work orders of the case-generating department and do classification mark. For the new, quality inspection is required, and the alarm recording of the docking police is required to ensure the quality. It is necessary to use the intelligent speech technology to directly transfer the speech of the call to a

written record, which is convenient for the police to record the case. Improve work efficiency, and analyze and count the 110 police speech and transfer records in the later stage.

## **4.2 Develop Intelligent Speech Recognition Police Work Application Function Modules**

### **4.2.1 Intelligent Speech Information Input Application System**

Intelligent speech automatic recognition technology is used to automatically retrieve the required speech in speech media such as teleconference, interrogation, Internet (speech chat, WeChat), and convert manual information input into automatic recognition and input through speech manipulation.

### **4.2.2 Intelligent Speech Precision Strike Application System**

The intelligent speech recognition technology is applied to the arrest operation of the public security organs. The real identity of criminals is identified through the technical monitoring equipment, and the environment to be captured is predicted and the arrest plan is confirmed.

### **4.2.3 Intelligent Speech Case Trial Application System**

The deep speech emotion evaluation technology based on speech recognition has become a new mode of public security organs' interrogation methods. It can make the internal suspects' internal emotions external, objective, intuitive and data-oriented, so that the police can be more operative to distinguish their speeches, and it is convenient to grasp and adjust the direction of interrogation in time.[3]

### **4.2.4 Intelligent Voice Security Prevention and Control Application System**

Establish an intelligent voice platform in the public security network, package the voice information of various personnel collected and the voice information of the public security organs into the voice platform in a complete, timely and standardized manner. Through self-analysis and learning functions, the police will conduct dynamic monitoring and automatically push the results according to the jurisdiction's warning order, scientifically adjust public security prevention and control measures, and arrange police force.

### **4.2.5 Intelligent Speech Service Livelihood Application System**

First of all, to improve the communication skills of the police, such as foreigners or non-mandarin people in different places, you can use speech recognition equipment to convert foreign languages and dialects quickly and accurately with mandarin, and timely resolve the problem of policing due to language barriers. Secondly, to create a "smart + police" service model, introduce intelligent voice recognition robots, according to the user's voice guidance, handle related business, answer various questions of users, facilitate the elderly and illiterate groups, and improve the quality to serve the masses.

### **4.2.6 Mobile Terminal Speech Command Recognition and Conversion System**

It is mainly uploaded to the public security big data platform through the voice command of the mobile terminal, and the recognition and conversion of voice to text is carried out to improve the efficiency of public security work.

## **References**

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