

# The Conception of the Contemporary Chinese Opera Music Score Database

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**Abstract:** Music score are the carrier of musical works, and Chinese Opera is an important part of traditional Chinese folk music. The enduring transmission method of music is an oral tradition, and only a few operatic scores (such as Kunqu Opera, Peking Opera, etc.) have been published before 1949. It was only in the 1950s where the surge of music specialists in the workforce has initiated an effort to record operatic works, resulting in the publication of Chinese Opera and vocal music. After the 1980s, various operatic texts were found stacked on top of each other. In particular, during the Seventh Five-Year Plan key scientific research project of the National Philosophy and Social Sciences, the “Chinese Opera Music Integration” series was founded to compile a comprehensive collection of vocal scores from various operas. By creating a database, a large number of rich resources on opera music can be accessed when all of its information and classification are compiled into the database. By providing the function of searching and browsing some of the vocal scores and images online, its significance is not only limited to providing complete access to operatic works but also promotes the development of academic research in opera music.

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## 1 The establishment of domestic and international music databases

The international music database is in a pioneering

position; there are representatives such as the International Music Score Library Project (IMSLP), Alexander Street (ASP) classical music library, and EBSCO Music and Performing Arts Research Database.

The domestic music database can be categorized into three types: music university library, commercial database, and music websites. There are two types of music databases in university libraries - first, the music database contains sub-items with music scores as content. The second is a database of thematic scores. The above music database is mainly based on Western music and contemporary music compositions. The author has not found a music database with traditional folk music as a focused genre. The music business database, such as the Kuke Art Center, is predominantly on Western Art Music for the purpose of facilitating users to download sheet music. Likewise, it does not contain any information on traditional Chinese music. There are a large number of websites providing accesses to music scores online, and the types of music available are also diverse. A larger and more comprehensive music score database would contain operatic scores. Websites like this cover a wide range of operatic scores, but the categorization is indistinct and unprofessional. In addition, the source of the scores is multifaceted; with both book scans and the public's personal copies, hence the mixed quality. There is also an absence of information on the scores with most of the scores lacking important information such as names of performers and composers.

## 2 Research findings

The findings of this research on music databases can be divided into three categories, namely, the discussion or summary of the databases used in colleges and

universities for the construction of the music database; an analysis of a famous music database as an example; and a study on an independently produced music database. The former is represented by a series of papers contributed by Xi'an Conservatory of Music<sup>[1]</sup>. The mid-section contains a discussion and analysis of the abovementioned International Music Library Database<sup>[2]</sup> and Western Music Database<sup>[3]</sup>. Lastly, the author will discuss an independently constructed music database by a Master's Degree student from Xinjiang Normal University, who attempted to create a music database dedicated to the folk songs of Xinjiang<sup>[4]</sup>.

In summary, the construction and research findings on the domestic and international music databases focus on a small number of traditional music. Although some of the websites contain opera and vocal music scores, its classification remains unclear with incomplete information and resources that are low in quality. Therefore, there is a great urgency and need to construct an opera music database of quality.

### **3 The position of contemporary chinese opera music score database and its data sources**

#### **3.1 Database positioning and function**

This database is positioned as an information database which consists of two parts: a score index library and a digital score library.

The main function of a score index library is to retrieve information on musical works. Through the publication of the operatic arias in the form of music score and the "Chinese Opera Music Integration" series of vocal works, information such as the title of repertoires, names of singers, composers, dates of publication, publishing houses and other specific information has been collected and entered into the index library. The index library has been categorized based on information such as operas, the title of repertoires, vocal name keywords, and singers.

The main function of a digital music library is the browsing and downloading of music scores. With the digitalization of opera and vocal scores combined with the index library, the user can browse the scores in a variety of ways, such as opera, repertoires, performers, etc., or search, browse and download by search for the relevant keywords.

The score index library and the digital score library can be searched independently or collectively.

#### **3.2 Database resource collection and processing**

This database consists of a score index library and a digital score library. Although there are overlapping contents in the two databases, there are still big differences in the resource collection process and running operation.

##### **3.2.1 Score index library**

In order to enable users to find more comprehensive music resources from the database, the score index library should cover a wider range of resources, and its resource channels are divided into the following categories:

a. A collection of resources such as the National Library, Shanghai Library, National Academy of Chinese Theatre Arts, Shanghai Theatre Academy, Shanghai Conservatory of Music and other university library collection as the focus.

b. Establishing a network of resources through academic databases, cloud data sharing and other forms of retrieval and collection of information such as personal data, through interviews with relevant experts and scholars in obtaining the data for the music scores. The catalog of the opera and vocal scores that have been collected through the above three ways is then entered into a table to form an index.

Before proposing this project, the index part of the library resources of the National Academy of Chinese Theatre Arts has been completed. This part of the work has been carried out through an opportunity given by the Ministry of Education on a project titled "Comprehensive Study on the Drama of the Han Opera". One of the expected results of the project is the preparation of the Han Opera Drama Selection by selecting the most representative arias and its vocal scores from a large number of published opera scores, and a selection of other vocal excerpts. The project leader stated that after a few discussions and founding several programs, the project team finally formulated a solution: cataloging the published opera scores to form the "Han Opera and Vocal Score Index" as a focus genre of the index. Through research and a careful selection of songs ensured the representativeness of the content in the "Vocal Selection". Since the project is restricted by a deadline, it is necessary to set aside time for the selection of the vocal segments and the production of the scores after the index is completed. Therefore, the actual operation is based on the library collection of the National Academy of Chinese Theatre

Arts.

The first step is to create a catalog of the specific information of the opera works in the library. The second step is to create an index of the score based on the catalog of the vocal ranges. The third step is to classify the music scores completed in the second step according to the categories of music. Due to the complicated nature of the music collections, only a few vocal ranges of the opera works are included, while others include multiple movements, such as operatic scenes from various provinces. There are several kinds of opera in the music collection, and some famous opera works are spread across provinces. Therefore, the integration process is more laborious. Through a series of selected works, the “Han Opera and Vocal Score Index” consisting of 303 dramas and 41467 vocal information was finally created.

The score index library is based on the “Han Opera and Vocal Score Index”, which combines other undiscovered works that further expands the scope of the genre. Through the National Library, Shanghai Library, Central Conservatory of Music, Shanghai Theatre Academy, Shanghai Conservatory of Music, and many more, the opera scores are finally cataloged and established as a database.

### **3.2.2 Digital music library**

Compared to the score index library, the digital music library is relatively limited in terms of data selection, with its data collection and integration process are carried out with a classical and canonical selection of opera and vocal works.

There are various forms of opera and vocal music scores. According to the content, it can be divided into a comprehensive vocal range, an accompaniment section, a vocal (accompaniment) section, a genre vocal (accompaniment) section, a character vocal (accompaniment) section, an operatic aria (accompaniment) section, and many more. Although the number of Chinese opera music scores has gradually increased, its quality has been inconsistent, especially since the 1980s, with exception to the national opera publishers such as China Drama Publishing House and People’s Music Publishing House, and publishers of various colleges and universities. There are also publishing businesses dedicated to publishing opera music. The team of editors include senior opera music research experts, composers, music educators, and dedicated music enthusiasts. In the published opera and vocal scores, different publications of the same

opera will have parallel emphasis and repetition in its selection of repertoires and arias. The specialized selection process on the types and versions of scores among a large number of rich and varied opera scores, its digitalizing and cataloging process of the scores, and the inputting process of the data with the score index library is the main focus and most difficult process in constructing a digital score library.

Taking into account of the reasons mentioned above, before the establishment of the digital music library, the author categorized the music score publications since 1949, and founded the most comprehensive academic-related opera series called “Chinese Opera Music Integration”. The series is a key scientific research project of the National Philosophy and Social Sciences “Seventh Five-Year Plan” and belongs to the “Chinese National Music Integration” series. The editing work began in the 1960s and resurfaced again in the 1980s. After 30 years, it contains more than 300 instrumental and vocal scores from a variety of operas. In addition to “Chinese Opera Music Integration”, the authoritative scores of the Beijing Opera, Kunqu Opera, Huangmei Opera, Henan Opera, Pingju, etc., which have a great influence on the whole country, are also an important source of digital music library data.

## **4 The digital and platform construction of the contemporary opera and vocal music database**

### **4.1 Digital construction of opera and vocal music scores**

The core content in the construction process of a database involves the digital scanning of hard copy sheet music. In order to ensure the quality of digital scanning, the resolution of the scanner is set to 300 DPI, and the format for storing the digitally scanned sheet music is in TIF format, a format that is convenient for users to download and then perform high-definition printing for efficient secondary use.

### **4.2 Uniform specification of basic data information entry**

The function of this database mainly consists of two aspects: the score index library and the digital score library. However, if the library is built separately according to the above functions, users’ may get confused during the search process, access, use, and management of the score information. In order to maintain the consistency of information retrieval,

maintenance and reduce the occurrence of errors, the best solution is to establish a unified database of information on opera works. It is the key to how each directory of the database, like the basic data information, is organized. First, a collection of scanned sheet music is encoded so that each score has a unique identification number in the database as the primary keyword. The score name is then used as the secondary keyword. Then, the scanned copy of the score, the name of the repertoire, genre, performer, bibliography, publishing house, date of publication and other data information are sequentially recorded and are inputted as data standard specifications. If the data does not have any of the corresponding information, it will be classified as NULL. The organized opera and vocal score information are registered one by one, and each line of the information constitutes the basic data information of the contemporary opera and vocal score database.

### 4.3 Data information retrieval

The basic function of realizing the score index library and the digital score library is the retrieval query of the data information. Implementing the fuzzy query search in the SQL Server can realize the corresponding query operation of the displayed items.

In the interactive interface, the user can input multiple query keywords such as “aria”, “opera”, etc., click the “search” button, and the database automatically calls the SQL Sever’s fuzzy query statement to compare keywords of the contemporary opera and vocal music score information. If the fuzzy matching is successful, the information of each piece is read and sorted according to the closeness of its correlation to the keyword. The result is then presented in the form of a summary. If the user is interested in the retrieved information, the summary list may be further selected, and the detailed data information will be presented in the interface.

### 4.4 Implementation of environmental configuration

The database development platform is Microsoft Visual Studio 2010, the programming language used is C#, the selected database software is SQL Server 2012, and the user interface material is processed by PS, AI, and other software.

## 5 Conclusion

The score index library in the “Contemporary Chinese

Opera Music Score Database” was essentially completed in early 2019 and it contains more than 60,000 index materials. The digital music library is still being produced. As of October 2019, 51,074 music scores have been produced, accounting for about 4 out of 5 of the overall digital music library. The software is scheduled to be completed in November 2020. When the music database is completed, it will be used as a teaching tool for opera music and promotes an impetus to academic research.

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