



# An Exploratory Study on Enhanced Learning of English Translation Based on the Background of Computer Algorithm

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**Abstract.** According to the latest data released by the Ministry of Information Industry, by the end of 2022, the number of cell phone users in mainland China has approached the billions of people mark, and the use of smart phones for communication accounted for more than 90% of cell phone users, and this figure is still growing, the powerful functions of smart phones and a wide range of applications to attract more and more user groups choose smart phones and surf the Internet through the 5G network. Such a large in-user base provides a sufficient potential user base for various 5G applications, including a large number of customers with learning needs. The mobile learning mode in 5G or even 4G mode is the key development direction of current distance education mode, and the development and exploration of distance education software open platform in mobile environment is also an attractive and profitable development direction for computer software field. This paper has a new research and analysis of English translation platform based on the background of big data algorithm, which is a new breakthrough in this field.

**Keywords:** Big Data Algorithms · Big data support · English translation studies · Learning Inquiry

## 1 Introduction

In the field of distance education and educational applications market, 5G mobile communication technology also has its place, and it can even be said that the arrival of the 5G era will revolutionize the modern distance education model [1]. On the solid network foundation and application platform provided by 5G mobile communication technology, the traditional distance learning mode is completely broken, and through mobile smart terminals, users can learn without space and time limitations, and their learning autonomy and flexibility are greatly improved [2]. Now with the technical support of 5G wireless network environment, as long as the development and promotion of education application system is increased on this platform, learners can realize independent learning in 5G environment only through mobile smart communication terminals such

as cell phones and tablet PCs, which shows the development direction for traditional distance education and is a useful supplement to various education modes in the domestic education field [3].

## 2 Development Technology Introduction

### 2.1 Component Structure of Widget

In order to enable WEB applications to run on mobile smart terminals without browser support, Web widgets have a unique composition design that is different from traditional WEB applications, and these specific widget components need to be stored in the smart mobile terminal system when using widget applications [4].

Each component file of the widget is described below [5].

**Info.plist:** It is one of the required components of a widget, specifically it is a standard XML structured manifest file that contains configuration information about the specific properties of the widget application [6].

**[Name].html:** It represents the unique HTML application page corresponding to a certain widget application [7].

**[Name].css:** It is the CSS file used to control the style of the program page composition, only in the widget program it is specifically developed for the widget program, and the CSS function in the traditional HTML page is the same [8].

**[Name].js:** It is used to complete the JavaScript file [9] for the implementation of the dynamic functions of the program such as user interface interaction, program communication, and dynamic elements of the user interface in the widget program.

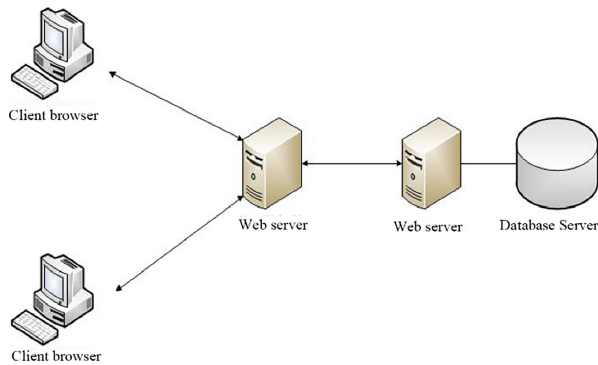
### 2.2 Web Service Interrogation Model for Widgets

From the viewpoint of the working behavior model, the working principle of a widget application is very similar to that of a normal web application. Both widgets and web applications are based on sending function requests to the web server and getting the corresponding function and content responses from the server [10].

## 3 UML Modeling Techniques

### 3.1 UML Language and Elements

In the 1990s, there was a high point in the development of object-oriented programming methods, which gave rise to such a product as the UML (Unified Modeling Language) standard modeling language [11]. The role and philosophy of the UML language in the object-oriented software development process is to use an iterative and incremental approach to the software system development process through a use case driven, system architecture focused approach. UML defines a set of modeling languages whose core modeling concepts and object-oriented organization methods are fully consistent, and UML also allows for innovation in expression methods through its own extension mechanisms.



**Fig. 1.** System architecture based on B/S/S model

### 3.2 Commonly Used UML Model Diagrams

UML can be divided into views, diagrams, and model elements when the concepts and models involved are divided from a visualization perspective. Compared to earlier versions of UML, the current standard version of UML eliminates the disadvantages of divergent definitions and ambiguous representations brought about by the involvement of various software vendors, and evolves towards formal language specifications and standards. Of course the UML becomes more and more massive in the process, but it is not necessary for the user to master all the UML elements. Software developers can learn to use the part of UML that suits them best for their main research and development direction.

### 3.3 Server-Side Development Architecture and Patterns

See Fig. 1.

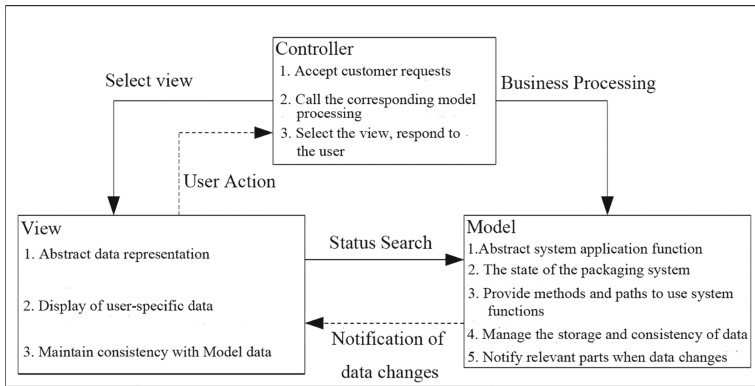
#### MVC Model

MVC (Model-View-Controller) is one of the most common development patterns in computer programming development and is more widely used in the current mainstream.Net and Java development areas. The latest one is currently the MVC2 framework structure based on ASP.NET, which may help web programmers to perform easier and faster program development work. A typical MVC structure diagram is shown in Fig. 2.

### 3.4 System Development Platform Construction

#### Selection of System Environment and WEB Server

For application and compatibility reasons, Microsoft Windows XP SP3 was chosen as the development environment for the system. As the final version of Windows XP, the



**Fig. 2.** MVC structure schematic

SP3 version of XP contains all the update packages for Windows XP previously released by Microsoft, including all security update patches, patch patches, etc.

### Introduction to the System Development Platform

Eclipse IDE, the software development platform chosen for this system, is characterized by its open source, Java-based and other high-level object-oriented languages, functional and component-extendable development platform, and is a well-known cross-platform free integrated development environment (IDE). At its most basic, the Eclipse platform itself is just a framework, rather it is just a framework and a set of corresponding services, but its open nature makes it available for building various development environments for different applications through different plug-in components.

## 4 Conclusion

This paper mainly analyzes and introduces the relevant technologies and theories that need to be used for system design, development and implementation, and concludes with a brief introduction to the selection of system development environment and server. At this point, the design and development of the whole widget-based mobile English learning system is basically completed. In terms of translation function, the system itself can only achieve the simple mutual translation of Chinese and English words and phrases, while the translation of short texts depends on the third-party translation tool (Google Translate), which cannot guarantee the timeliness of translation results (the translation effect and time delay will be affected by the response time of Google's server), so this system still has relatively large room for improvement and expansion in the English translation function, and more effective translation mechanisms can continue to be introduced to work in the maintenance and improvement of the system later.

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