

# Evaluation System for College Students' Innovation and Entrepreneurship Potential Based on Computer Technology

Yawen Meng<sup>1,\*</sup>, Yi Hu<sup>1</sup>, Shufang Ding<sup>1</sup>

<sup>1</sup>JiangXi Tourism&Commerce Vocational College, Nanchang, Jiangxi, 330100, China

\*<sup>1</sup>jx123gx654@163.com, <sup>2</sup>yuiop31600@163.com, <sup>3</sup>xswl5555@163.com

## ABSTRACT

Many colleges and universities now offer innovation and entrepreneurship courses to help students learn innovation and entrepreneurship knowledge, but the teaching results of innovation and entrepreneurship courses are not good. Today's college graduates have a low success rate in innovation and entrepreneurship. Based on computer technology, this paper constructs an innovation and entrepreneurship potential evaluation system that can improve the success rate of college students' innovation and entrepreneurship. This paper uses the three-tier system architecture to build the overall structure of the system, and uses the Bayesian algorithm to allocate university resources to help college students continue to innovate and start businesses. This system can evaluate the innovation and entrepreneurship ability of college students, help colleges and universities to support college students' innovation and entrepreneurship, and improve the success rate of college graduates' innovation and entrepreneurship.

**Keywords:** computer technology; resource allocation in colleges and universities; innovation and entrepreneurship; college students

## 1. Introduction

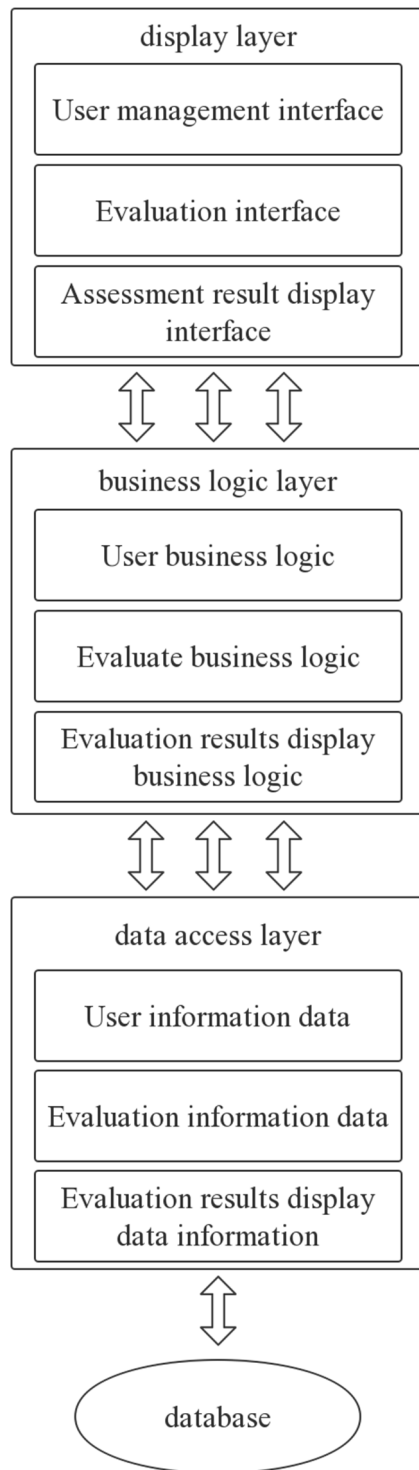
With the development of social economy and level, the current society needs more innovative and entrepreneurial talents to enhance economic strength, promote healthy competition in the market, and solve the current employment problem. College students have the characteristics of high quality and strong professional ability, and have strong advantages for innovation and entrepreneurship. Evaluating the innovation and entrepreneurship potential of college students can effectively improve the success rate of innovation and entrepreneurship. In previous studies, scholars applied digital badge technology to dynamic evaluation of innovation and entrepreneurship potential, but this technology did not divide innovation and entrepreneurship potential from multiple dimensions. Some scholars use data analysis to extract the educational indicators of college students' innovation and entrepreneurship potential, and calculate the weight of educational factor indicators. Compared with other methods, the evaluation system for college students' innovation and entrepreneurship potential constructed in

this paper is more accurate, and can provide many users with a simple opportunity to evaluate innovation and entrepreneurship potential.

## 2. The structure of the evaluation system for college students' innovation and entrepreneurship potential

The system used in this article's system development is Windows Server system. For the design of the database, Microsoft SQL Server database development tools are used [12].

In order to improve the efficiency of system operation, the system adopts B/S structure. This paper divides the system structure into three layers, namely the result display layer, the business logic layer and the data access layer [9].



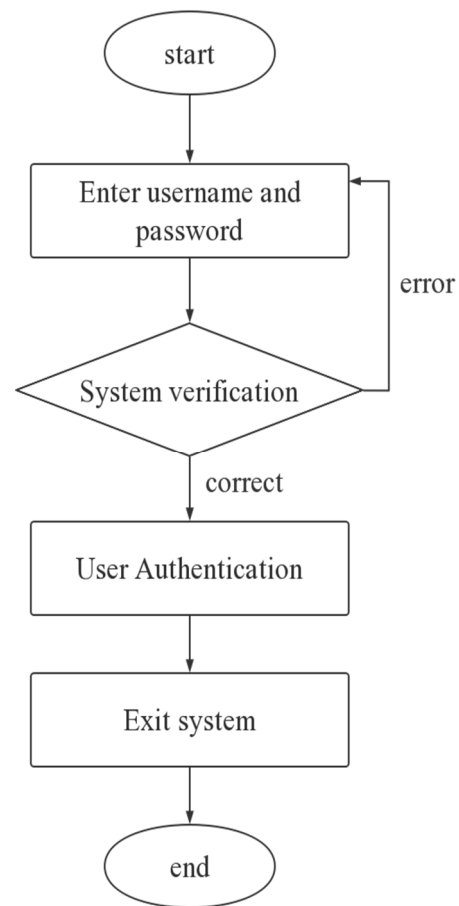
**Figure 1:** System Structure

The display layer is the Web layer, which is mainly oriented to users, showing the relevant information of the system to users, and returning the results of user requests. The user performs related operations in the display layer [13]. This layer will send the user's request to the business logic layer, and the business logic layer will classify the user's request [8]. After the classification of the business logic layer, the request will

be transmitted to the data access layer to access the corresponding data. Data access results are transmitted to the presentation layer through the business logic layer. The database of this system is stored separately, which improves the security of information and data, reduces the pressure of system operation, and improves the efficiency of the system [16].

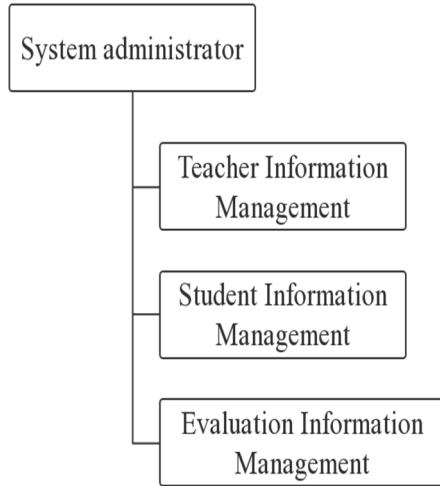
The functional modules of the system are mainly divided into three parts, namely the system login module, the system management module and the potential evaluation module.

System users are mainly divided into student users, administrator users and teacher users. The three users have different permissions. After logging in, the system will automatically switch to the corresponding function interface. The user login process is shown in Figure 2.



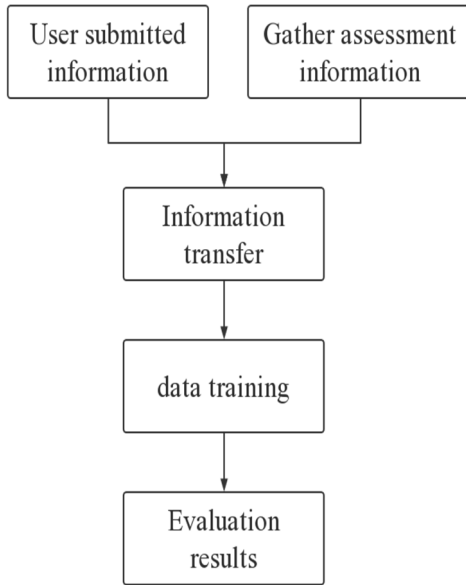
**Figure 2:** System login process

The system management module is for administrator users. The administrator performs system maintenance in the system management module, and manages the information data of teachers and students. Administrators need to upload assessment exam information and assessment exam scores in this module. The administrator has the authority to modify, upload and delete system data information [6].



**Figure 3:** System Management Module

The potential evaluation module is the core functional module of this system. This module will summarize and organize the information collected by the system, and obtain the result of potential evaluation through calculation.



**Figure 4:** Potential Assessment Module

### 3. University resource allocation algorithm

In order to calculate the innovation and entrepreneurship potential of college students and the resource allocation of colleges and universities [4]. The algorithm first sets the running time of the college students' innovation and entrepreneurship potential evaluation system as  $T(x)$ . The running time of the evaluation system depends on the specific task  $x$  of the resource allocation of the university [1]. The resource allocation of colleges and universities is affected by

factors such as school teachers and teaching equipment resources. The algorithm expresses the unit cost in the allocation of teaching resources in colleges and universities as  $P(x)$ . The optimal problem formula for the efficiency of resource allocation in colleges and universities is as follows:

$$C(x)_{\min} = P(x) \times T(x)$$

$$\text{s.t. } T(x) \leq T_{\max}$$

In the formula,  $C(x)$  is the total cost of resource allocation in colleges and universities.  $T_{\max}$  is the largest operating market for college students' innovation and entrepreneurship potential assessment. It can be seen from the formula that the efficiency of resource allocation in colleges and universities has a great impact on the operating time of the system. The cost formula of college resource allocation is as follows:

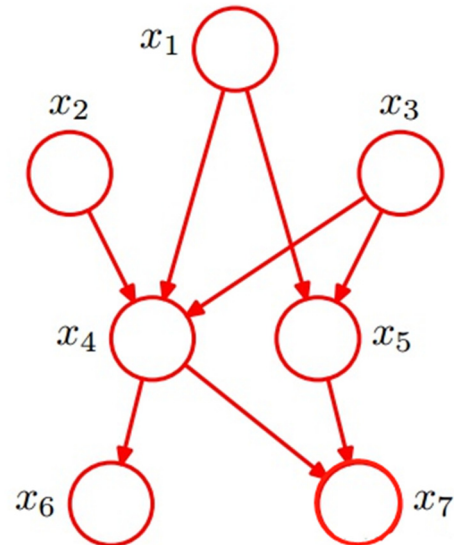
$$C'(x) = C(x) + \alpha$$

In the formula,  $C'(x)$  is the resource allocation overhead of colleges and universities under the influence of system noise.  $\alpha$  is Gaussian noise, which conforms to a normal distribution.

Gaussian noise will have a certain impact on the operation efficiency of resource allocation in colleges and universities. In order to solve this impact, Bayesian algorithm can be used [7]. The formula for optimizing the operating efficiency of university resource allocation using Bayesian algorithm is as follows:

$$\gamma(x) = \frac{C'(x) - f(x_{\text{best}}) \times \theta}{\beta(x)}$$

In the formula,  $f(x_{\text{best}})$  is the optimal number value of the system evaluation task.  $\theta$  is an optimization decision parameter based on Bayesian algorithm.  $\beta(x)$  is the influencing factor of the resource allocation efficiency of colleges and universities [11].



**Figure 5:** Bayesian algorithm

From the calculation of the above formula, the optimal result of resource allocation efficiency in colleges and universities can be obtained according to the innovation and entrepreneurship potential of college students.

#### 4. Ways to enhance the innovation and entrepreneurship potential of college students

In the era of rapid development of information technology, colleges and universities can use computer technology to detect the innovation and entrepreneurship potential of students, and can also use computer technology to enhance the innovation and entrepreneurship potential of college students. Colleges and universities can use the innovation and entrepreneurship potential detection system to examine the ability of students, and finally provide targeted teaching to students with low innovation and entrepreneurship potential [15].

Colleges and universities should use a variety of means to cultivate students' innovative and entrepreneurial ability, such as Internet informatization means, in-depth cooperation between colleges and enterprises, cooperation between schools, inter-professional teaching, teaching innovative skills, using mentor teams for training, and carrying out related activities, competitions, etc [14].

Students in colleges and universities are of different levels and have different perceptions of the world. In order to cultivate students' innovative and entrepreneurial ideas, colleges and universities should pay attention to the integration and cross-teaching of multiple majors [10]. Disciplinary integration teaching is an effective means to improve students' professional skills and practical ability. The current society has gradually developed in the direction of comprehensive informatization, so colleges and universities should pay attention to the cultivation of computer ability of each student. For example, students majoring in machinery should learn to use computer technology to complete architectural drawings. Product design majors must learn to use computers to complete design works. Accounting students should learn the operation of office software and so on. During the time when college students receive college education, colleges and universities should cultivate students' self-learning software ability and inter-professional learning ability [2].

While improving students' abilities, colleges and universities should also create a better environment to provide students with an excellent learning environment. Colleges and universities should make full use of computer platforms, encourage teachers to screen excellent teaching resources on the Internet, and upload teaching resources to a unified teaching platform.

Teachers can also record or produce teaching resources by themselves, so that students can have a professional and unified teaching platform, so that students can carry out extended learning in their spare time and meet students' self-learning needs [4].

An indispensable part of innovation and entrepreneurship education is an understanding of the economy and related policies. Teachers should create more practical opportunities for students, and require students to collect relevant materials on innovation and entrepreneurship, so that students can gradually exercise their innovative and entrepreneurial thinking through the materials [3].

#### 5. Conclusion

In recent years, China has increased policy support for college students' innovation and entrepreneurship, encouraging college students to carry out innovation and entrepreneurship activities after graduation. In order to improve the success rate of college students' innovation and entrepreneurship, this paper develops an evaluation system for college students' innovation and entrepreneurship potential. This system macro also has the function of college resource allocation, which can allocate college resources according to students' innovation and entrepreneurship potential. The system improves the efficiency of system operation through hardware architecture design and software mechanism of Bayesian optimization algorithm. This system has good practicability and can be used as a tool for colleges and universities to evaluate the innovation and entrepreneurship potential of college students.

#### ACKNOWLEDGEMENTS

2021 key Project of Teaching Reform Tasks for Institutions of Higher learning in Jiangxi Province

Grant No. JXJG-21-55-2

Practice Study of the Course in Innovation and Entrepreneurship for Vocational College Students under the background of "ideological and Political Curriculum", An Integration of Major and Entrepreneurship Education Perspective

-----A Case Study of Jiangxi Tourism and Commerce College

#### REFERENCES

- [1] Cao Wei. Talking about the good lesson design under the "three-tier architecture" mode——Taking the teaching design of "car tracking" as an example [J]. Jiangsu Education Research, 2021(29):74-77.DOI: 10.13696/j.cnki.jer1673-9094.2021.29.022.

- [2] Chen Yijun. Optimal allocation of innovation and entrepreneurship education resources in colleges and universities based on PSO algorithm [J]. Journal of Xi'an University of Posts and Telecommunications, 2021, 26(03): 105-110. DOI: 10.13682/j.issn.2095-6533.2021.03.017.
- [3] Gao Jingchun, Cao Jiabin. Research on the cultivation of college students' employability under the background of innovation and entrepreneurship education [J]. Public Relations World, 2022(03):82-83.
- [4] Li Anran, Xiao Youping. Construction of College Students' Innovation and Entrepreneurship Ability Collaborative System Based on "KSAOs" Model [J]. Employment of Chinese College Students, 2022(05):36-42.Doi:10.20017/j.cnki.1009-0576.2022.05.005.
- [5] Li Xiuzhen. Research on ThinkPHP5 Framework Based on MVC [J]. Modern Information Technology, 2020,4(14):90-92.Doi:10.19850/j.cnki.2096-4706.2020.14.027.
- [6] Liu Junyan, Lu Meilong. Research on the influence of innovation and entrepreneurship education and human resource management professional education integration on college students' employability [J]. Modern Rural Science and Technology, 2022(03):82-84.
- [7] Liu Songlin. Genetic Algorithm for Location Selection of Spatial Crowdsourcing Service Networks with Three-tier Architecture [J]. Small Microcomputer System, 2022, 43(01): 131-136.
- [8] Lv Shuang, Tan Junhua, Liu Shuai, Wu Kuang. Continuous Dynamic Measurement of China's Innovation and Entrepreneurship Activity and Decomposition of Spatial Differences [J/OL]. Statistics and Decision-Making, 2022(07):72-76[2022-04-09].DOI:10.13546/j.cnki.tjyjc.2022.07.014.
- [9] Ouyang Yuandong. Analysis and Implementation of Three-tier Architecture Information Transmission Strategy Based on ASP.NET [J]. Computer Knowledge and Technology, 2020, 16(09): 79-80+93. DOI: 10.14004/j.cnki .ckt.2020.1016.
- [10] Ren Huiming, Jin Hao. Exploration of development management mode based on three-tier architecture [J]. Communication World, 2020(18):37.Doi:10.13571/j.cnki.cww.2020.18.017.
- [11] Xia Min. A parallel simulation framework based on double-loop three-layer architecture and its implementation (English) [C]//. Proceedings of the 33rd China Simulation Conference., 2021:2-8.Doi:10.26914 /c.cnkiyh.2021.024932.
- [12] Xie Xiaolan, Liang Ronghua. Three-tier architecture trust management model based on multi-agent system in cloud environment [J]. Journal of Guilin University of Technology, 2021, 41(04): 884-890.
- [13] Yang Da. Research on innovation and entrepreneurship education for college students based on "Internet +" [J]. Journal of Jiamusi Vocational College, 2022,38(03):149-151.
- [14] Zhang Guiling, Wang Linjiang, Hu Chuan. University resource allocation mode and scientific research output: From the perspective of the relationship between the government and universities [J]. Friends of Accounting, 2020(20): 82-86.
- [15] Zhang Xiaohong, Li Xuanmei. Research on the cultivation of innovation and entrepreneurship ability of college students in application-oriented universities under the background of innovation and entrepreneurship [J]. Heilongjiang Science, 2022, 13(03): 56-57.
- [16] Zhao Weiyang, Zhong Ye, Yu Xuan, Zhang Guangyi. Development and design of information technology talent training platform based on three-tier architecture [J]. Automation Technology and Application, 2021, 40(03): 166-168+175.

**Open Access** This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

