

Factors influencing the employment intention of private college graduates based on robot control system design

Le Zhang ^{1,2}, Juan Liu ^{1,2}, Xia Feng ^{1,2}, Yan hui Li ^{1,2,*}, and Le mei Zhu ^{1,3,†}

¹Academician Workstation, Changsha Medical University, Changsha 410219, Hunan, China

²Admissions Office, Changsha Medical University, Changsha 410219, Hunan, China

³School of Public Health, Changsha Medical University, Changsha 410219, Hunan, China

Abstract

INTRODUCTION: Robotics is currently the most cutting-edge international science and technology, as well as a high-value-added core technology. Robots are widely used in a variety of industrial fields, as a new direction in the development of robotics, and play an important role in solving the current employment problems in China.

OBJECTIVES: This paper combines its research results, introduces the machine learning method in the robot control system, and establishes the employment index system in the robot working environment by combining the employment factors with the environmental relationship analysis.

METHODS: This paper combines its research results, introduces the machine learning method in the robot control system, and establishes the employment index system in the robot working environment by combining the employment factors with the environmental relationship analysis.

RESULTS: The study found that the willingness of university students to choose a job gradually increases as their education level rises; the lower the level of education, the weaker their willingness to look for a job; the higher the level of education the more sensitive they are to the quality of education and educational specialities, the higher their willingness to work.

CONCLUSION: Based on the robot control system design the factors that have an impact on the environment in real economic activities (e.g., age, gender, occupation, education level, etc.) play a role in promoting the future application and development of robotics in China.

Keywords: algorithm design, artificial intelligence, employment orientation, control systems

Received on 24 January 2023, accepted on 5 August 2023, published on 18 August 2023

Copyright © 2023 Zhang *et al.*, licensed to EAI. This is an open-access article distributed under the terms of the [CC BY-NC-SA 4.0](https://creativecommons.org/licenses/by-nc-sa/4.0/), which permits copying, redistributing, remixing, transformation, and building upon the material in any medium so long as the original work is properly cited.

doi: 10.4108/eetsis.3747

*Corresponding author. Email: liyanhui10102022@163.com

†Corresponding author. Email: zhulemei1228@163.com

1. Introduction

By 2022, the number of private college graduates in China has exceeded 10 million, and the society has made more expectations. The employment problem of college students is a major problem faced by our society at present. Whenever college students are facing employment pressure, how to enhance their willingness to

seek employment is an important factor in solving the employment difficulties of college students. Scholars in China have conducted a lot of research in this area, but there is not yet a more mature and complete research method. In this paper, we use probability statistics, systematic evaluation and quantitative research to study the factors affecting the employment intention of graduates from private colleges and universities in China[1-3].

Under the great pressure caused by the new crown pneumonia epidemic on our economy and employment, we have taken various measures to stabilize jobs and expand employment. At the same time, college students were also encouraged to expand their employment opportunities through flexible work. Therefore, the study of the relationship between the employment intention of private college graduates and their education, majors and qualifications is a key factor affecting their employment quality[4].

In the current international political environment, with the deep adjustment of the global economy, the global manufacturing industry is becoming more and more competitive in the post-epidemic era[5]. On this basis, combining the self-developed robot control system with the actual situation of private university graduates, various factors affecting the employment intention of college students are discussed, to enhance the employment awareness and career competitiveness of college students. Promote the new advantages of China's manufacturing industry, accelerate the transformation of the manufacturing industry, accelerate the construction of the manufacturing industry, transform the traditional industry with modern automation equipment, and promote China's industrial restructuring and sustainable economic development with the dividends of technology.

Robotics is currently the most cutting-edge international science and technology and is also a high-value-added core technology. Robotics is widely used in various industrial fields, and as a new direction of robotics development, it plays an important role in solving the current employment problem in China[6]. In this paper, we combine our research results, introduce machine learning methods in robot control systems, and establish an employment index system in the robot work environment by combining employment factors with environmental relationship analysis. The factors that have influence on the environment in real economic activities (such as age, gender, occupation, education level, etc.) are analyzed to play a role in promoting the future application and development of robotics in China. The graduates of private universities in China occupy a pivotal position among college students, with higher education and higher quality. Among them, the employment intention of college students is directly related to their employment quality. In this paper, we conducted a questionnaire survey on the employment intention of graduates from a private college and analyzed the correlation between their employment intention and education factors, professional factors and employability. It was found that with the increase in education, the college students' willingness to choose a job gradually increased; the lower the education level, the weaker their willingness to find a job; the higher the education level the more sensitive to education quality and education expertise, the higher their willingness to work. In the new round of technological applications that are constantly improving, frontier technologies such as artificial intelligence have penetrated the Internet to manufacturing and other fields, and their impact on

society and the economy has attracted widespread attention.

To address the application of robotics in practice, the DM3288 chip from TI is used as the core. This control system has a microcontroller as the core, a touch screen as the display unit, a communication module as the information transmission unit, and a host computer as the control core[7]. Using TI DM3288 embedded CPU as the core, the MCU and other communication modules are designed in detail. ARMS80-A serves as the main control chip; the Built-in touch-screen operating system; the Communication module adopts 802.11b communication protocol; and the Communication interface in analog/digital mode for signal output; Through the serial method, the control of the PC is realized. Through the real-time tracking, accurate positioning, automatic diagnosis and fault treatment of the robot, the remote control of the robot is realized[8].

This paper starts with six variables, establishes a quantitative mathematical model, analyzes the questionnaire data of sample schools, and discusses the correlation between it and college students' employment intention. It is found that students' academic performance, work experience, professional background, source of students and future job-seeking intention are the main factors that affect their willingness to choose a career. Through the actual investigation of private colleges and universities in China, the article has made a different approach to the implementation of talent training programs and the improvement of talent training quality in private colleges and universities[9].

2. Research Background

Based on computer-aided decision-making, this paper uses AHP and MapReduce algorithms to calculate the "job demand", "employment environment" and the main employment factors in various fields of an enterprise's labour demand, and uses an artificial neural network model to predict that there is a certain "spillover" effect between the enterprise's artificial labour resources and the demand environment. To dig out the different enterprises and individual post demand for labour supply situation and influence of ability in the first place by building a machine learning model, in the model using neural network modelling process, and to input data feature extraction and processing, to extract the feature matching feature vector with work, to extract more employment factors; At the same time, the correlation coefficient matrix is calculated to model the influencing talent factors, and the employment index system under the robot work scene is constructed. This system is an adaptive control system and decision system. To ensure that the model and the actual industrial job demand and target are consistent. Through learning and optimization of the model, the model is gradually established for optimal design and the optimal solution is obtained[10-14]. On this basis, a theoretical basis is provided for each target

output model. The research framework of robot control system optimization is as follows: the research is carried out under the theme of "robot working environment"; Through the construction of a machine learning model to analyze and predict the main elements of work in the work environment and the impact on the social economy[15-16]; And to evaluate and predict the possible and related factors in the future; Combining with the actual situation of domestic industrial enterprises, it is analyzed that the future development of robot application needs to choose what kind of talents to work in the industrial environment and how to deal with the relationship between human beings and robots in different fields, and the employment index system is established.

This study took undergraduate graduates from a private university as the research object, a total of 549 were collected, and 515 were recovered, with an effective rate of 93.9%. The results showed that the male employment rate was 97.1% and the female employment rate was 94.1%. Through the questionnaire investigation of the characteristics of the college students themselves, as you can see, the school as a whole has a highly educated and high quality, characteristics of students' innovative consciousness, in general, the university graduates employment ability is stronger, partly reflects the school students good mentality and strong innovation consciousness, also can reflect the high school students overall employment capacity[17-18].

The chart below analyzes how the ratio of employment in primary, secondary and tertiary industries changed between 2016 and 2022. Primary industry: refers to all legal entities engaged in production and business operations in agriculture (planting industry), industry, construction industry, wholesale and retail trade, accommodation and catering industry, and other service industries. Secondary industry: refers to all industries except agriculture except agriculture, forestry, animal husbandry and fishery[19]. The primary industry is the foundation, the secondary industry is the main body, and the tertiary industry is the support. The primary industry is the production and provision of basic grain, industrial goods and other materials, mainly grain and food processing industry; The Secondary industry refers to animal husbandry fishery output of the added value of the primary industry and the second industry is the main accounting index, and with the industry middle peasants, forestry, animal husbandry and fishery output value and added value of the second industry based on the ratio of the sum of calculation, the calculation method of the total for the first industrial added value of coefficient of accounting in different industries: industries accounted for separately, as shown in Figure 1:

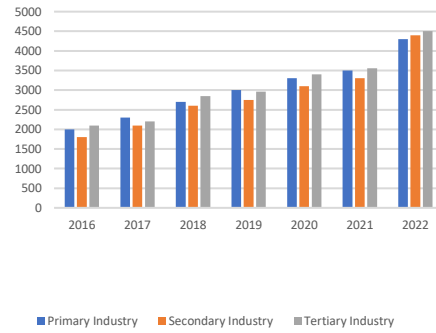


Figure 1: Growth analysis of three industries

Using the questionnaire method, several factors affecting college students' employment intention were investigated, and the multiple linear regression model was used to make an empirical study. This paper uses multiple regression analysis to predict the future employment mode of college students and discusses the factors that affect college students' willingness to choose a career: academic performance, work experience, major, etc. The future employment pattern of college students is a factor, while the source condition is self-variable. In this paper, various analysis methods are used to evaluate the established analysis model. Through factor analysis, it is found that each factor will have a certain impact on the prediction of the model, so that factor analysis can be carried out. At the same time, this paper also investigated the factors that affect the employment willingness of private university graduates.

3. Materials and Methods

3.1. Analysis of influencing factors based on employment intention of private college graduates

This paper mainly studies how employment intention affects students' views on career and post, and how it affects students' job search from three aspects. Using the Atlas robot as the research object, we analyze the factors influencing employment intention through control system-related algorithms. Through robot experiments, we analyze the factors influencing participants' employment intention. The conclusion is that the influencing factors are diverse, dynamic, and random[20].

The control system of the robot consists of computer software, microcontroller, communication, and hardware. The computer software system mainly includes: robot vision software, attitude control software, fault diagnosis and processing software, communication, and program functions. The control system of this robot uses the embedded CPU core of TI DM3288 and the corresponding communication module, as shown in Figure 2.

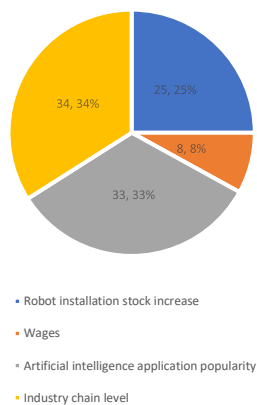


Figure 2: Robot stock increase analysis diagram

In this paper, a questionnaire survey based on artificial intelligence, robotic control and thorough design was conducted using whole group sampling with the school, major and the graduates themselves as samples. The questionnaire covers three dimensions such as employment intention, education and occupation, among which gender, age, education and religion have significant effects on their employment intention. The questionnaire method was used to study the grade characteristics of high school students[21-22]. From the above research results, there are significant differences between male and female college students' intention to choose a career; age has a certain influence on college students' intention to choose a career; there are differences in the degree of influence of education on college students' intention to choose a career; other factors also have an impact on college students' employment. Through an in-depth analysis of various factors affecting college students' intention to choose a career, gender has the greatest influence on their employment intention; there are differences in the degree of influence of education on college students' intention to choose a career; to a certain extent, national culture has a certain influence on the employment of college graduates; different religious beliefs have a certain influence on the employment intention of college students; minority regions are important places for the exchange and integration of various ethnic groups. In China, there are some changes in the employment policies of ethnic minorities; the social environment greatly affects the employment intentions of college graduates. Some college students are not well prepared for employment, and there is a greater relationship between their knowledge and knowledge mastery.

3.2. Robot control system design

In this paper, based on the manufacturing data from 2006 to 2017, the application of industrial robots has had a significant substitution effect on employment in the manufacturing industry and a significant negative impact on jobs. At the same time, AI technology has generated

new jobs and demand while replacing part of the workforce, making it somehow mitigate its substitution effect on employment. According to German statistics, for every additional industrial robot, 2 jobs will be lost in manufacturing, while a large number of new jobs will be created in the service sector. In addition, the development of AI can fill existing job vacancies and bring indirect innovation effects.

In addition, in the analysis of AI on employment factors, this paper proposes that "rising labour costs have led to mechanical turnover in enterprises". With the rapid development of AI technology, the demand for highly skilled personnel in China's labour market is increasing, and the demand for their human capital is also increasing, which directly or indirectly affects the quality of practitioners and investment in them, which in turn has led to a change in the employment pattern of our labour market.

After comparing the common technologies of the four technological revolutions, it is concluded that the scope of the four technological revolutions is much larger than the first three, and also affects the innovation of high technology and intellectual labour, thus changing the employment pattern of the whole society. The role of AI in different technology groups, both now and in the future, will cause a chain reaction as AI technology becomes more widespread, leading to a shift of middle-skilled workers to high-skilled and low-skilled fields, resulting in a "polarization" of the growth of the labour force at both poles of the employment structure. This paper analyzes the application of industrial robots in the manufacturing industry from the perspective of technological progress, and draws the "compensation effect" and "substitution effect"; based on the viewpoint of human capital input, the development of household production technology in Becker's household production model. Therefore, it can be assumed that as the level of industrial intelligence increases, the employment rate of college graduates will decrease and the demand for college graduates and below will also increase.

In terms of the impact of AI on employees' income, as AI technology facilitates the flow of production factors among industries, it leads to changes in labour income. On the positive side, the substitution and productivity effects of AI technology in work offset each other, while the deep integration of AI and the real economy can greatly enhance labour productivity and increase the added value of products, which in turn can contribute to the increase of workers' wages. On the negative side, with the popularization of AI technology, the income of company owners and middle managers will continue to increase, and the concentration of wealth will also increase, while the emergence of industrial robots will allow companies to be paid a lot for irregular work, and also increase the wage gap between irregular work and normal work, which will in turn lead to a further widening of the income gap within the company; from a macroscopic point of view, with the continuous development of artificial intelligence technology, the

development gap between countries is also widening, and developed countries with core technology and massive application of artificial intelligence will benefit from the products and trade globally. The income gap between countries is getting bigger and bigger, and the development level and income distribution will be polarized.

3.3. Basic Module Technology Solution

In this paper, we design robots based on the Atlas system, analyze the factors affecting employment intention through algorithms and experimental methods related to the robot control system, and provide a reference basis for promoting the development of the robot industry. At present, the demand for vocational labour is strong and unstable, making the contradiction between labour supply and demand in China outstanding. To alleviate the existing situation leading to the unemployment of some workers also arises, employment becomes the most concerned issue. The vocational education platform based on a robot controller can provide intelligent analysis of employment intention and career development direction of trainees of different ages and skill levels, and provide support for teachers and enterprises. In this paper, the research on employment intention analysis methods and influencing factors is described in three aspects.

The data were corrected so that the content of the questionnaire could reflect the content of the questionnaire comprehensively and accurately. In addition, the analysis of the probing factors was conducted in the former questionnaire, and it was found that the item loadings of each element exceeded 0.5 or more, indicating that this indicator was constructed with high efficiency, as shown in equation (3-1).

$$AR_t = \sum_{i=1}^N AR_t^i \quad (3-1)$$

Designing the robot controller Atlas platform, using processors such as ARM64 and ARM64, Linux kernel and Windows system to complete the design and development of the robot hardware system, and using MATLAB tools for programming, as shown in Equation (3-2).

$$CA^{rt} = \sum_i^t AR_t^i \quad (3-2)$$

Use the ARM chip in the robot controller Atlas platform to drive the robot motion system to realize the control function of the robot; finally extend the robot control from ARM64 to ARM64 kernel, ARM64 to ARM64 kernel and ARM64 to ARM64 cluster; finally, finish the development and implementation of the robot control function. The results show that the control robot in the experiment is mainly trained and tested in terms of vision sensing and robotics for its control. At the same time, the work positions and career development directions of students of different ages are analyzed.

Based on this, SPSS software was used to analyze the situation of some private university graduates in terms of resume readiness, access, goal status, and employment mentality, as well as the degree of self-confidence and

knowledge of learning information related to them. The analysis of the relationship between professional psychology and professional readiness is presented in Figure 3 below.

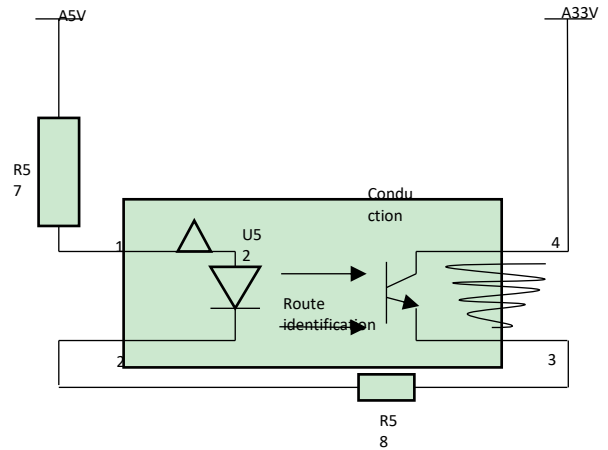


Figure 3: Route identification conduction diagram

Self-confidence in further study is strongly related to the degree of knowledge of further study information, and the more information one has, the more self-confidence one has to succeed in further study. An optimistic employment attitude has a lot to do with the determined job target and clear understanding of the way to get a job, and has nothing to do with the writing status of a resume; worried and anxious employment psychology is related to resume writing and the way to get employment information, and has nothing to do with the job target status. In conclusion, the employment psychology of college students has a lot to do with the way to get employment information, but not with resume writing and the clarity of job search goals. College students' career attitudes and career self-confidence are self-efficacy of college students, while career self-efficacy is strongly related to the degree of information perception.

The control tasks of robots mainly include walking, posture control, trajectory tracking, etc. The control effect varies due to the different control strategies, so the corresponding control scheme should be selected according to the actual situation. The S80-A embedded processor is used as the control core; the touch screen adopts JAVA's self-developed Linux operating system S80-A series touch screen; the main control chip adopts ARMS80-A series TP-LINK company's embedded CPU; the MCU is based on TI's DM3288 with a 16-core CPU and 3.3 GHz with 64 K RDMA technology. The touch screen is a multi-functional colour screen developed by TP-LINK company TPawn from SILEN, which has a high resolution, sensitive touch and supports dynamic backlight display, as shown in Figure 4.

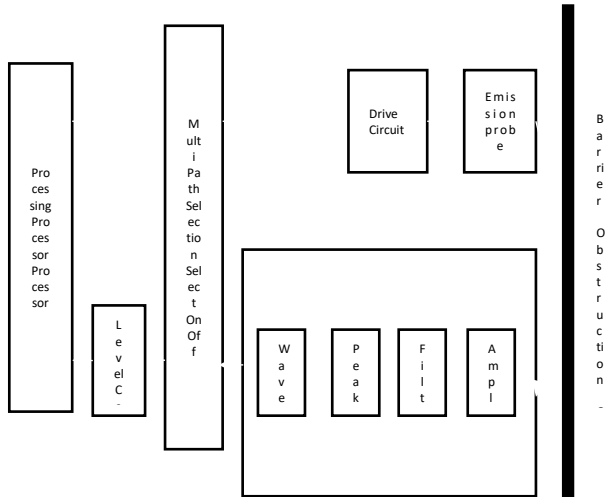


Figure 4: Driving circuit analysis diagram

3.4. Human-robot interaction system design scheme

The human-computer interaction system is an important platform for the robot controller to communicate with the user, and its purpose is to realize the automatic identification and control of the human-computer behaviour of the robot and to meet the user's requirements for the awareness of the intelligent robot. In the human-robot interaction, the information is collected and displayed through the touch screen. First, the collection and querying of the information needed by the system are completed on the display screen, and the processed results are sent to the PC; meanwhile, the computer compares the obtained data with the operation data of the main control chip to determine the status of the robot; in addition, a variety of remote control methods can be realized by software or hardware, as shown in Figure 5.

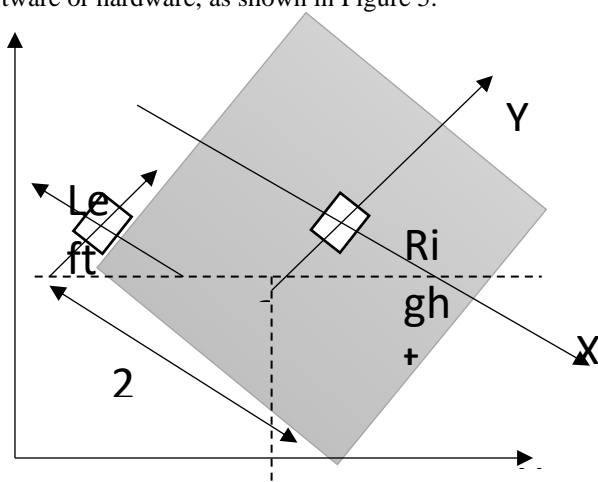


Figure 5: Analysis of the robot's travel control system

3.5. Program implementation and software control function design

The system is based on the Linux-based WebOS, which is an embedded operating system with low-cost, easy-to-expand, highly integrated, and easy-to-scale features. WebOS has a rich human-machine interface and good human-machine interaction capability, which is suitable for the design and use of the human-machine system. In the embedded system, mainly by the MSP430F42C248 microcontroller as the core, complete the relevant software control, such as remote operation, you can use the MSP430F46 with the host computer for remote debugging, etc. The S80-A combines a variety of different interfaces, as well as a variety of powerful interfaces, enabling the S80-A to achieve both the requirements for system control and to meet the user's requirements for system control software, see the attached Figure 6.

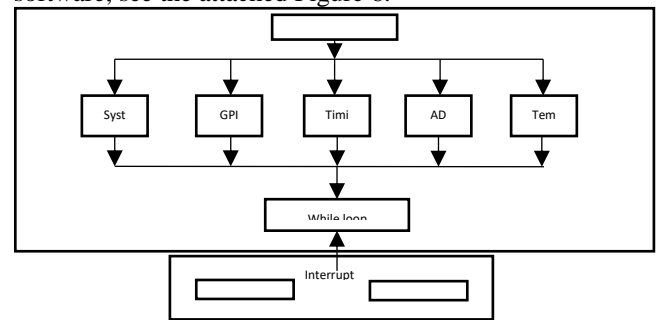


Figure 6: Analysis diagram of the DPS program

4. Results and Discussion

4.1. Analysis of the current employment situation of college students

The employment concept tends to be consistent, and there is a certain degree of unreasonable beliefs about college students who have the intention to choose the three most important factors among the 11 most important elements, where 1-3 most important elements were given a weight of 3-1 to get the weight of each element. The study found that when it comes to employment, college graduates and master's degree graduates have the same level of preference for jobs, with salary and treatment being the most important, followed by work area and opportunities for career development. The total number of students who valued salary was twice as many as those who valued work area or career development space, while the strategic needs of the country and social identity were the two least valued elements when it came to employment. After an in-depth survey, college students do not have a clear perception of the salary system and do not know much about the average level of market salary. Referring to the actual employment practice of Beijing Jiaotong University over the past five years, it is found that the expected salary of college students is generally higher

than the final salary. Among them, 58.04% of graduates prefer to work in key regions.

In terms of the quality of employment units, 75.32% favoured state-owned enterprises and 67.00% favoured employment in institutions, which exceeded the average level of other industries, as shown in Figure 7.

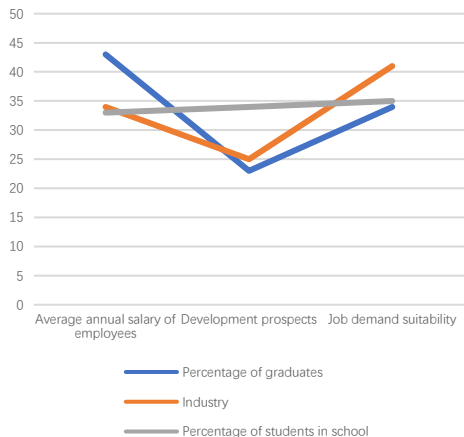


Figure 7 Analysis chart of industry share

The proportion of graduates who choose to focus on employment-oriented by the state is less than 10%. Only 22.89% of the students can choose "work first and choose later", 10.38% of the students will not reduce their expectations, and 6.10% of the students will be confused. College students with job hunting intentions ranked the factors influencing their employment success or failure and gave a weight of 6-1 in the order of 1 to 6, and derived the weight of each factor. It was found that college students' achievement factors in job hunting were in the following order: personal skills > job market needs > internship > school help > family > teachers' attention. Through the in-depth survey, some college students think that doing some chores is not very helpful in improving their ability, and their view on internship practice is "it is better to have it or not". According to the survey of college graduates conducted by Beijing Jiaotong University in the past three years, this paper concludes that the actual work experience of graduates is very important in the recruitment process. In conclusion, the experience of college students in internships is not given sufficient attention. Additional results show that most college students' sight is limited to the needs of their majors and professional fields, and they do not sufficiently consider the needs of related positions in the relevant industrial chain, and their understanding of the degree of market demand has the problem of not being thorough enough in career orientation.

Based on establishing the relational formula of each factor affecting college students' employment intention, mathematical methods were applied to study the factors affecting college students' career choice intention. It was found that: the level of education in different regions has a certain influence on the individual's willingness to find a job; the level of vocational skills and career development

will have a certain role in the individual's willingness to find a job; the individual's willingness to find a job is influenced by the level of education about his or her occupation, which in turn determines his or her work program; different levels of education have a certain role in the individual's willingness to find a job, but there is no significant correlation between it and his or her employment rate. Thus, those with higher education (non-teachers) have a greater willingness to seek employment after graduation, while non-teachers have a lower willingness.

According to the study of the questions, it was found that (1) in terms of student's academic performance, there is a higher demand for content and methods of learning; (2) in terms of internship experience, college students have great confidence in their willingness to work; (3) among the disciplines studied, the professional standard and environment are the most influential factors; and (4) most of the college students have a positive mindset regarding their willingness to seek jobs in the future.

This paper investigates the career development plans of college students and their intentions to seek jobs in the future, and draws the following conclusions: (1) there is a significant correlation between "high employment rate" and "high employment rate"; (2) "high employment rate" can promote college students' work enthusiasm; (3) high-quality employment can improve college students' confidence in job hunting; (4) "high-quality employment rate" can improve college students' job stability in all fields from lower levels to authorities; (5) improving college students' "high quality" can make them better adapt to the new social environment. Through the study of the current situation of college student's career development and career orientation, the following conclusions are drawn: (1) "more jobs" and "good working conditions" have a significant influence on college students' career selection ability; (2) "the future jobs and the nature of the work, and the job nature" have a significant influence on college students' career selection ability. The stronger correlation between future jobs and job nature and occupational demand" can also effectively improve the future job situation of college students, as shown in Figure 8.

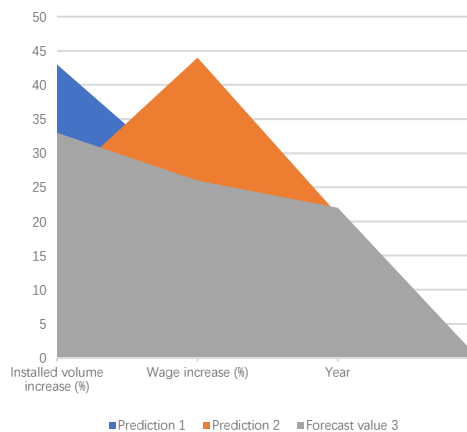


Figure 8 Relationship between the increase in installation and the predicted value

4.2. Problems of employment intention of private college graduates

As economic and social development needs better talents, domestic private colleges and universities currently pay more attention to the training of students' overall quality and hands-on ability in the process of cultivating their vocational skills. However, in the process of career development of college graduates, the influence on their employment intentions cannot be carried out objectively due to personal reasons. When looking for a job, college graduates do not have a clear understanding of their career development, which makes them unable to meet their job search wishes. With the rise of "campus recruitment", the job search of graduates from private colleges and universities started late, which to a certain extent also has a certain impact on the graduates' willingness to find jobs. When private university graduates are faced with uncertain employment intentions, it is often difficult to analyze them effectively. In the recruitment process, it is difficult for university teachers to recruit students properly, which affects the teaching work of universities.

In recent years, artificial intelligence has become a frontier technology that major companies are competing to pursue, and as one of the core forces of future intelligent development, artificial intelligence has been widely used in many fields. China is in a critical period of the transformation of old and new dynamics, and with the accelerated promotion of Made in China 2025 and Industry 4.0, robots can not only play a facilitating role in manufacturing, service industries and emerging industries, realize the role of job optimization and value enhancement etc. at the same time can also reduce labour costs and improve labour productivity; on the other hand, intelligent On the other hand, intelligent robots can reduce repetitive work content and workload, improve work efficiency and other functions can effectively improve the overall quality of the workforce, which has brought far-reaching impact to China's economy, society and enterprises. The future trend of intelligent manufacturing development lies in the aspects of high efficiency, low cost and low-skilled personnel shortage. Artificial intelligence is one of the most promising or dynamic technologies and modes to promote manufacturing upgrading and achieve high-quality development, and China should accelerate the realization of the advanced manufacturing system construction plan and accelerate the deep integration of artificial intelligence technology with the real economy, accelerate the process of robot intelligent control system application technology, core technology development and application; meanwhile, accelerate the research of relevant intelligent control methods and technical standards to guide robot equipment The research on relevant intelligent control methods and technical standards should be accelerated to guide the

development and application of robotic devices, and more efforts should be made to encourage the application of intelligent robotics technology in all industries in terms of talent training and introduction, so as to promote the industrial restructuring and upgrading of China and achieve high-quality economic development.

5. Conclusion

In this paper, we design and implement the RTL8712 as the core and DSP as the centre. The solution as a whole meets the engineering requirements with high reliability, easy communication protocols and fast communication capabilities. The software has a more complete performance and the hardware, using the MC3288 embedded CPU core from TI, is easy to use, easy to implement, has a good working performance (with corrosion resistance and reliable power supply), real-time tracking, timely and accurate positioning, fault handling, real-time positioning, fault location, and real-time acquisition of fault information. The system can be used for efficient control and automation of a variety of complex robotic arms, To make a quantitative and qualitative shift, it is necessary to constantly search for new talent training methods that are suitable for the development of higher education in China. The following are several countermeasures for precise employment guidance to think about.

(a) Strengthen the strategic positioning of college graduates. The goal of guiding college students to find jobs is to make them understand the salary structure, types, factors to be considered for positioning, real career information and current job search, and to guide them to develop a series of suitable work plans based on their interests, majors, abilities, personalities, values and other factors. Through case studies, summaries of previous years' data, corporate mentors on campus, and personal testimonies of outstanding alumni working in different types of enterprises, graduates are guided to broaden their vision of employment, establish reasonable career expectations and career expectations, and look at employment with a developmental perspective. Through "role models" and "creating atmosphere", we combine national patriotism with national development and social needs, so that they can consciously combine their national and social needs with their national development, and thus achieve their self-worth. Guide school students to make rational decisions according to their realistic situation; for those who are interested in further study, a reasonable study plan should be made as early as possible; for those who are not confident in studying, they should be prepared for further study and provided with relevant information.

(b) Increase the accuracy of recruitment information. Introduce students to the annual employment dynamics of their majors, major jobs, career trends, career development trends, vocational colleges and universities, etc. College students' employment guidance needs to

accumulate information about majors, industries and jobs, improve the sensitivity and grasp of the information, and provide college students with timely and correct employment information according to employment intention, career planning and employment situation. Besides being able to provide students with information about jobs, they can also communicate with enterprises in-depth, such as through enterprise visits, internship placements and interviews with people in the workplace. They should obtain career information from various channels, guide them to actively seek career information, grasp the current situation of the job, break through the irrational beliefs caused by the shortage of information, and guide college students to make full use of their surrounding resources and contacts to obtain career information and obtain insider promotion from enterprises to help employment. Using information to collect employment intentions optimizes employment information and pushes recruitment information to college students in a hierarchical and precise way.

(c) Strengthening the setting of guidance. Problems such as unreasonable career beliefs and low career competitiveness of college students are not due to the graduation season but to the lack of proper guidance for career development. Strengthen students' self-awareness and professional knowledge, their sense of work autonomy and professional ethics so that they can better understand and master their jobs, make them engage in their work and jobs from the very beginning, and make their work plan to make their work and jobs more competitive according to their actual needs. On this basis, we strengthen the comprehensive and all-round guidance for private university graduates on resume writing, interview response, employment mindset adjustment, and study abroad in graduate school. Through experiential education such as resume diagnosis, mock interviews, and workplace scenario simulation, we deepen students' employment readiness and further enhance their self-efficacy for employment. In terms of the form of counselling, online counselling can effectively make up for the shortcomings of limited manpower and fixed time in online venues and also provide one-on-one counselling both online and offline.

(d) Increase support. The employment intention and employment needs of college students of different disciplines, different education levels, different genders and different regions are different, and different differentiated measures should be taken to meet the characteristics and needs of different students. From several angles, such as access to information, target sorting, resume writing guidance, etc. to strengthen the awareness of college graduates and job search mentality. Dividing college graduates into "further study", "blind further study" and "not suitable for further study" are three categories. The scientific and reasonable guidance and release of pressure, the employment concept for professional college students, targeted employment concept for college students of different majors, employment guidance for college students of different

majors, targeted employment guidance for college students of different genders and regions. In addition, it is necessary to strengthen the choice of career that is not as good or as good as the career choice, to correctly guide students' understanding of reality, and to adopt a scientific approach to the choice. Real case analysis and in-depth consultation are used to provide college graduates with reasonable psychological expectations to exclude irrational beliefs.

In the development of private colleges and universities in China, we should follow the four basic concepts of "moral, intellectual, physical, aesthetic and labour" and deepen the reform of quality education and teaching. Firstly, we have established the "four-in-one" university education and training and internship education to realize the all-round development of college students; secondly, we should give full play to the advantages of various internship and training bases, strengthen the communication and cooperation with social enterprises, and keep abreast of the changes in the market; finally, through the joint operation of private colleges and universities, we can promote their understanding of practical teaching and vocational ability. awareness of practical teaching and vocational ability. At the same time, we should strengthen the supervision and accountability of college students' employment to ensure that they can strictly follow the relevant laws and regulations in the process of choosing a career and can do so with self-discipline. Based on a comprehensive understanding of the needs and qualities of employers, students can maintain friendly cooperation with companies to achieve their ideals and self-worth. The college admissions office should increase the publicity of college admissions and pay close attention to college admissions (including policies, recruitment of companies, etc.) to provide college students with relevant employment information.

6. Funding

The work was supported by the Hunan Educational Science Project of the Fourteenth Five-Year Plan (XJK21CGD045-ND214177);the Innovation and Entrepreneurship Education Center of Public Health and Preventive Medicine (Hunan Education Bureau Notice 2018 No.380-82);and the Funding by young backbone teachers of Hunan province training program foundation of Changsha Medical University (Hunan Education Bureau Notice 2021 No.29 -26).

References

- [1] Kang Yuyang,Mok Ka Ho. The Broken Promise of Human Capital Theory: Social Embeddedness, Graduate Entrepreneurs and Youth Employment in China. *Critical Sociology*,2022,48(7-8).

- [2] White Patrick, Smith Emma. From subject choice to career path: Female STEM graduates in the UK labour market. *Oxford Review of Education*,2022,48(6).
- [3] Osmani Mohamad,El Haddadeh Ramzi,Hindi Nitham M,Weerakkody Vishanth. The influence of creativity on the entrepreneurial intention of university female graduates: An SEM approach. *Industry and Higher Education*,2022,36(5).
- [4] Otache Innocent. Enhancing graduates' employability through polytechnic–industry collaboration. *Industry and Higher Education*,2022,36(5).
- [5] Piper Christy, Wilairat Samantha. Graduate library student interest in health sciences graduate employment positions: A think-aloud study. *The Journal of Academic Librarianship*,2022,48(6).
- [6] Elshaer Ibrahim A., Sobaih Abu Elnasr E E. I Think I Can, I Think I Can: Effects of Entrepreneurship Orientation on Entrepreneurship Intention of Saudi Agriculture and Food Sciences Graduates. *Agriculture*,2022,12(9).
- [7] Baciu ElenaLoreni. Employment Outcomes of Higher Education Graduates from during and after the 2007–2008 Financial Crisis: Evidence from a Romanian University. *Sustainability*,2022,14(18).
- [8] Turin Tanvir C., Chowdhury Nashit, Lake Deidre, Chowdhury Mohammad Z. I. Labor Market Integration of High-Skilled Immigrants in Canada: Employment Patterns of International Medical Graduates in Alternative Jobs. *Healthcare*,2022,10(9).
- [9] Fang Yu,Rui Lu. Analysis of the Employment Status and Countermeasures of Medical Graduates in Frontier Vocational Colleges in the Post-Epidemic Era: Take X Vocational and Technical College as an Example. *Journal of Sociology and Ethnology*,2022,4(7).
- [10] Hunkerstorm Louisa, Prescott Brian. Where They Work: Tracking the Employment of College Graduates by Location. *Change: The Magazine of Higher Learning*,2022,54(5).
- [11] Okpara Chukwuemeka Vincent,Anselm U. Anibueze,Alphonsus Ugwu,Chidi Ugwuanyi John,Gever Verlunmun Celestine. Modelling the Effectiveness of a Social Media-based Counseling Intervention on Interest, Entrepreneurial Skills, and Behavioural Intention Towards Painting Among Youth Without Paid Jobs in Nigeria. *Vision: The Journal of Business Perspective*,2022,26(3).
- [12] Vincent Jonathan, Fabri Marc. The Ecosystem of Competitive Employment for University Graduates with Autism. *International Journal of Disability, Development and Education*,2022,69(5).
- [13] Sana Hameed Asghar, Alkhalaf Salem, Zulfiqar Salman, AlRahmi Waleed Mugahed, AlAdwan Ahmad Samed, AlSoud Anas Ratib. Upshots of Intrinsic Traits on Social Entrepreneurship Intentions among Young Business Graduates: An Investigation through Moderated-Mediation Model. *Sustainability*,2021,13(9).
- [14] Ruth Kirigo Kimathi, Felista W. Njeru, Michael Korir. Effect of Entrepreneurship Training Content on Entrepreneurial Intention of Technical Vocational Educational and Training Graduates in Kenya. *International Journal of Business and Management*,2020,8(3).
- [15] San La Boi,Khuong Mai Ngoc. Factors Affecting Entrepreneurial Intention of Seniors and Fresh Graduates in Tourism and Hospitality Management in Ho Chi Minh City. *International Journal of Trade, Economics and Finance*,2019,10(6).
- [16] Siddiqui Zarrin S. Exploring the career maze: An investigation of career intentions of medical graduates in Pakistan: A qualitative study. *Pakistan journal of medical sciences*,2019,35(5).
- [17] Cameron Roslyn, Farivar Farveh, Coffey Jane. International graduates host country employment intentions and outcomes: Evidence from two Australian universities. *Journal of Higher Education Policy and Management*,2019,41(5).
- [18] Leta Sileshi, Dadi Waktole. Determinants of the entrepreneurial intention of university graduates in Oromia Regional State, Ethiopia. *International Journal of Research in Social Sciences*,2019,7(5).
- [19] Wiegerová Adriana. PhD graduates at Czech Universities: The Account of their Study, Postdoc Options and Job Ambitions. *Journal of Language and Cultural Education*,2019,7(1).
- [20] Melaku Desalegn Fantaye. Factors Affecting Entrepreneurial Intention Among Graduating Students at Debre Berhan University, Ethiopia. *Journal of Investment and Management*,2019,8(1).
- [21] Zabala A,Ghalwash S,Ismail A, et al. Women's self-employment intentions after global shocks: insights from Egypt and Spain[J]. *European Journal of International Management*,2023,20(1).
- [22] Khaled L,Aicha O,Raja V S. Person-vocation and same organization bridge employment intention: Testing the mediating and moderating roles of person-organization fit[J]. *Human Systems Management*,2022,41(5).