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Research Article

Partial Differential Equation-Assisted Accounting Professional Education and Training Artificial Intelligence Collaborative Course System Construction

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In this paper, we use partial differential equations combined with artificial intelligence methods to conduct an in-depth study and analysis of the curriculum system of accounting and finance professional education and training. Under the condition of high-performance advanced computers, neural network technology has been developed rapidly and started to adapt to the requirements of computational accuracy and speed in the field of PDEs. Neural networks have good self-learning as well as self-adaptive capabilities, and the use of deep neural networks to solve the numerical solution of partial differential equations has become a popular application that has emerged recently. The system provides a variety of interfaces for the output of calculation results, which can be directly or indirectly read into the calculation results by various common drawing software programs. In addition, the system can also directly plot the results using its plotting plug-in. This paper presents a case study to illustrate the overview of the practical work of the group before the application of accounting AI, i.e., the human manual model, reveals the problems faced by the accounting practice in this model and then discusses the specific application process and the effect it brings, emphasizing the superiority of accounting AI. Intra-group heterogeneity is to fully consider the learning ability, interest, personality, gender, and other factors of individual students when grouping, to ensure the differences between the members of the group. In terms of accounting personnel and accounting credit system, which are indirectly affected by AI in accounting, this paper discusses the overview before the application of AI in accounting and the impact and challenges after the application and then comes up with countermeasures for the development of accounting. Through the study of specific enterprises to elaborate the current situation of the application of accounting AI in enterprises and its impact, it exposes that the application of accounting AI has a great impact on the accounting process, accounting information quality, accounting personnel, accounting information security, and other aspects of enterprises and this paper proposes solutions in four aspects: first, machine learning for adversarial AI needs to be promoted; second, AI-related laws need to be improved; third, management accounting talent transformation needs to be realized; and fourth, the integration of artificial intelligence and accounting needs to be deepened.

1. Introduction

Partial differential equations are one of the most common tools used to model natural problems and play a significant role in many models such as financial physics. With the development of technology and the economy, many practical problems require the use of partial differential equations for their solution. So far, partial differential equations have made great contributions in solving practical courses on infectious disease dynamics, population problems, oil development, high-speed flight, and urban transportation [1]. We can use high-dimensional partial differential equations to construct important problems such as the objects of wave functions associated with quantum physical systems, the value functions of fair prices of financial derivatives in pricing models, the value functions of expected maximum utility in portfolio optimization problems, and so on. In game theory with multiple agents, the number of dimensions increases linearly with the number of agents. Similarly, in

the resource allocation problem, the dimensionality increases linearly with the number of devices and resources. These high-dimensional nonlinear partial differential equations are usually very difficult to solve approximately [2]. Due to the high dimensionality of these problems, there is a "dimensional catastrophe" in solving the related problems, i.e., the computational cost of solving these problems increases exponentially with the dimensionality, which makes their practical applications very limited. Nevertheless, due to the powerful practicality of these partial differential equations, there is a strong demand from the financial engineering industry to approximate the numerical solution of such high-dimensional nonlinear parabolic partial differential equations.

High-dimensional partial differential equations are of great importance for applications in physics, engineering, and finance [3]. After many years of development, we can find numerical solutions to nonlinear parabolic partial differential equations in the literature. Some of them are deterministic approximations, while others are stochastic approximations that rely on suitable probabilistic representations of the solutions of the corresponding partial differential equations, probabilistic representations based on inverse stochastic differential equations, probabilistic representations based on second-order inverse stochastic differential equations, probabilistic representations based on branching diffusion, and probabilistic representations based on extensions of the classical Feynman–Kac formula [4]. However, most of the above approximation methods are only applicable in the case of small dimensionality and when the parameters or partial differential equations are strictly limited. This algorithm gives good training speed, but it does not always reach the optimal point but hovers around it. Another disadvantage is that this algorithm requires us to pick a suitable learning rate. The average is 7.15%, and the overall performance is that the chaos in the classroom that does not help the classroom accounts for more than the silence that helps the classroom. Therefore, we want the network to have a good convergence rate of the loss function during optimization but not too much oscillation.

When calculating the error output between the predicted and the actual value, it is performed in the direction from the input layer to the output layer. In forward propagation, the input signal is applied to the output node through the hidden layers and the weights of the linkages between the layers, and the output signal is generated through a nonlinear transformation. In the backpropagation process, the neural network gradually passes the error through the hidden layer to the input, and the weights of all the neuron connections are changed accordingly. The essence of error backpropagation is the process of adjusting the parameters of the gradient descent method by adjusting the parameters of each layer of the neural network so that the error will keep decreasing along the gradient direction and finally getting the optimal set of parameters to minimize the error value after continuous learning.

2. Related Works

The financial accounting industry has begun to study extensively the feasibility of using artificial intelligence tools in accounting and finance and its supervision and has researched many tools to deal with quite complex financial analysis and decision-making problems [5]. Artificial intelligence technology establishes corresponding auxiliary systems to make financial and operational decisions more intelligent by simulating human experts to solve problems, which promotes the further development of accounting to intelligence after the completion of informatization and networking [6]. They are committed to the research and development of accounting AI systems and to providing an automated and digital accounting process platform for SMEs [7]. We hope to use artificial intelligence to automate and solve all kinds of problems encountered by companies in finance and make the whole process of accounting practice easy [8]. Upon receipt of a client's statement, it is converted into a digital format that the machine can recognize, and it is encrypted and assigned to an account. The platform has a learning function for tracking data such as sales, costs, invoices, and working capital [9]. As the frequency of use increases, the system's processing power increases and it continues to self-learn and self-improve, allocating all types of data more quickly and solving complex accounting problems for customers.

On the premise of the research laid down by the pioneers, scholars have started to study the use of artificial intelligence in the field of financial accounting, to develop accounting tools that would free the finance staff from the tedious accounting work [10]. In this context, artificial intelligence is responsible for the integration of a large amount of data processing by imitating the human processing in the operation, and its initial function of "financial assistant" is gradually formed, which largely promotes the operational efficiency of financial processing and has a positive impact on the development of accounting informatization and computerization [11]. Intelligence in the field of finance has gradually become a trend pursued by enterprises. For students with good level, the verbal act of actively answering questions will also appear. Active answering is different from the mechanical expression of passive answering, which requires thinking to respond correctly. During the interview, the students said that they would ask the teacher questions when they encountered problems. Vigorously support the development of artificial intelligence applications, so that artificial intelligence technology has a huge impact on the accounting industry, accelerating the application of artificial intelligence in the accounting industry, especially in the implementation of the application of enterprise accounting, the establishment of a modern intelligent system of enterprise accounting now gradually has a certain basis, and the academic community for the development of intelligent era accounting information system is also constantly exploring [12].

Therefore, the improvement of the skills of accounting majors is still more dependent on the classroom, and the accounting simulation internship course is an important

way to improve the professional skills of secondary school students [13]. The accounting simulation internship course in the fourth semester of secondary school was developed. The accounting simulation internship is to let the students turn the abstract theoretical knowledge into concrete practical operation and apply the theoretical accounting knowledge, methods, skills, and techniques learned in the classroom theory teaching to the actual operation. Through practical exercises, students can master the basic methods of accounting and account processing of small and medium-sized enterprises. Through practical operations, students can understand the process of account processing and be familiar with the procedures of accounting account processing, including the establishment of account sets, voucher review, voucher filling, account book registration, account closing, and closing. Through practical exercises, students will be familiar with the accounting procedures, including the establishment of the account set, review of vouchers, filling in vouchers, registration of books, reconciliation and closing at the end of the period, and preparation of accounting reports.

3. Partial Differential Equations Combined with Artificial Intelligence Accounting Professional Education and Training Synergistic Course System Analysis

3.1. Partial Differential Equation Combined with Artificial Intelligence Algorithm Design. To find the optimal variables by least squares, the goal is to minimize the sum of squares of the deviations of the estimated values from the actual values [14]. The stochastic gradient descent algorithm is different in that it requires constant bias for the coefficients to solve for the optimal data at the current position. Then, we can derive the following formula, in which θ decreases in the direction of the fastest gradient descent, and thus the optimal solution of θ can be obtained.

$$\frac{\partial}{\partial \theta_j} J(\theta) = \frac{\partial}{2\,\partial \theta_j} \left(h_\theta(x) + y\right)^2. \tag{1}$$

In general, the formula of stochastic gradient descent can be summarized by iteratively computing the eigenvalues to find the optimal value. The economy fluctuates frequently, and the laws of economic activities are difficult to remain unchanged. Therefore, the accuracy of asset evaluation and asset forecasting can only be improved using artificial intelligence. The formula for solving θ in the stochastic gradient descent method is as follows:

$$\theta = \theta - \alpha \cdot \frac{\partial}{\partial \theta} J(\theta). \tag{2}$$

The larger the coefficient, the larger the difference between each calculation, and the smaller the coefficient, the smaller the difference, but the iteration time will also be relatively longer. The initial value of θ can be randomly assigned.

The stochastic gradient descent algorithm with momentum can solve the problem we are facing, which is mainly based on the exponentially weighted average of the gradient's movement. The momentum approach gives a velocity to the gradient so that the gradient oscillates less from side to side as it descends, speeding up the gradient descent [15]. It is designed to speed up learning and is especially suitable for handling high-curvature but consistent noise gradients. Assuming the current iteration step t, then the stochastic gradient descent algorithm with momentum can be represented by the following equation:

$$\begin{aligned} v_{dw} &= \beta v_{dw} - (1-\beta)\mathrm{d}W, \\ v_{db} &= \beta v_{db} - (1-\beta)\mathrm{d}b. \end{aligned} \tag{3}$$

In the above equation, v_{dw} and v_{db} represent the gradient momentum of the loss function accumulated in the first t-1 iterations and β is an exponent of the gradient accumulation (here we generally set the value to 0.9). So, the main idea of stochastic gradient descent with momentum is to use a method like the weighted average of the moving exponent to smooth the parameters of the network so that the oscillation of the gradient becomes smaller. The main idea of the stochastic gradient descent algorithm is to smooth the parameters of the network using a method like the moving exponential weighted average so that the oscillations of the gradient become smaller. The following two formulas are the update formulas for the network weight vector and bias vector, and α is the learning rate of the network. When we use the stochastic gradient descent algorithm with momentum, we can solve the problem of a small-batch stochastic gradient descent algorithm with a large oscillation of update amplitude and make the network converge faster.

Figure 1 represents a neural network architecture for the deep BSDE approach: here u value of the current layer is related to the u value, ∇u value, and X value of the previous layer, and the X value of the current layer is related to the X value of the previous layer. $X = \xi$ of the initial layer is our point of interest, and $u(t_0, Xt_0)$ and $\nabla u(t_0, Xt_0)$ of the initial layer are unknown; we treat them as parameters of the neural network, so u and X values of the current layer can be obtained from the previous layer; It is designed to speed up learning and is especially suitable for handling high-curvature but consistent noise gradients. We build a neural network from X of the current layer to represent it. Each time walk has a subneural network, then all the subneural networks can be stacked into a complete neural network, where W is the standard Brownian motion. Finally, the loss function is constructed, using a given terminal value condition. What we want is the value of $u(t_0, Xt_0)$, which is fixed as a parameter after training the neural network, and we take out this "parameter," which is what we want. At about 500 iterations, the simulated numerical solution is already close to the exact solution. This shows that the deep BSDE algorithm has a good performance in solving the numerical solution of the HJB equation, and the convergence speed is fast.

The overall design and planning of the system must consider the specialized characteristics of the numerical solution of partial differential equations. At the early stage of design, the data flow of partial differential equation calculation needs to be carefully analysed, the process is designed according to the relevant scientific specifications, and the

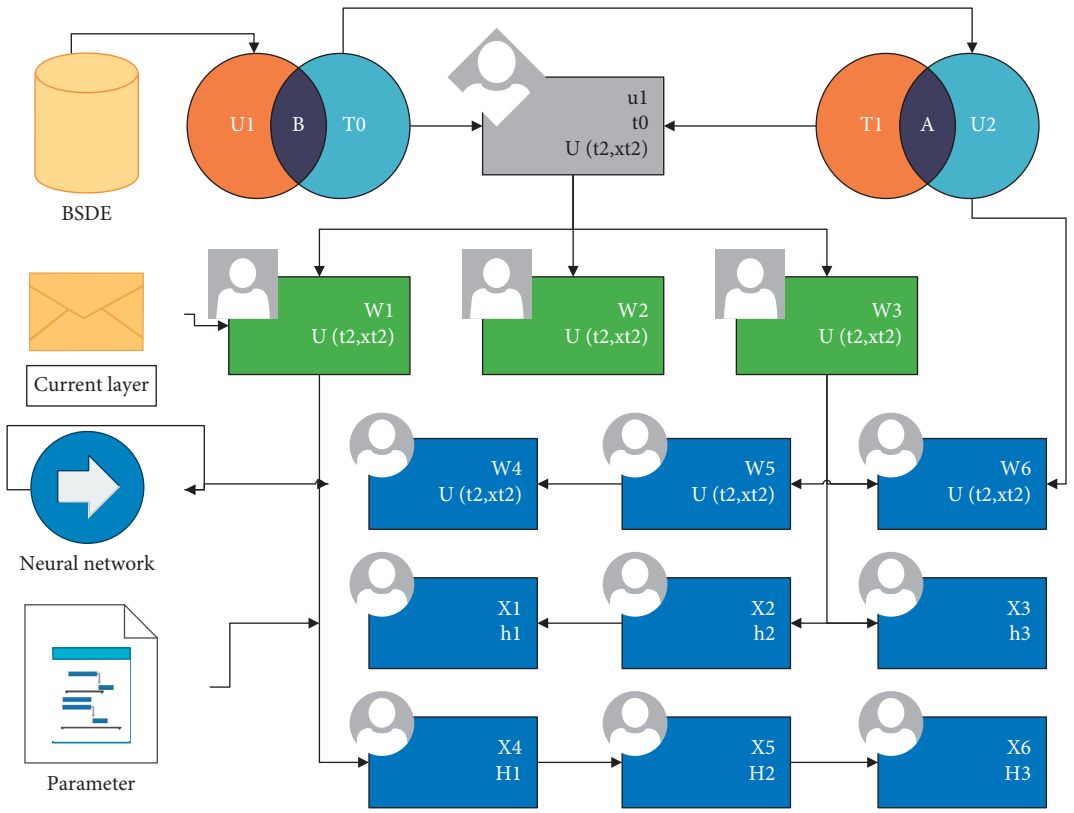

Figure 1: Neural network architecture.

system structure and related interfaces are divided from the system perspective. The user only needs to perform relevant interaction operations within the browser, and the local computing resources are called during the calculation [16]. Therefore, when designing the server/client architecture, computer resources must be allocated as well as possible, and task scheduling and service requests should be uniformly balanced.

$$\mathbb{R}_m = R\left\{\mathbb{R}_{m-1}, \mathbb{Z}_{m-1}\left\{X_n^{m-1,i}\right\}_{(n,i)\in N} \times \mathbb{N}\right\}. \tag{4}$$

The users of the system are mainly scientific researchers who solve partial differential equations numerically. The system should be designed to simplify the user operation steps, reduce unnecessary redundancy, and improve the user experience. Concurrency is an important assessment index of the software for solving partial differential equations by finite difference method, which has a crucial impact on the stability and efficiency of the system. Both in the design of the calculation module and the design of the plotting module, concurrency must be improved as much as possible.

$$\psi_m(x, y) = \varepsilon - \mathrm{Pow}_{1/2}\left(\frac{y}{1+\mathbb{C}^m}\right)^{-1} \frac{\lambda m^x}{1+\left(y/1-\mathbb{C}^m\right)}. \tag{5}$$

Any researcher engaged in the numerical solution of partial differential equations knows that the computational volume of the numerical solution of partial differential equations is so large that it is impossible to satisfy the computational requests initiated by multiple users at the same time by the server alone, which is why software programs like MATLAB, Mathematica, etc. need to install heavyweight stand-alone software in the localization. To solve this problem, the finite difference method of partial differential equation solving software adopts the idea that the server returns the computational executable program and the computational executable program is downloaded to the client computer to run. This not only avoids the user to install the heavyweight runtime environment locally but also greatly reduces the computational pressure on the server. The system data source must be defined first. Finally, as mentioned above, define various business units that establish a relationship with the comprehensive budget system, the specific corresponding relationship, the correlation coefficient between the control category of the budget index and various control types, and the activation of business control.

However, since the system uses a B/S architecture, this architecture is only browser software on the client side. For security reasons, browsers are generally not allowed to call the resources of the local computer. In other words, the computational executable cannot be called by the client browser because of the security factor of the browser.

$$u(T, x) = c\ \ln\left(\exp\left(\frac{g(x)}{c}\right)\right). \tag{6}$$

To solve the above problem, the system introduces Applet technology solution. Java Applet is a technology that supports calling native small applications in the local browser. This applet is developed in Java language, compiled

into Java bytecode by the Java runtime environment, and provided to the publisher in the form of this bytecode. The publisher publishes the Java Applet on the WEB as an object tag embedded in an HTML page. The Java applet is executed by first detaching it from the Web browser and then running it with the help of a local JDK. The software for solving partial differential equations by finite difference method uses this technique to achieve client-server interaction for computation. As shown in Figure 2, the flowchart of the finite difference method for partial differential equations is a client-server interaction using Java Applet technology.

According to the custom parameters input by the user, the calculation and output results are performed. Partial differential equations are implemented as custom cases: each format contains a custom case template in which the parameters are replaced by special substitution characters. The user enters the parameters in the custom case interface provided by the system [17]. The implementation of cooperative learning effectively stimulates students' interest in learning. The cooperative study of job division and job rotation brings accounting business matters into the classroom, shortening the distance between theory and practice. In a simulated business environment, students can personally experience the business operation process in different positions. The system gets the parameters entered by the user, makes the special substitution for the stated positions, and generates the final Fortran source code file.

Since the region where the error exceeds the error, the limit is resampled in our algorithm, and a new neural network is constructed locally to reduce the error. If we look at it from the function approximation point of view, it means that the approximation function is optimized (refinement) in the local area where the error exceeds the error limit. Therefore, from the approximation theory point of view, our method should be feasible. The specific resampling method can be optimally designed according to the specific problem, for example, the process of adjusting the size, shape, and sparsity of the changing grid according to the characteristics of the physical problem, or the characteristics of the differential equations, or the shape of the computational domain, or the characteristics of the computational format. Adaptive meshing predicts automatically dense regions whose physical understanding is a highly variable mesh.

3.2. Analysis of the Construction of Cooperative Curriculum System of Education and Training for Finance and Accounting Majors. In using the Improved Flanders Interaction Analysis System (IFAS) to analyse teacher-student interaction behaviours in the classroom, a temporal sampling criterion needs to be determined, and the study samples the video material every three seconds and codes the observed teacher-student interaction behaviours based on the meaning of each numerical code, which is recorded in Figure 3, horizontally indicating the teacher-student interaction behaviours that occur in every three seconds in a minute. Figure 3 indicates the teacher-student interaction behaviours that occurred in every three seconds of a minute horizontally and every minute of a class vertically. The six classroom samples used in this study ranged in length from 36–40, and about 700 codes could be obtained [18]. The codes were formed into a sequence according to the order in which the classes were conducted, and the entire classroom teacher-student interactions were analysed by the ratio method or matrix analysis.

We planned to record six classroom videos in the research school, including different types of courses, courses of different grades, courses taught by the same teacher in different classes, and courses taught by different teachers in the same class. Partial differential equations have made great contributions to solving practical courses on infectious disease dynamics, population problems, oil development, high-speed flight, and urban transportation. After clarifying the purpose of the research and the research plan, we prepared the questionnaire and the required interview outline, contacted the teaching department teachers of the research schools to seek the consent of the teachers involved in the research, and consulted about the curriculum arrangement and the recording equipment of the finance and accounting department, as shown in Figure 3.

The basic unit of cooperative learning is the group. If we want to adopt a cooperative teaching method in teaching, we must first group students, and if we want to carry out cooperative learning effectively, the premise is to make a scientific and reasonable grouping. Since the learning ability of secondary school students is generally not strong and their problem-solving ability needs to be improved, the principle of cooperative learning grouping generally follows the principle of "homogeneous between groups and heterogeneous within groups." Inter-group homogeneity is to ensure that the overall level of each group remains roughly the same and to ensure fair and just competition among the groups. Intra-group heterogeneity is to consider individual students' learning ability, interest, personality, gender, and other factors when grouping to ensure the differences among group members [19]. For example, each group is composed of students with good grades, moderate grades, and poor grades, and it is also important to ensure that each group has a certain percentage of both male and female students and that each group has students with different personalities. This grouping method can ensure that the overall ability of the group is consistent with each other and can also achieve the complementary strengths of each member of each group.

The interactive behaviour of silence or disorder is a description of the state of the classroom, where silence refers to a state that contributes to the silence of the classroom and generally includes the process of students thinking about questions and doing accompanying exercises. Disorder refers to unhelpful behaviour that occurs in a less orderly state of the classroom. The analysis of the coding (Table 1) and the observation of the video reveals that the frequency of these two codes varies greatly across classrooms, with code 12 reaching 129 times in classroom sample six and appearing 0 times in classroom samples one

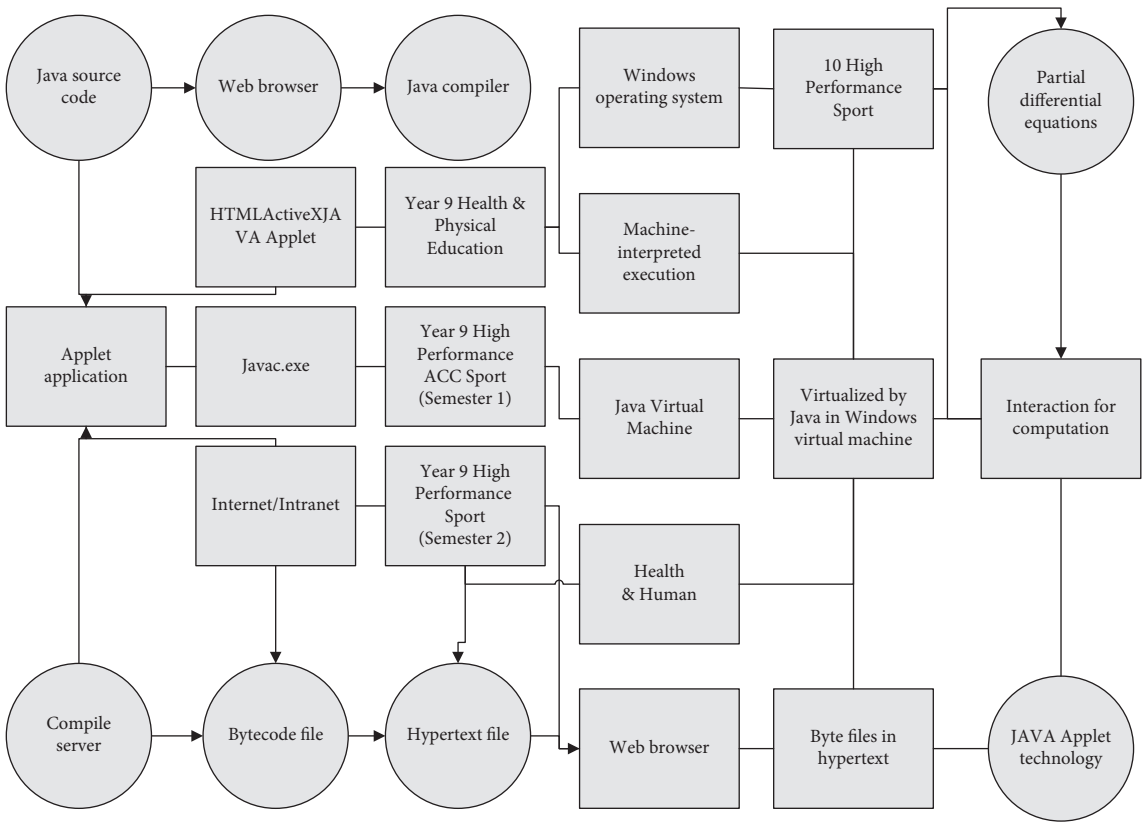

Figure 2: System computational interaction flowchart.

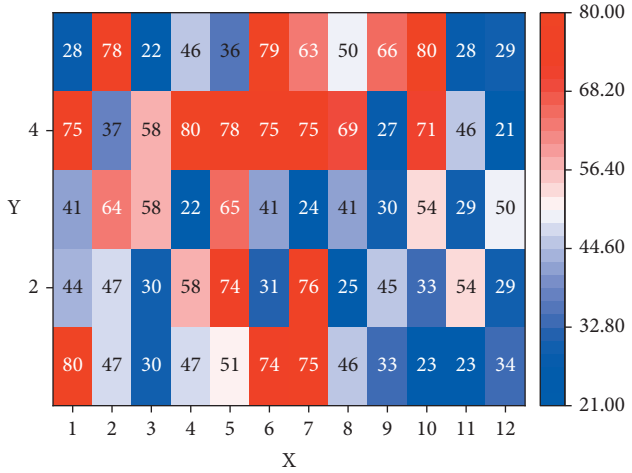

Figure 3: Matrix analysis diagram.

and two. The overall percentage of silence and disorder is less, averaging 7.15%, and the overall performance shows that disorder that is not helpful to the classroom accounts for more of the classroom than the silence that helps the classroom.

The ratio of indirect to direct teacher influence was used to determine whether teachers tend to use indirect or direct speech. Nevertheless, due to the strong practicality of these partial differential equations, the financial engineering industry strongly demands the approximate calculation of the

Table 1: Frequency statistics.

Name	Code 1	Code 2	Code 3	Code 4	Code 5	Code 6	Code 7
1	79	57	71	66	28	53	66
2	76	75	74	65	64	68	50
3	65	26	65	69	53	76	33
4	24	79	46	36	75	26	49
5	47	77	20	56	20	57	47
6	74	45	43	72	76	77	76

numerical solutions of such high-dimensional nonlinear parabolic partial differential equations. A ratio greater than 100 indicates that teachers tend to use indirect language to communicate with students, where codes 1–4 (teacher receives emotion, the teacher praises or encourages, the teacher accepts students' viewpoints, and the teacher asks questions) represent indirect teacher speech, and codes 5–7 (teacher lectures, the teacher instructs, and teacher criticizes or asserts authority) represent direct speech. The sum of the frequencies of codes 1-4 is divided by the sum of the frequencies of codes 5-7. The sum of the frequencies of codes 1–4 over the frequencies of codes 5–7 was obtained as the ratio of direct to indirect teacher influence. This ratio is low in the six samples studied. In sample six, because the frequencies of the first four codes are 0, the ratio of indirect speech to direct speech is calculated to be 0. The highest ratio among the six samples is only 7.44 in sample four.

In the classroom, when the teacher asks a question or gives instructions to designate a student to speak, students usually choose to respond, so the passive response is a student language behaviour that occurs more often, and for students with a good degree, the verbal behaviour of taking the initiative to answer questions also occurs. In the interviews, students indicated that they would ask the teacher questions when they encountered problems, but not in the classroom, usually during class or in the teacher's office by themselves, so this behaviour was not observed in the classroom [20]. The number of times the student-student interaction behaviour of student-peer discussion occurred in the video was zero.

In the operation class, the time that contributes to classroom silence will be much longer than that in the theory class; after the teacher explains the operation essentials and steps, the students start to practice independently, and too much communication and interaction between the teacher and students, in this case, will instead affect the proper teaching effect. In the classroom, there was a long period of classroom silence. In the interview, students also said that the teacher would leave enough time for them to think and review so that they could deepen their understanding of what they had learned and master their knowledge and operation skills better. Teachers also think that it is important to give students time for independent learning in each class. Only by thinking can students understand what they are learning.

4. Results and Analysis

4.1. Partial Differential Equation Combined with Artificial Intelligence Algorithm Performance Results. In the past, financial work was simpler and the data presented more obvious patterns, but with the rapid development of the economy and the continuous progress of society, economic fluctuations are frequent and the patterns of economic activities are hardly constant, so asset valuation and asset forecasting can only be made possible using artificial intelligence to improve accuracy. Another disadvantage is that this algorithm requires us to choose a suitable learning rate. When we use a small learning rate, it will cause the network to converge too slowly during training, and the iterative calculation will be very time consuming; When the rate is set, it will cause the magnitude of the optimization to skip the range of the function during training. The computer program can program the evaluation of tangible and potential assets by increasing the statistical scope and statistical content in the preparation process, making the evaluation results more objective and scientific and avoiding the bias of fragments due to subjective factors such as inexperience.

Neural networks essentially implement a mapping function from input to output, and a relevant mathematical theory has demonstrated that neural networks with three or more layers are able to approximate any nonlinear continuous function with arbitrary accuracy. This makes it particularly suitable for solving problems with complex internal mechanisms, i.e., neural networks with strong nonlinear mapping capabilities. Therefore, in this paper, a feedforward neural network is used as the test solution, where the parameters are the weights and biases in this neural network. It should be noted that usually, to train the neural network, the datasets D and S can be obtained by random sampling in the internal region and the boundary. The points on the boundary are used to train the boundary network, and the points in the internal region are used to train the PDE network, as shown in Figure 4.

The era of artificial intelligence needs to have sufficient basic guarantees, the formulation of government laws, the formulation of industry norms, the construction of local personalization, the operation of market-oriented credit mechanisms, and the mutual complementary and restraining effect of the legal system and morality. The momentum method is to give the gradient a speed so that it oscillates less from side to side as it descends, speeding up the gradient descent. It is designed to speed up the learning rate when dealing with high curvature but consistent gradients. It should be based on the actual situation, improve the formulation of laws and industry norms related to accounting, and pay attention to their effectiveness and operability, which is conducive to the formation of a complete mechanism so that accounting services can have definite industry norms. With the development of science and technology and economic development, artificial intelligence technology is an inevitable product of history. At present, accounting artificial intelligence is still in its infancy, the system still needs to be improved, and the aspects involved are not sufficient. But with the further development of science and technology, accounting artificial intelligence will be applied increasingly widely and deeply. The popularity of artificial intelligence will also put forward higher requirements on the level of professional knowledge and skills of financial personnel. In the face of challenges, we should correctly understand and actively face the arrival of the era of accounting artificial intelligence.

Therefore, the accounting staff should make full use of their advantages and strive to achieve the transformation to management accounting. The connection between the accuracy of the information and the specific implementation of management accounting is not obvious enough, and the accuracy of data and the ease of information exchange can provide reference to the company for the development strategy selection and formulation process, and the accounting staff can use their previous experience to engage in performance evaluation, capital budgeting, investment analysis, and cost control, which requires thinking work, improve management, analysis, and decision-making capabilities, and create value for group companies through the data provided by artificial intelligence, as shown in Figure 5.

Figure 5 shows the trend of the mean value of the approximate L1 relative error and loss function associated with the increase of iteration step m. The simulated numerical solution converges to the exact solution rapidly with increasing iteration steps, and the simulated numerical solution is close to the exact solution at about 500 iteration steps. From the perspective of the system, the system structure and related interfaces are divided. Users only need to perform related interactive operations in the browser and

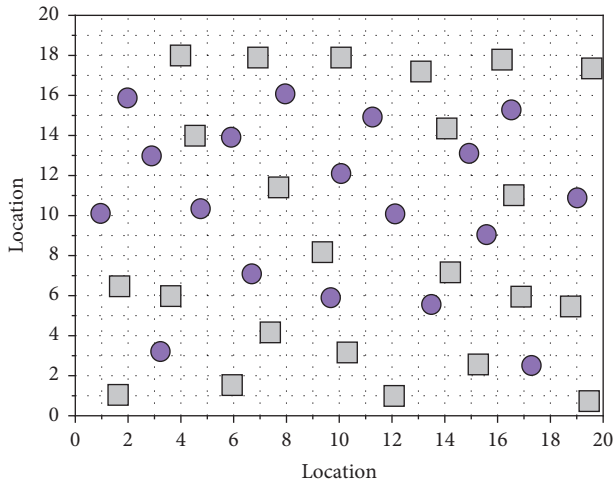

Figure 4: Data acquisition for training a neural network.

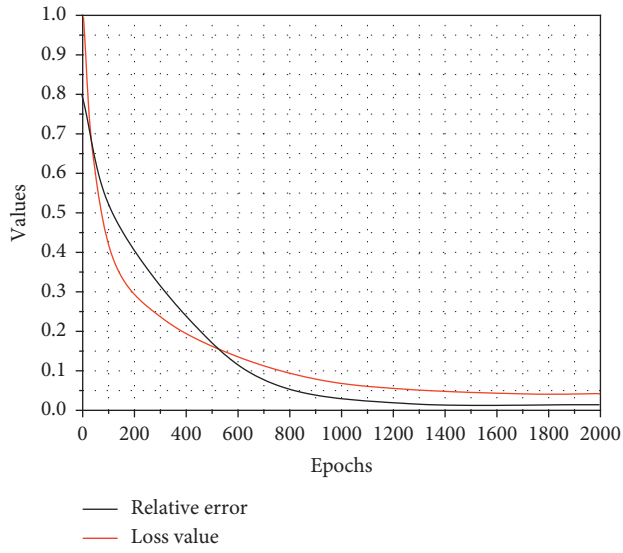

Figure 5: Loss function over relative error.

call local computing resources during computing. The PDE error reaches the error limit after 3000 iterations. In Figure 5, we can see that the accuracy of the approximate solution of the neural network is increasing as the number of iterations increases.

To address the problem that the general neural network solving partial differential equations numerical solution model cannot further improve the accuracy of the solution, we propose an adaptive deep neural network model to solve partial differential equations, and numerical examples show that our method improves the approximation ability while reducing the number of iterations of the training model. However, for resampling, we still perform simple random sampling, and further research is needed on how to design a good resampling strategy for specific problems. In addition, how to better elaborate the approximation ability of adaptive neural networks theoretically also needs to be explored.

In the interview, the teachers said that students like multimedia teaching, which can improve teaching efficiency and attract students' attention more than just using words, and it can be more vivid and has a certain effect on cultivating students' interest in learning. However, most of the students said that it is almost the same whether the teacher uses multimedia or not in class.

4.2. Curriculum Construction Results. Firstly, we observe and record the whole process of discussion and practice among groups; secondly, we guide and supervise each group member to complete the assigned tasks correctly and check the completion of each group' tasks; finally, we review the whole teaching process, explain and guide the problems that arise, guide students to summarize and reflect on the relevant problems, and provide a targeted explanation of the difficulties reflected in the practice process and the difficult problems raised by students. The students will be guided to reflect on the relevant problems, and the difficulties reflected in the practice process and the difficulties raised by students will be explained in a targeted manner.

Under the financial sharing service model, the enterprise information system is built as an interconnection platform for the organic integration of business and financial data, giving finance personnel higher authority and responsibility and enabling comprehensive understanding and control of business processes, so that resources, information, and data are all integrated and penetratingly queried through the sharing platform in tandem with data from various systems. Therefore, financial sharing construction is also an effective way to promote the integration of business and finance. Also, in the financial sharing mode, the basic accounting business can be separated, so that highly professional personnel can be put into strategic financial work to support the company's strategic decisions. For security reasons, browsers are generally not allowed to call resources on the local computer. That is to say, the computing executable program cannot be called by the client browser due to the security factor of the browser. With a global perspective, strategic finance personnel can clarify financial strategic management goals, engage in higher value-added management activities such as budgeting and financial analysis of group enterprises, provide business guidance to financial sharing service centres and member enterprises, and supervise the implementation of subordinate enterprises, accelerating the financial strategic transformation in the era of big data.

Discovering frequent item sets is to find all frequent item sets with a user predefined minimum support, i.e., to find a subset of items with no less than the minimum support set by the user. Generally, only the set of so-called maximum frequent item sets that are not contained by other frequent itemset needs to be concerned. The number of frequent item sets generated by the thing dataset can be very large, so it will be useful to find representative item sets from which all other frequent item sets can be deduced, as shown in Figure 6.

The business unit definition is used to configure which modules and business links are controlled by the budget. From the analysis of the control relationship of the comprehensive budget management system, only the budget

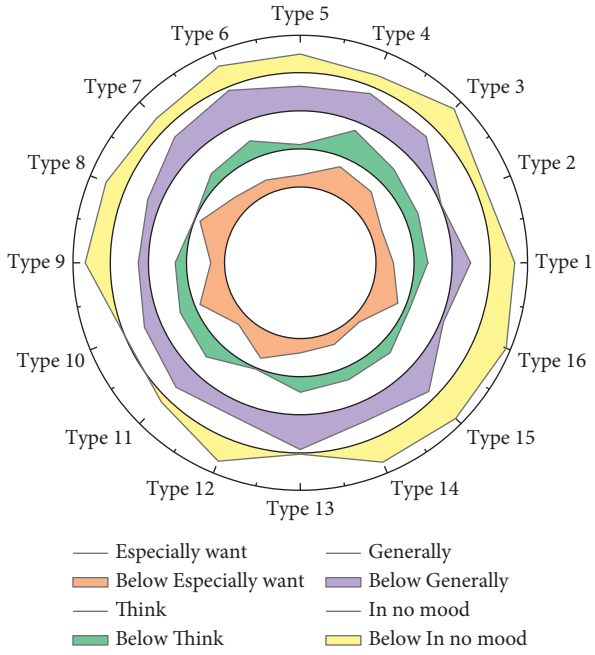

Figure 6: Attitude of technical instruction.

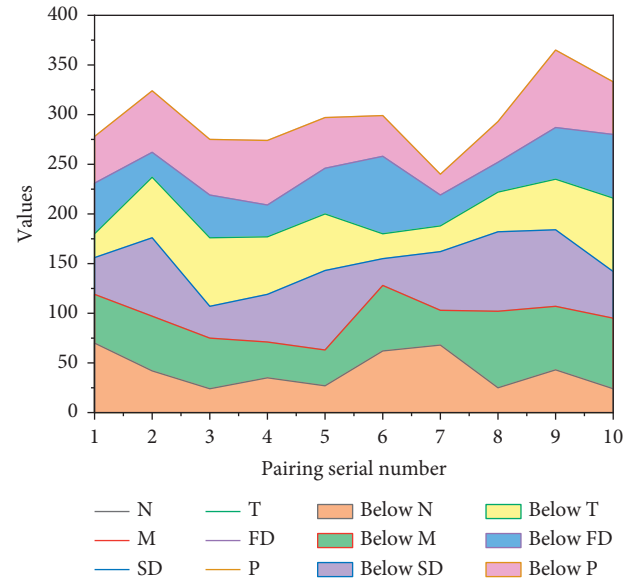

Figure 7: Comparison of experimental classes' performance before and after the experiment.

control interface is preset for the expense reimbursement management and contract management in the financial shared reporting platform, and the business units such as asset management and human resources need to be developed and implemented.

The software implements the numerical solution solving and calculation of three types of typical partial differential equations in various formats. In addition, while still using the format of the literature, the user can go further and invoke the custom module in the software to directly input the solution conditions (initial conditions and boundary conditions), nonsimultaneous terms, etc., thus freely defining other algorithms for calculation and allowing to fully test the performance of the algorithms in the literature and to compare the numerical results with the format constructed by the user.

At the same time, set the personnel, notification method, time, and data source for the corresponding warning notification. Finally, as mentioned above, we define the various business units that establish relationships with the comprehensive budget system, the specific correspondence, the control categories of budget indicators and the correlation coefficients of various control types, and the business control enablement, as shown in Figure 7.

The analysis of the above data results shows that in two classes with no significant difference, without their complete knowledge, the accounting results of the class that adopted the teaching method of cooperative learning of splitting and rotating posts had a significant improvement over the accounting results of the class that adopted the traditional teaching method. Also, the reasons for this result are none other than the following. First, the cooperative learning teaching method has changed the traditional teaching mode, and the students' subjectivity has been greatly enhanced. In the implementation of cooperative learning, teachers guide students to cooperate and help each other, guide students to think and explore, and actively participate in teaching activities, which invariably makes most students consolidate the proficiency in knowledge. Therefore, from the perspective of approximation theory, our method should be feasible. The specific resampling method can optimize the design according to the specific problem, for example, according to the characteristics of the physical problem, or the characteristics of the differential equation, or the shape of the calculation domain, or the characteristics of the calculation format, the size, shape, and density of the grid can be adjusted reasonably. Adaptive meshing expects the mesh to automatically densify in areas where the physics varies greatly. Second, the implementation of cooperative learning effectively stimulates students' interest in learning. In the simulated business environment, students get hands-on experience of the business operation process in different positions, which raises students' interest. Although there is competition between groups, the group members who implement cooperative learning are a cooperative group. They collaborate with each other, which facilitates mutual progress and progress, thereby improving learning performance.

5. Conclusion

This paper first summarizes the research status of artificial intelligence technology in the field of accounting and then gives a comprehensive overview of the three concepts of artificial intelligence, accounting, and accounting artificial intelligence. This paper introduces the definition of the research field and research content of this paper and introduces the application status of accounting artificial intelligence. Afterward, we analyse the impact of the introduction of AI in accounting before and after the

introduction of AI in corporate accounting by citing the case of Sichem International. We mainly explain the changes in the accounting and charting process, transaction transfer and inventory process, auditing process, accounting information quality, accounting efficiency, and accounting practitioners' mobility and explain the positive and negative effects in the application process. Finally, we give strategies to improve the effectiveness of accounting AI from four aspects: the development of adversarial AI, the improvement of laws and regulations, the transformation of accounting personnel, and the two-way integration of AI and accounting. Thus, in this paper, we improve the stochastic optimization algorithm by using stochastic gradient descent with momentum and the Adam algorithm. The Adam algorithm with power decay greatly improves the generalization performance, and it separates the selection process of learning rate from the selection process of power decay to achieve better hyperparameter optimization. It is proved that the Adam algorithm greatly accelerates the convergence speed.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The author declares that there are no conflicts of interest.

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