

Research Article

Analysis of Digital Transformation of Enterprise Accounting Talents from the Perspective of Blockchain

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In order to improve the digital transformation effect of enterprise accounting talents, this paper combines intelligent methods to carry out the digital transformation of enterprise accounting talents from the perspective of blockchain. Moreover, this paper studies the sliding window CS-SCHT algorithm in depth. Based on the theoretical derivation of the sliding window CS-SCHT based on the gray code kernel, the algorithm is implemented on the computer platform, and the test experiment of the operation time is carried out. In addition, this paper explores the application of the sliding window CS-SCHT algorithm in adaptive filtering. The experimental results show that the adaptive filter based on the CS-SCHT algorithm can obtain a higher signal-to-noise ratio than the sliding window DFT algorithm. Finally, this paper constructs an intelligent accounting digital information processing system. The research shows that the system proposed in this paper can play an important role in the digital transformation of enterprise accounting talents from the perspective of blockchain.

1. Introduction

It is precisely because of the gap between the reality of the financial shared service center and the initially envisaged expectation that it has ushered in an important opportunity for transformation. In the literature [1], promote the financial transformation of enterprises with an interconnected, shared, and intelligent financial sharing model. It enables financial sharing not only to support the current standardization and standardization of work but also to gradually transform to the work that supports flexibility and scalability and provides flexible processes that meet the individual needs of customers. In the literature [2], the author believes that the financial sharing service will transform into an intelligent sharing center with deep integration of business, finance, and taxation in the “Internet +” era and realize the automation of financial processes, e-commerce, and digitalization of financial processing, data capitalization, and intelligent management. Its essence is to realize the digitization of a wider range of business (from bookkeeping, settlement to reimbursement, procurement, taxation, etc.) based on a new generation of information technology and to subvert the upgrade of the

enterprise’s financial system, business process, and business model. In the literature [3], the author believes that the financial shared service center should provide application scenarios for emerging technologies and lay the foundation for the upgrade from informatization to automation, intelligence, and digitization. Enterprises should realize the processization and standardization of data production through process reengineering and online business interconnection. At the same time, data is related to enterprise operation to the financial shared service center, so that finance can further become the information center of enterprise stakeholders and the digital nervous system of the enterprise. The financial special ability, information collection ability, and business support ability have been continuously improved to realize the digital transformation of finance [4]. In the above discussion on the future development goals and trends of financial shared services, two viewpoints are mainly mentioned: financial shared services are intelligent, and enterprise data centers are built through the integration of industry, finance, and taxation to accumulate data. In the literature [5], the author believes that it is still too early to talk about the intelligence of financial sharing services, and there will be no intelligence without the dataization

brought by digitization. The realization of intelligence must be based on the massive data formed by digitization, and intelligence is the next action choice for digitization [6]. In this process, it is natural to play the financial service function, really go deep into the business process, become familiar with the management process, provide data reference for the business process, and provide information support for management decision-making. An important issue at this time is how to strengthen the data service capability of the financial shared service center. Therefore, the financial shared service center should be regarded as the big data center of the enterprise, at least the data decision center of management accounting [7].

The digital transformation experience of the enterprise as a whole is worth learning from the digital transformation. Literature [8] believes that the transformation is not a simple innovative application of new technologies but an all-round transformation of development concepts, organizational methods, business models, and management methods, which is not only a strategic transformation but also a system engineering.

Facing the digital economy environment, most companies have not made fundamental changes to their strategies. Elevating digital strategy to corporate strategy and clarifying the vision and goals of transformation under a clear self-awareness will help companies explore their own transformation routes. If a company fails to fully align its digital strategy with its overall strategy, it will at best be breaking even in the context of digital disruption [9]. Digital strategy should face the future at a high level, make decisions on directional and overall major issues, and it should become an important part of the overall strategy of the enterprise to improve the probability of successful transformation [10]. Enterprises need to set visions and goals according to their own digital maturity and consider elements such as leadership, operating models, work resources, information and data, and all-round experience and unify their internal thinking, goals, language, and actions to improve digitalization and the integrity, coordination, and sustainability of transformation [11].

The importance of successfully driving digital transformation through talents is self-evident [12]. Digital professionals provide core technical support for transformation. These three types of talents are indispensable. Among them, leaders need to complete the transformation of digital leadership, update the decision-making model of enterprises, take digital as a key factor in decision-making, and guide the digital transformation of enterprises. Not only business operators need to improve their digital operation skills but also functional department personnel (such as core personnel in strategy, marketing, finance, and human resources departments) also need to develop their own digital management concepts and skills. Therefore, enterprises should first strengthen the protection of digital strategic talents [13]. The arrangement of the knowledge structure of the link personnel makes digital literacy a standard requirement for the knowledge requirements of each business link and business personnel.

With the widespread application of artificial intelligence in the accounting field, a large number of repetitive accounting tasks such as voucher entry and account reconciliation

will be replaced by efficient machines. Most of these tasks are simple to operate, with fixed processes and low added value. Basic accountants face severe unemployment risks. The accountants in file management and financial material receiving and dispatching positions will also be replaced. The sorting and filing of accounting materials require a lot of manpower and material resources and also take up a lot of time and space, but financial robots that are good at memory and storage can completely solve these problems. The application of artificial intelligence improves the immediacy and accuracy of data storage [14]. At the same time, artificial intelligence can run 24 hours a day, which can alleviate the situation that accountants are caught off guard and difficult to meet the needs of financial work during peak periods. The financial and accounting intelligent system is rooted in programming language. In the process of system development, if the program is not designed according to scientific and reasonable methods, it will cause errors in the accounting processing logic and greatly reduce the accuracy of financial data. In the process of transmission and sharing of financial data, if the environment is not secure enough, it is easy to be attacked by viruses, hackers, etc., resulting in information leakage. Irregular management of system data will also lead to the tampering and deletion of financial and accounting data, the quality of users is not high, and wrong operations will also lead to threats to data security. With the popularization of artificial intelligence technology, the economic benefits brought by intelligent accounting systems will also drive the emergence of pirated systems, and intellectual property rights are vulnerable to infringement.

We cannot deny the positive role of artificial intelligence in the field of finance and accounting, but opportunities often hide crises. At present, the laws and regulations of artificial intelligence are not perfect. The massive data carried by intelligent accounting systems and financial robots has become the source of crime. For profit, the illegal trading of corporate financial data for the purpose of snooping on commercial secrets poses a great threat to the openness and fairness of the market. Once data is leaked, accountability after the fact has become a puzzling problem. Of course, in addition to the harm caused by the leakage of internal secrets, its customer privacy (such as consumer order records, opinion preferences, and logistics information) will also be illegally violated [15].

Accounting plays a vital role in the entire economic operation. With the widespread application of artificial intelligence in the accounting field, basic accounting positions will disappear, and the demand for management accounting compound talents will increase. Personnel engaged in the accounting industry should view artificial intelligence rationally, strengthen self-learning and self-management from their own perspective, transform self-positioning, build a knowledge system under the background of information technology, learn to apply financial systems, and view financial robots from a developmental perspective. From the perspective of universities and society, we should optimize the structure of talent training, optimize the allocation of course content and teaching resources, innovate the accounting curriculum system,

improve the training quality of accounting practitioners in the new era, and adapt to the new needs of accounting career development. From the perspective of enterprise management, management accounting should further analyze and summarize data on the basis of traditional accounting and integrate accounting knowledge into daily business in combination with enterprise development strategies [16].

It is necessary to further discuss how to use the organizational structure to realize the digital transformation. By establishing a suitable digital transformation organization, clarifying the main body of transformation responsibility, formulating reasonable organizational business objectives and assessment and incentive mechanisms, and coordinating business departments and technical departments, it can more effectively help enterprises to coordinate and promote the implementation of digital transformation [17].

Digital technology has had a significant impact on the behavior of consumers with better access to information and communication, bringing them closer to businesses and helping businesses better identify consumer needs. This is one of the entry points that many digital transformation enterprises choose when determining the specific implementation path, which is called "customer experience digitization." Through dynamic customer portraits, enterprises will innovate product delivery and service models with the help of digital technology to better meet the diverse needs of customers. Literature [18] pointed out that the process of digital transformation of enterprises is the process of digital empowerment of industries and enterprises by the new generation of Internet technology, and it is also the process of contact and integration of the digital experience of customers and the digital value of products and services. The iterative upgrade of technology can redesign the original workflow and data processing process of the enterprise and create conditions for in-depth mining of data value. In the digital age, an important trend in business process design is openness. It is not only open to upstream and downstream partners to build an ecosystem platform but also to customers, so that customers can better participate in the execution of business processes, improve customer experience, achieve customer satisfaction, and can have quick feedback for comments. Digital transformation is based on the full use of digital technology, realizing the dual-wheel drive of technology and business and turning the advantages of technology into business value. The simplification of business processes and the internetization of customer experience and interaction [19].

This paper combines intelligent methods to carry out the digital transformation of enterprise accounting talents from the perspective of blockchain, so as to improve the work efficiency of modern accounting talents.

2. Intelligent Accounting Data Processing Algorithm from the Perspective of Blockchain

2.1. 2D Multipoint Sliding DFT Algorithm. The two-dimensional sliding DFT is regarded as a two-dimensional extension of the one-dimensional sliding DFT, as shown in

Figure 1. It uses a square window of fixed size ($M \times M$) to intercept the two-dimensional input signal and makes the horizontal translation and sliding perform, so that the new window and the previous window slide have one signal point in the horizontal direction. The sliding window transformation acts on the signal of the fixed size window, which can be visualized as the fixed size window sliding in the horizontal direction. Due to the large overlap between windows, the signals in the new window can be quickly calculated using the calculation results of the previous window.

A two-dimensional image is shown in Figure 1. The solid line box in the figure represents the current window of 8×8 size, and the position of the sliding window is represented by the coordinates (x, y) of the lower end of the window. If $s_{x,y}$ represents the pixel value of the image (x, y) , then the sliding window DFT of $M \times M$ is defined as

$$S_{x,y}(u, v) = \sum_{m=0}^{M-1} \sum_{n=0}^{M-1} s_{\hat{x}+m, \hat{y}+n} W_M^{-um} W_M^{-vn}. \quad (1)$$

Among them, $\hat{x} = x - M + 1$, $\hat{y} = y - M + 1$, $W_M = e^{j2\pi/M}$.

According to the cyclic shift and periodicity ($W_M^{u+M} = W_M^u$), formula (1) can be rewritten as

$$\begin{aligned} S_{x,y}(u, v) &= \sum_{m=0}^{M-1} \sum_{n=0}^{M-1} s_{\ell+m-1, y+n} W_M^{-u(m-1)} W_M^{-vn} + \sum_{n=0}^{M-1} s_{\ell+M-1, y+n} W_M^{-u(M-1)} W_M^{-vn} \\ &\quad - \sum_{n=0}^{M-1} s_{\ell-1, \hat{y}+n} W_M^u W_M^{-vn} = W_M^u \sum_{m=0}^{M-1} \sum_{n=0}^{M-1} s_{\hat{x}+m-1, \hat{y}+n} W_M^{-um} W_M^{-vn} \\ &\quad + \sum_{n=0}^{M-1} s_{\ell+M-1, y+n} W_M^u W_M^{-vn} - \sum_{n=0}^{M-1} s_{\ell-1, y+n} W_M^u W_M^{-vn}. \end{aligned} \quad (2)$$

If $S_{x-1,y}(u, v)$ is the DFT transform value of the previous window, then there are

$$S_{x-1,y}(u, v) = \sum_{m=0}^{M-1} \sum_{n=0}^{M-1} s_{\ell+m-1, \hat{y}+n} W_M^{-um} W_M^{-vn}. \quad (3)$$

$\tilde{S}_{x,y}(v)$ is the one-dimensional DFT transform value of M points of the v -th column pixel in the sliding window, which is expressed as

$$\tilde{S}_{x,y}(v) = \sum_{n=0}^{M-1} S_{x, \hat{y}+n} W_M^{-vn}. \quad (4)$$

According to formulas (3) and 4, formula (2) can be rewritten as

$$S_{x,y}(u, v) = W_M^u (S_{x-1,y}(u, v) + \tilde{S}_{x,y}(v) - \tilde{S}_{x-M,y}(v)). \quad (5)$$

Formula (5) shows that calculating the two-dimensional DFT of the current window (x, y) can be obtained directly through the two-dimensional DFT value of the previous window $(x - 1, y)$ and two one-dimensional DFT transforms of $\tilde{S}_{x,y}(v)$ and $\tilde{S}_{x-M,y}(v)$. Further, the two DFT calculations of

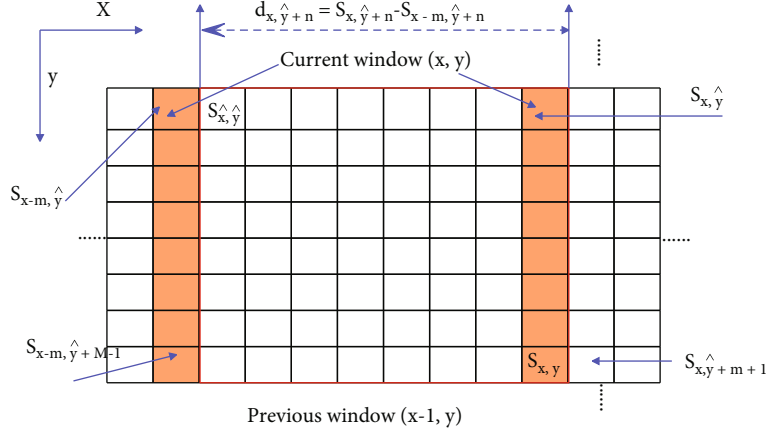


FIGURE 1: Sliding demonstration of an 8×8 window. The thick line is the current window.

$\tilde{S}_{x,y}(v)$ and $\tilde{S}_{x-M,y}(v)$ are combined for simplification. If $d_{x,y} = s_{x,y} - s_{x-M,y}$, then $d_{x,\hat{y}+n} = s_{x,\hat{y}+n} - s_{x-M,\hat{y}+n}$. Then, $D_{x,y}(v)$ is defined as the value of the v -th point UVT (update vector transform):

$$\begin{aligned} D_{x,y}(v) &= \sum_{n=0}^{M-1} (s_{x,\hat{y}+n} - s_{x-M,\hat{y}+n}) W_M^{-vn} \\ &= \sum_{n=0}^{M-1} d_{x,\hat{y}+n} W_M^{-vn} \\ &= \tilde{S}_{x,y}(v) - \tilde{S}_{x-M,y}(v). \end{aligned} \quad (6)$$

Among them, $s_{x,\hat{y}+n}$ is the updated pixel column, and $s_{x-M,\hat{y}+n}$ is the pixel column removed from the window, which are, respectively, shown in the rightmost column in the current window and the left column outside the window in Figure 1.

Set the sliding window as shown in Figure 2. So far, (5) can be further simplified as

$$S_{x,y}(u, v) = W_M^u (S_{x-1,y}(u, v) + D_{x,y}(v)), \quad (7)$$

$$\begin{aligned} S_{x,y}(u, v) &= W_M^{Lu} \{ S_{x-L,y}(u, v) \\ &\quad + [D_{x-L+1,y}(v) + W_M^{-u} D_{x-L+2,y}(v) + \dots + W_M^{-(L-1)u} D_{x,y}(v)] \}. \end{aligned} \quad (8)$$

Among them, $0 \leq k \leq M$.

We set

$$\begin{aligned} D_{x,y}(u, v) &= D_{x-L+1,y}(v) + W_M^{-u} D_{x-L+2,y}(v) + \dots + W_M^{-(L-1)u} D_{x,y}(v) \\ &= \sum_{m=0}^{L-1} W_M^{(m-L+1)u} D_{x-m,y}(v). \end{aligned} \quad (9)$$

So far, formula (8) can be simplified as

$$S_{x,y}(u, v) = W_M^{Lu} \{ S_{x-L,y}(u, v) + \tilde{D}_{x,y}(u, v) \}, \quad (10)$$

Formula (10) deduces the DFT relation of the current window (x, y) by using the DFT value of the L -th window in front of the current position, which can effectively reduce the amount of calculation.

We can get

$$\tilde{D}_{x,y}(u, v) = \sum_{m=0}^{L-1} W_M^{(m-L+1)u} \sum_{n=0}^{M-1} (s_{x-m,\hat{y}+n} - s_{x-m-M,\hat{y}+n}) W_M^{-vn}. \quad (11)$$

We define

$$T_{x-m,y}(v) = \sum_{n=0}^{M-1} d_{x-m,\hat{y}+n} W_M^{-vn}. \quad (12)$$

Among them, $v = 0, 1, \dots, M-1$, $d_{x,y} = s_{x,y} - s_{x-M,y}$.

Therefore, formula (9) can be rewritten as

$$\tilde{D}_{x,y}(u, v) = \sum_{m=0}^{L-1} W_M^{(m-L+1)u} T_{x-m,y}(v). \quad (13)$$

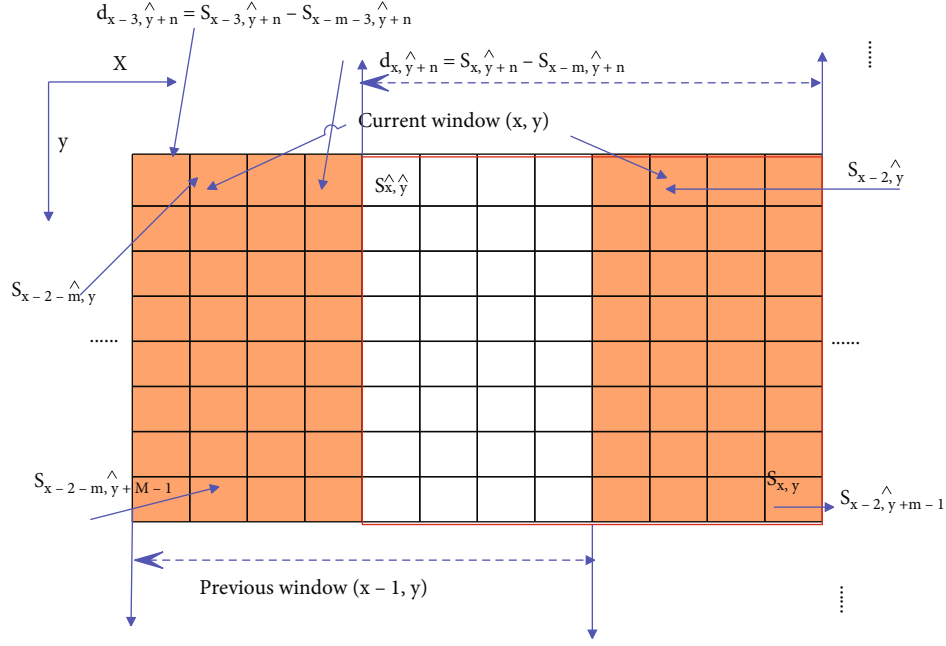
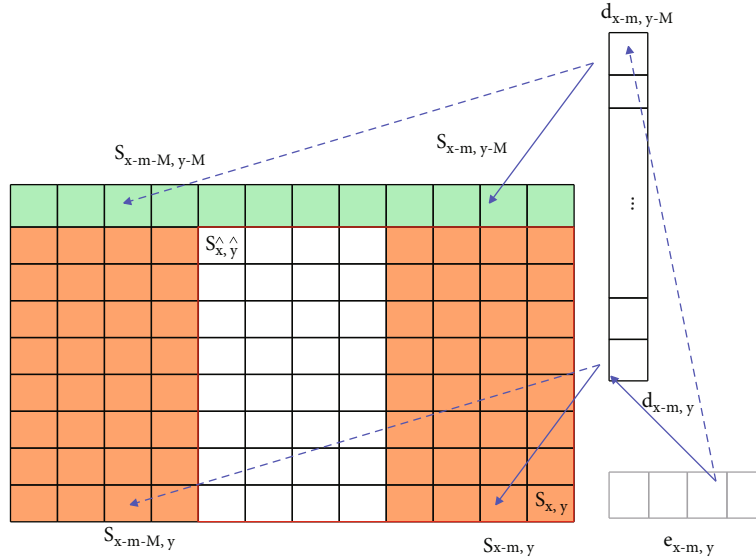
From formula (9), it can be divided into two steps:

(1) The first step is to calculate $T_{x-m,y}(v)$

Observing formula (12), it can be seen that $T_{x-m,y}(v)$ can be quickly calculated by FFT; that is,

$$T_{x-m,y}(v) = \mathbf{FFT}(d_{x-m,y+n}). \quad (14)$$

However, the amount of calculation is slightly larger. Since the calculation results of the previous column of windows have been obtained, this paper uses the recursive method to calculate $T_{x-m,y}(v)$ more quickly:


 FIGURE 2: Multiswipe demonstration of an 8×8 window. $L = 4$, and the thick line is the current window.

 FIGURE 3: Calculation diagram of $e_{x-m,y}$ when $m = 1$. The thick line is the current window.

$$\begin{aligned}
 T_{x-m,y} &= \sum_{n=0}^{M-1} d_{x-m,y+n} W_M^{-vn} = d_{x-m,y-M+1} W_M^0 + d_{x-m,y-M+2} W_M^{-v} \\
 &\quad + \cdots + d_{x-m,y-1} W_M^{-(M-2)v} + d_{x-m,y} W_M^{-(M-1)v} \\
 &= W_M^v [T_{x-m,y-1} + d_{x-m,y} - d_{x-m,y-M}] \\
 &= W_M^v [T_{x-m,y-1} + e_{x-m,y}].
 \end{aligned} \tag{15}$$

Among them, $e_{x-m,y} = d_{x-m,y} - d_{x-m,y-M}$.

The computational demonstration of $e_{x-m,y}$ is shown in Figure 3, where the solid and dashed arrows represent addi-

tion and subtraction, respectively. From equation (15), it can be obtained that only two real additions and one complex multiplication are needed to calculate $T_{x-m,y}$, which is much lower than the calculation amount of one FFT.

Solid arrows is addition, and dashed arrows is subtraction.

(2) The second step is to calculate $\tilde{D}_{x,y}(u, v)$

The HDFT proposed by C. Park and S. Ko flexibly improves the butterfly computing architecture and improves the computational efficiency of one-dimensional multipoint sliding DFT. Inspired by this, this paper proposes the butterfly algorithm shown in Figures 4 and 5 to calculate $\tilde{D}_{x,y}(u, v)$

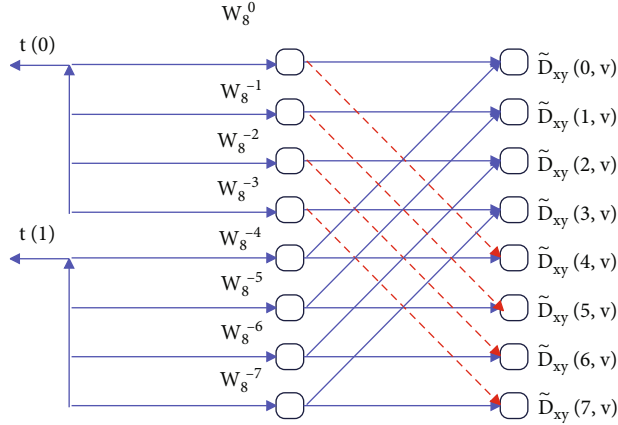


FIGURE 4: The computing architecture of $\tilde{D}_{x,y}(u, v)$ when $L = 2$ and $M = 8$.

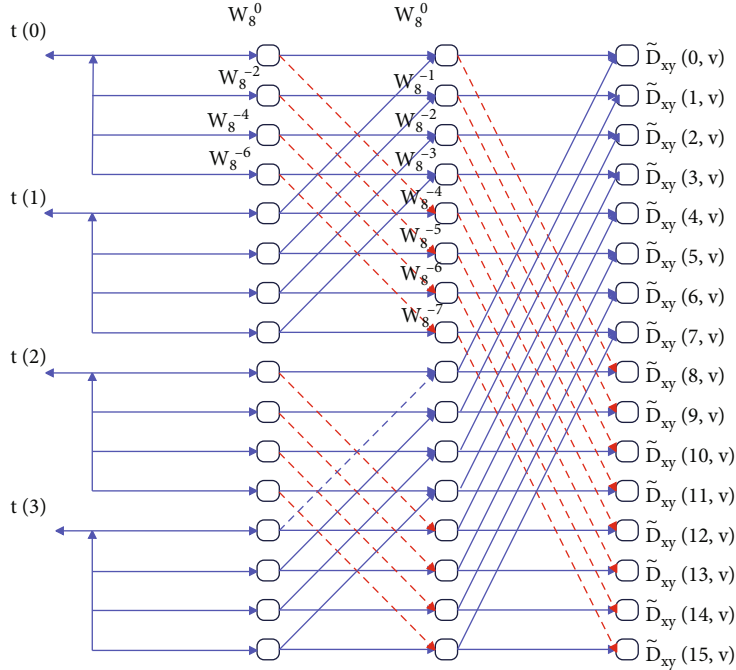


FIGURE 5: Butterfly structure for calculating $\tilde{D}_{x,y}(u, v)$ when $L = 4$ and $M = 16$.

in equation (9), where $t(m) = T_{x-m,y}(v)$. Figure 4 shows an example of $L = 2$ and $M = 8$, and Figure 5 shows an example of 4 and $M = 16$.

It can be seen from Figures 4 and 5 that the proposed two-dimensional multipoint sliding window algorithm is similar to the butterfly operation of FFT, and the intermediate value of the calculation is retained, thereby reducing a large amount of calculation and effectively improving the calculation efficiency.

3. Sliding Window CS-SCHT

Its sequency-ordered spectrum is similar to that of DFT, the CS-SCHT transformation matrix is relatively simple, and the matrix elements are composed of $\{1, -1, j, -j\}$ values. Differ-

ent from SCHT, CS-SCHT transform coefficients have conjugate symmetry similar to DFT.

CS-SCHT is an extension of SCHT. Because its transform projection value has the same conjugate symmetry as DFT, it can replace DFT (FFT) in some applications. Its transformation matrix elements are similar to SCHT, which can also be defined as

$$h_N(k, l) = (-1)^{r=0} \sum_{r=0}^{p-1} g_r l_r \quad (-\mathcal{F})^{r=0} \sum_{r=0}^{p-1} f_r l_r, \quad 0 \leq k, l \leq 2^p - 1, p = \log_2 N. \quad (16)$$

Among them, k and l represent the row and column indices, respectively.

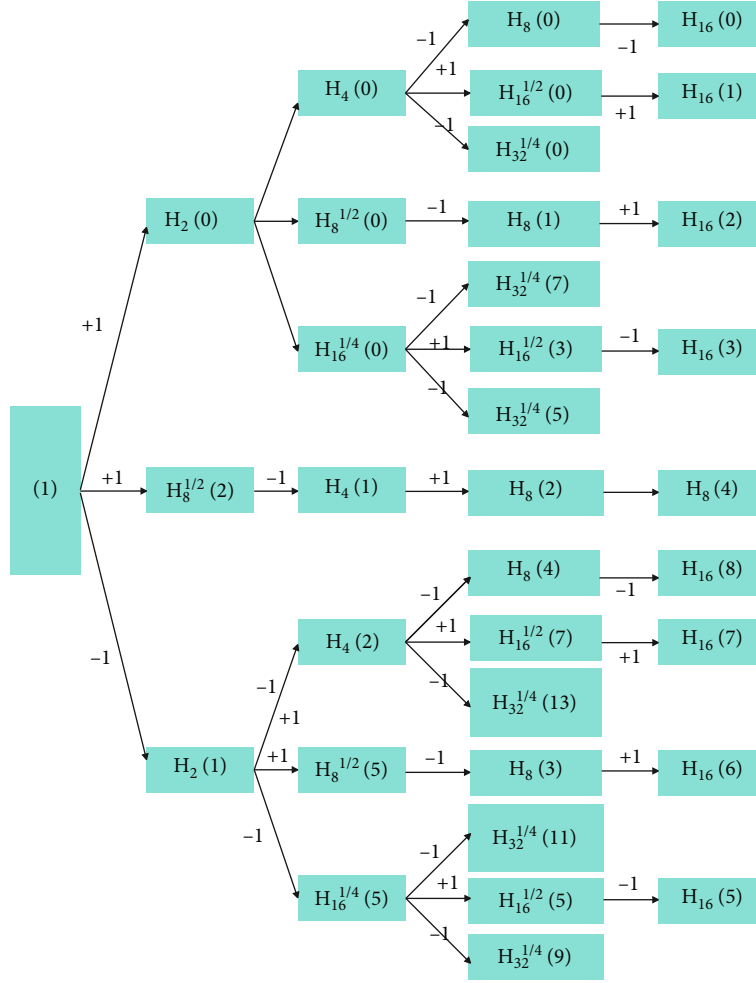


FIGURE 6: Construction tree structure of CS-SCHT matrix.

It can be obtained that $N = 1, 2, 4$, and CS-SCHT matrices are

$$H_1 = [\mathbf{1}], H_2 = \begin{bmatrix} \mathbf{1} & \mathbf{1} \\ \mathbf{1} & -\mathbf{1} \end{bmatrix}, H_4 = \begin{bmatrix} \mathbf{1} & \mathbf{1} & \mathbf{1} & \mathbf{1} \\ \mathbf{1} & j & -\mathbf{1} & -j \\ \mathbf{1} & -\mathbf{1} & \mathbf{1} & -\mathbf{1} \\ \mathbf{1} & -j & -\mathbf{1} & j \end{bmatrix}. \quad (17)$$

When $N = 2^n$, $n > 3$, with the increase of n , the number of elements of CS-SCHT transformation matrix H_N increases exponentially. Generating the transformation matrix directly by formula (16) will become very complicated, but it can be generated by iterative decomposition method.

The sliding window CS-SCHT algorithm is similar to the sliding window SCHT algorithm. It also defines an input signal of length L as x_i , $i = 0, 1, \dots, L-1$ and an overlapping window of length N to divide it. The sliding window CS-SCHT forward and inverse transform is defined as follows:

$$Y_N(k, j) = \begin{bmatrix} y_N(\mathbf{0}, j) \\ y_N(\mathbf{1}, j) \\ \vdots \\ y_N(N-1, j) \end{bmatrix} = H_N X_N(j) = H_N \begin{bmatrix} x_N(j) \\ x_N(j+1) \\ \vdots \\ x_N(j+N-1) \end{bmatrix}, \quad (18)$$

$$X_N(j) = \begin{bmatrix} x_N(j) \\ x_N(j+1) \\ \vdots \\ x_N(j+n-1) \end{bmatrix} = H_N^H Y_N(k, j) = H_N^H \begin{bmatrix} y_n(\mathbf{0}, j) \\ y_n(\mathbf{1}, j) \\ \vdots \\ y_n(n-1, j) \end{bmatrix}, \quad (19)$$

$$H_N = [H_N^r(\mathbf{0}), H_N^r(\mathbf{1}), \dots, H_N^r(N-1)]^T, \quad (20)$$

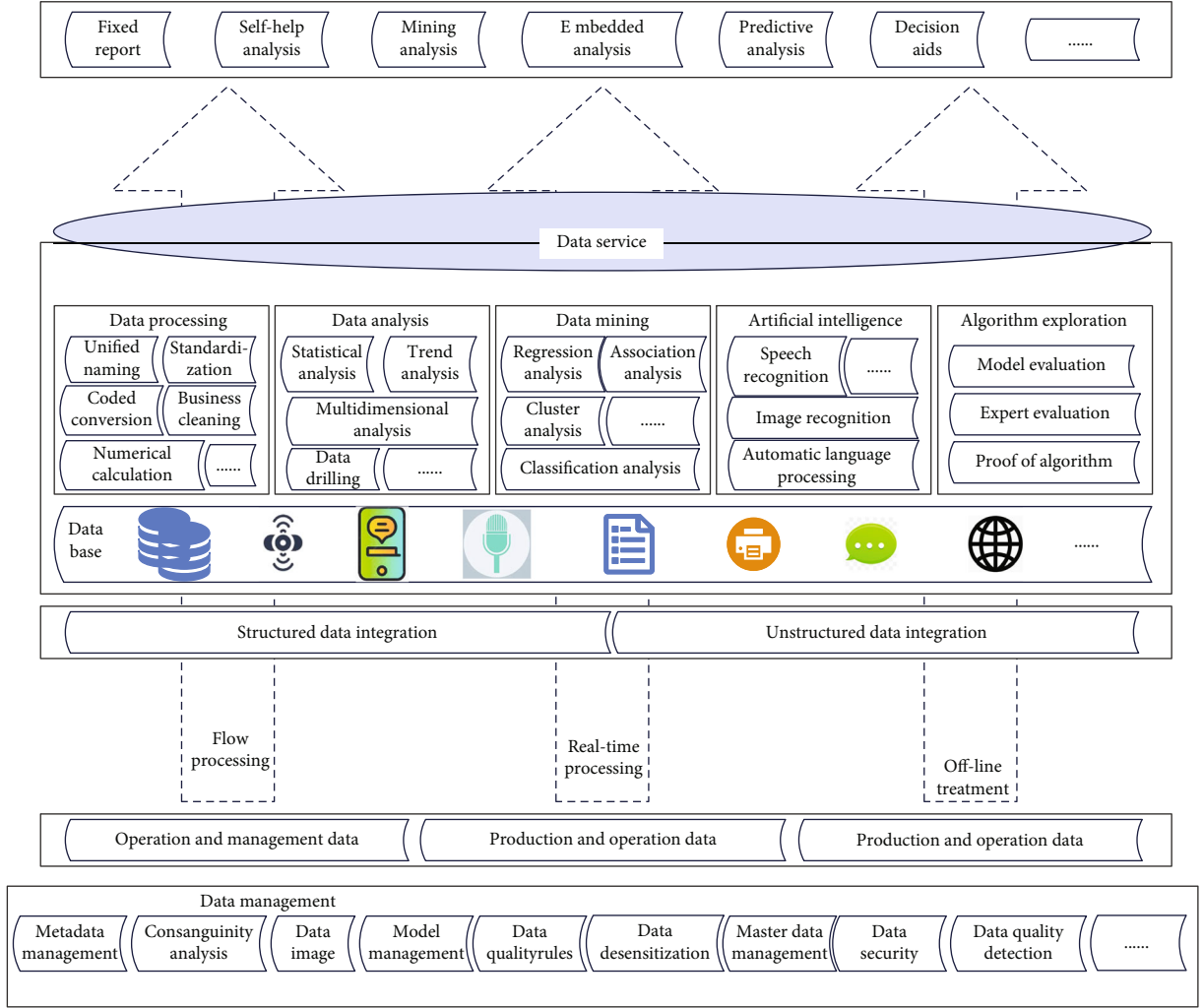


FIGURE 7: System function design.

$$H_N = [H_N^c(\mathbf{0}), H_N^c(\mathbf{1}), \dots, H_N^c(N-1)]. \quad (21)$$

First, by adjusting the structure of formula (18) according to formula (20), we can get

$$Y_N(k, j) = H_N^r(k)X_N(j). \quad (22)$$

Among them, $k = 0, 1, \dots, N-1, j = 0, 1, \dots, M-N, N = 2^n, n \geq 1$.

According to the conjugate symmetry of CS-SCHT, it can be obtained by calculating formula (22):

$$y_N(N-k, j) = y_N^*(k, j). \quad (23)$$

Among them, $k = 0, 1, \dots, N/2-1, *$ means conjugation.

3.1. Sliding CS-SCHT Theory Based on Gray Code Kernel (GCK). The GCK is applied to the sliding window CS-SCHT algorithm, and a theoretical calculation method of the sliding window CS-SCHT based on GCK is deduced.

$H_N^r(k)$ is the kernel of CS-SCHT matrix, which introduces a set of α sequences (α -sequency), and different

$H_N^r(k)$ can be determined by a unique α sequence. This α -sequence is called the α -index that makes up its $H_N^r(k)$, as shown in Figure 6.

Their α -indices differ only by one bit; so, the pair of cores is α -related, for example, which is α -related to $H_8^r(7)$, if the CS-SCHT matrix has a set of core sequences $H_N^r(i), i = 0, 1, \dots, N-1$ arranged in a specific sequence, its cores are α correlated before and after the sequence. Then, this group of kernels is called gray code kernel (GCK), and the sequence composed of their respective α indices is called gray code sequence (GCS).

In order to better demonstrate the theoretical derivation process, this paper first introduces the following three theorems.

Among them, the arrow indicates the order of calculation; that is, the value pointed to by the arrow can be calculated from the value before the arrow. "T1, T2, T3" above the arrows represent the application of Theorems 1–3, respectively.

Formula (30) shows that $y_N(k_2, j+N/4), k_1, k_2 \in \{1, 2, 3, \dots, N-1\}$ can be quickly calculated by calculating $y_N(k_1, j+N/4)$, and all the results are calculated in order.

TABLE 1: The digital accounting information processing effect of the system.

Num	Financial information processing	Num	Financial information processing	Num	Financial information processing
1	89.63	17	89.85	33	85.89
2	85.26	18	85.14	34	87.14
3	85.75	19	88.94	35	87.72
4	87.87	20	85.75	36	87.83
5	87.25	21	87.89	37	85.90
6	86.06	22	89.50	38	85.54
7	89.01	23	90.36	39	89.47
8	89.31	24	90.98	40	90.02
9	85.24	25	89.19	41	87.88
10	91.30	26	87.40	42	91.02
11	85.31	27	90.18	43	88.08
12	87.04	28	89.42	44	85.96
13	86.17	29	87.27	45	91.48
14	87.26	30	88.77	46	87.79
15	86.16	31	87.51	47	90.56
16	85.19	32	87.64	48	85.19

4. Analysis of Digital Transformation of Enterprise Accounting Talents from the Perspective of Blockchain

Traditionally, limited by the constraints of technology and architecture, in the context of the explosive growth of data and the growing demand for data processing and data analysis, bottlenecks appear. The main bottlenecks are as follows:

- (1) Data delay: due to the constraints of traditional technology and in order to reduce the impact on the source system, data collection operations of traditional business intelligence system data collection operations are generally performed at night, resulting in at least a day's delay in data update, and the analysis results given are "outdated." Moreover, leadership's focus is ever-changing and wants immediate results, and real-time data is also a necessity for data-driven decision-making in a rapidly changing digital economy
- (2) Data redundancy: the traditional business intelligence system data process is to collect and store data from the source system to the data warehouse layer, and the data in the data warehouse layer is processed and stored in the operation data layer
- (3) The data type is single. According to the survey, more than 80% of the data in the enterprises are unstructured data, such as office documents, contract texts, invoices, audio, video, various reports, and design drawings. This unstructured data grows exponentially by 60% every year, and these data con-

tain high-value information and are an important data asset for enterprises. However, the relational database used by the traditional business intelligence system only supports structured data and does not support the storage and analysis of semistructured and unstructured data

- (4) Weak data processing ability: the IAI system is subject to the influence of traditional database technologies and frameworks, and the data reading and processing speed are low. With the continuous growth of applications and data, the bottleneck in this regard is more prominent. For example, the stored procedure with the most complex logic in the IAI system takes about 2 hours to run, the longest time-consuming report takes about 15 minutes, it takes about 10 hours to process all the jobs in the IAI system, and the user experience is extremely poor
- (5) Weak data analysis ability: the IAI system collects transaction data from various source systems, stores it in the data warehouse after cleaning, processing, and processing, builds a multidimensional analysis model, and then displays the report to realize data visualization and transparency. Although the IAI system can satisfy users to analyze problems from different dimensions and angles, it only focuses on causal analysis, that is, postmortem analysis. In the big data environment, enterprises need to extract high-value information from the massive data accumulated in the long-term operation more urgently and pay more attention to correlation analysis and predictive analysis. For example, by constructing a predictive analysis model for the historical vouchers of the company's financial reimbursement, the system automatically judges the compliance of the reimbursement documents with a small amount, automatically audits them, and reduces the audit process and links, so as to improve the operation and management efficiency of the enterprise

The system supports data collection, storage, governance, management, analysis, and mining. As shown in Figure 7, the system supports real-time collection, timing collection, and multistructure data collection such as structured, unstructured, and stream data. Furthermore, it supports the storage, management, and processing of structured and unstructured data. At the same time, it supports data governance requirements such as data security management, quality management, desensitization management, and blood relationship analysis. In addition, it supports a variety of data analysis and presentation methods such as statistical analysis, dashboards, management cockpits, multi-dimensional analysis, and ad hoc queries.

The effect of the enterprise accounting digital system proposed in this paper is verified and counted, the effect of the system in digital accounting information processing is studied, and the test results shown in Table 1 below are obtained.

From the above research, it can be seen that the system proposed in this paper can play an important role in the digital transformation of enterprise accounting talents from the perspective of blockchain.

5. Conclusion

This paper combines intelligent methods to carry out the digital transformation of enterprise accounting talents from the perspective of blockchain. Moreover, this paper studies the sliding window CS-SCHT algorithm in depth. Based on the theoretical derivation of the sliding window CS-SCHT based on the gray code kernel, the algorithm is implemented on the computer platform, and the test experiment of the operation time is carried out. In addition, this paper explores the application of the sliding window CS-SCHT algorithm in adaptive filtering. Moreover, the digital transformation of financial shared services emphasizes the application of technology to achieve efficiency improvement, information system integration, and data service capabilities. The research results show that the system proposed in this paper can play an important role in the digital transformation of enterprise accounting talents from the perspective of blockchain.

Data Availability

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

Conflicts of Interest

The authors declare no competing interests.

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