

Retraction

Retracted: Spatial Expression of Multifaceted Soft Decoration Elements: Application of 3D Reconstruction Algorithm in Soft Decoration and Furnishing Design of Office Space

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

- (1) Discrepancies in scope
- (2) Discrepancies in the description of the research reported
- (3) Discrepancies between the availability of data and the research described
- (4) Inappropriate citations
- (5) Incoherent, meaningless and/or irrelevant content included in the article
- (6) Manipulated or compromised peer review

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

- [1] P. Yao, "Spatial Expression of Multifaceted Soft Decoration Elements: Application of 3D Reconstruction Algorithm in Soft Decoration and Furnishing Design of Office Space," *Journal of Sensors*, vol. 2022, Article ID 5345293, 11 pages, 2022.

Research Article

Spatial Expression of Multifaceted Soft Decoration Elements: Application of 3D Reconstruction Algorithm in Soft Decoration and Furnishing Design of Office Space

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In China's modern market economy under the rapid development of the general situation, we work more and more problems, and work pressure is also increasing. The so-called office space refers to the space layout, style, and the physical and psychological division of the space. Office space must take into account many factors, involving technology, technology, humanities, aesthetics, and other elements, while the office space is the space where people work and relax. In recent years, as people's requirements for the work environment are increasingly high, therefore, the design of the office space is also more and more attention to people. The concept of soft furnishing design into the work space will help improve the overall corporate and office space design of cultural taste which is one of the main methods to show the quality and human connotation of the enterprise. The three-dimensional reconstruction refers to the creation of a mathematical model suitable for computer display and processing of three-dimensional space objects. It is an important basic tool for data processing, computing, and researching the performance of mathematical models in the computer environment, which can be applied in various fields such as autonomous navigation of mobile robots, aviation and remote sensing computing, industrial monitoring information system, medical imaging, and virtual reality. The 3D environment reconstruction technology has become one of the popular research areas in computer vision and increasingly attracts the attention of design practitioners. This paper takes the 3D environment reconstruction technology of office space soft decoration design as the basis and discusses the important elements and modeling ideas in soft decoration design, which adds to the interior design of office space, and uses Kinect to obtain the depth data in the 3D environment, so as to complete the realistic 3D reproduction of the interior environment based on computer vision technology.

1. Introduction

In the interior design of the soft furnishings, in addition to the aesthetic conditions, we must also take into full consideration the ergonomic type of demand and try to meet the user's needs in various aspects of use, in order to design a more scientific interior environment, office space in the actual design, generally using a combination of all types of design models, from the cultural profound connotation, visual effects, and technical aspects of the environment to optimize. The application of 3D reconstruction algorithm in the design of soft furnishings in office space contains several points, namely, furniture, materials, lighting, furnish-

ings, and colors. What kind of objects to meet the needs of interior environmental art design is a very important choice.

2. Research Background

The specific attributes of multifaceted soft furnishing elements are divided into two types. The first one is practical functional statement and decorative furniture. It is the application of 3D reconstruction algorithm in the design of soft furnishings in office space, As far as the early stage is concerned, this kind of decorative art can meet the spiritual needs of users. According to its own style and characteristics, it will be arranged to the corresponding place, to play a

differentiated effect, so that the exhibition landscape shows different characteristics. For example, many decorative artworks, textiles, and ornaments (hanging decorations in the air, hanging paintings, hanging on the wall, etc.) are in the indoor environment. Also, it includes the integration of some prehard parts and soft furnishings [1].

Secondly, practical functionality is introduced. Practical functionality is provided for various human behaviors in using interior spaces and is subject to various factors such as human-computer interaction, size, and convenience of the furnishings so that people can better use and access such furnishings. Therefore, the appearance, shape, color, size, touch, and material of these soft furnishings should be carefully designed to meet the different requirements of decorative art and application effects.

According to the spatial expressiveness of multifaceted soft furnishing elements, the specific categories of items in art and design are further divided into four subcategories, and their specific use in public interior spaces is highlighted. First is the main landscape, including the visual center of the various landscapes. The main landscape is usually in the public interior space, i.e., the overall space of the theme. Using abstract or concrete landscaping techniques or methods, it may, of course, be designed as a landscape or as an indoor water feature. Of course, it may also be located on the main wall of the floor or floating in the air. Its size is usually quite large. Second, it serves as a backdrop, echoing the thematic background of the interior space. The purpose of its existence is to match the main landscape of the building, so that the entire interior space constitutes a strong effect of hierarchy, while reflecting a sense of coherence and integrity.

In the soft design of office space decoration, people should ensure the integrity and authenticity of the use of color: color plays a key role in creating the space environment, highlighting the tone of the space, a reasonable combination of colors to create the right space. For the full use of color, it is necessary to understand the basic characteristics of color, in order to more effectively use the special attractiveness and value brought by color. Because different colors, with different characteristics, different spatial effects. Full use of the number of colors, in order to let us in the space environment and color combine harvest aesthetic way and medical way, get great pleasure and enjoyment. And with the development of the times, the color used in the design of office space is no longer simply cold tones but also increasingly diversified. Different shades are selected and beautified according to the different requirements of each work type to improve efficiency [2].

3. Office Space in the Form of Expression of Soft Furnishing Design

3.1. Furniture. The proportion of furniture in the design of the entire office space is also quite large, so the choice of furniture plays a key role in the overall design of office space decoration. In other words, the design of furniture will be related to the determination of office furniture style, and different furniture can show a different style. The size of the

furniture should be in accordance with the size of office furniture to decide. If the furniture is too big and bulky, the space will become narrow. Therefore, in the space of low floor height, slender furniture should be used. From the material, wooden furniture will bring people a comfortable and free feeling, while the fabric home will bring people a warm and affectionate feeling. The Ming furniture rigorous shape, elegant curves, and rich historical heritage are able to give humanistic meaning to the design of office space.

3.2. Material. In the design of office space, the choice of materials is also very critical, because very different materials bring people to a very different feeling. Marble in the office space design has a very obvious interior decorative effect, different colors and natural colors bring a strong visual impact, high material hardness and good wear resistance should not be dusty and easy to maintain and repair, and long life is the key to the choice of office space design materials. In addition to the office space as furniture, wood panels in the floor and wall also have a great decorative. The use of wood finish flooring has the advantages of winter warmth and summer cool, higher comfort characteristics. Stainless steel gives a cold impression, while mirrors can make the space look bigger. Different materials have their own characteristics advantages. In accordance with the characteristics of the office space decoration, the choice of suitable materials is not only to release the flavor of the material but also to create the environment of the office space, so that staff live in a suitable space more effective office [3].

3.3. Lighting. The choice of lamps and lanterns, the overall lighting, and atmosphere of the office space plays a decisive role. Therefore, the shape of the lamps and lanterns should be in harmony with the overall space, and the color of the lamps and lanterns should be in harmony with the overall color of the space. Lighting mainly includes cold and warm, two categories; cold light gives a sense of calm, while warm light gives a sense of warmth. In the light, there are direct light source and indirect light source. Set up a desk lamp at the desk in the office, that is, professional and beautiful. Installing corner lamps around the ceiling can improve the safety of the room and increase the efficiency of the personnel. At the same time, indirect lighting can reduce the impact of visual glare brought by direct lighting.

3.4. Furnishings. Furniture is a kind of decorative or artistic value of building materials used to beautify or improve the visual effect of the indoor environment. The decoration of furnishings will be able to improve the saturation of the space, so that the entire space does not give a cold impression, and the humanistic connotation and sense of the times permeated from the interior furnishings will be fully reflected in the design of the entire space.

3.5. Color. Color can be seen everywhere in the design of office space, which is the carrier and core of the design language. It can produce a visual intuitive experience and spiritual shock. Color in space also has the function of distinguishing the level of space, increasing the sense of space hierarchy, with different colors can be expressed in different

spaces, so that people can understand at a glance. Color can also bring us a great visual shock, play a guiding role, and make people unforgettable. Color and furniture, color and material, etc., will create a very different style of office space. Usually, red bedroom will make people feel warm, blue bedroom will make people feel cool, and this is because the color brings a different mood experience. There are many colors to choose from in the office, including white and gray, blue and green, and brighter colors. In summary, the choice of color has broken through the previous dull, boring feeling, and full of vitality and vitality of the color is the ideal choice for modern office space design, but also to provide staff with a vibrant and interesting office space.

3.6. Plants and Lighting. Plants have the function of organizing space and enriching the level of office space. The use of greenery as decoration in an office space can subtly separate the space and make the whole very transparent, which is both a whole and a clear division of labor. Placing greenery in the corners of many spaces, accenting the space and punctuating inconspicuous corners, brings the space to life. Most modern offices are dominated by geometric lines and shapes, giving a strong sense of space. The unique attributes of plants and natural lines are integrated into the space. The contrast between rigidity and softness not only influences the visual effect but also enhances the overall aesthetics of the form. Artificial lighting must be achieved by using artificial lighting tools as light sources, while natural lighting must bring natural light from the outdoors into the interior space, mainly monotonous lattice lights. The space atmosphere created by this monotonous bright environment design is also monotonous. Therefore, in the modern office space design, the design of bright environment is gradually getting attention.

At the same time, the reasonable combination of lighting in nature and artificial lighting can reduce the energy consumption of the building while ensuring the use of lighting. The natural light of the building enters the building mainly through the steel roof and windows. Below the awning is the atrium of the building. The high luminance lighting not only meets the daily working needs but also adds volume to the space. The light projects the steel structure onto the atrium and walls, making the interior space more interesting. Daylight from the windows passes through the exterior surfaces of the building. In this case, smart umbrella technology is used on the surface. An active outdoor umbrella was created through a rational analysis of height angles and the daily path of the sun in winter and summer and through a comparative analysis of outdoor umbrellas of different shapes, sizes, and angles. On the one hand, the solar lighting of the building should be considered to avoid glare and insufficient lighting. On the other hand, it is important to avoid large amount of sunlight, which increases the load of indoor air conditioning. At the same time, the umbrella also has the advantages of sealing, considering ventilation shading, increasing wind resistance, and combining automatic smoke exhaust and ventilation and fire prevention, as well as multiple opening methods. Artificial light sources mainly use fluorescent lamps and LED lamps, and choose different

lights and color temperatures according to different space functions to highlight and express the space atmosphere. In the office space, each work unit in the work area uses high point light source to provide lighting conditions for work activities, and the point light source is of great help to the concentration of employees.

The use of luminaires plays a vital role in the overall lighting effect and atmosphere of the office space. Therefore, the shape of the lamps and lanterns must be compatible with the overall space design, and the color of the lamps and lanterns should also be harmonized with the color of the overall space design. There are hot and cold lighting, cold light gives the impression of cold, while warm light gives the impression of warm. In terms of lighting, it is divided into direct light source and indirect light source, in the office desk, install a direct table lamp, both professional and aesthetic, and the installation of indirect lighting around the ceiling improves the comfort of the room, thereby increasing the efficiency of staff. In addition, indirect lighting can also reduce the glare hazard to the eyes due to direct light.

The color temperature of the communication space is mainly warm light, which can make the indoor space become soft light and space to form a warm and friendly atmosphere. Studies have shown that in offices with uncomfortable acoustic environments, people have high adrenaline levels and work under stress, which negatively affects their health and psychology with symptoms such as headaches, irritability, and neurosis. Therefore, a good environment is crucial for a new office. How to create a relatively quiet working environment, the design uses soundproof sponge words, and effectively reducing outside noise interference can improve the concentration of employees. On the other hand, in the division of the internal space of the building, there are noisy functional areas, such as dining room, exhibition hall, press room, and activity room [4].

Material is a specific vector of space, and its characteristics include color, texture, texture, and intensity. Using these features and user interaction, visual and tactile interaction is the most important way to interact with people through good material design. Raw wood, raw cement, and various different textures and shapes will give people a different psychological experience, so that each good material can be set up to show the mood and value of a space in a more comprehensive and three-dimensional way. With the increasing maturity of modern science and the improvement of human life, the material will flourish towards green and lightweight, finished products and standardized construction. The green color comes from nature. Trees, flowers, and leaves can bring life to life and increase interest in life. Bringing nature into architecture creates endless vitality, which is especially important for urbanites who have been away from nature for a long time [5].

In the past, when we did research on green space design, we often learned how to use spatial devices such as space drills to increase the speed of greenery planting. Certainly, these measures are understandable and effective. However, with the continuous development and evolution of advanced technology and environmental protection concepts, modern new offices set measures in building green design not only

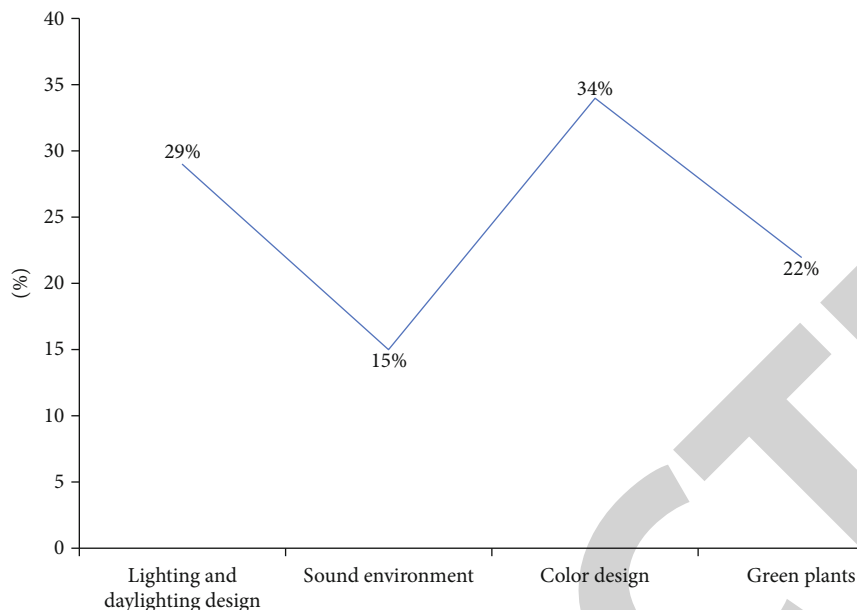


FIGURE 1: Survey map of the evaluation index system of the earth state beauty landscape.

limited to introducing green improvements, but also planning and rational planning, energy recovery and energy efficient building, energy saving and emission reduction, and purifying indoor air. Adhering to green roof technology, the use of green roof technology refers to the green plants on the roof area away from the ground, which not only makes the roof functional and entertaining but also serves as a specific heat insulator, reduces the heat island effect, effectively controls the local climate on the roof, and reduces the energy efficiency of the building, as shown in Figure 1.

4. Materials and Methods

The special feature of machine vision is its complexity and incompleteness. The pioneers in this field can be traced back to the early days, but it was not until the late 1970s that machine vision technology received real attention and development, as computer performance had been enhanced to allow for large amounts of data processing such as graphics. Computer vision combines the use of image information processing, model recognition, artificial intelligence, and other high and new technologies to analyze the image information obtained by a single or multiple sensors to determine the target and judge the body parts and postures of the target, which eventually allows computers to see and cognize the world directly as humans do and has the ability to actively adapt to the environment [6].

3D reconstruction information technology based on image vision refers to the use of digital cameras as image sensors and the full use of image information processing and image information processing to form a noncontact 3D sensing technology to view images. The 3D data of an object is obtained from a computer program [7]. As the main branch of machine vision technology, 3D reconstruction based on visual features has been modeled with many techniques based on the conceptual framework of Lamar

vision. For example, they can be subdivided into area-based techniques, feature-based, pattern-based techniques, and rule-based techniques. Depending on the form of the acquired data, it can be divided into active field and field methods, and depending on the type of camera, it can be divided into especially microscopic telescope techniques, using a single visual 3D reconstruction technique, as shown in the demand analysis diagram in Figure 2.

The 3D reconstruction module is divided into three modules: the visual data collection module, the SLAM algorithm implementation module, and the 3D reconstruction module. The visual data function mainly performs Kinect's ability to collect images. The related functions mainly involve Kinect controller, Kinect camera color scale and infrared camera, color mapping of Kinect collection, and depth map collection. This function mainly extracts the image data corresponding to the other two functions; in the role of SLAM algorithm, it mainly involves two aspects: image generation and camera position adjustment. The main purpose of map creation is to transmit visual information through Kinect, detect visual landmarks on the image and complete matching, and finally perform the map creation function. The camera positioning function is used to predict and correct the EKF by means of preset motion patterns and observation modes. Finally, the determination of the camera pose, the creation of the map, and the camera localization are three simultaneous processes. The map provides a clear visual reference point for the camera's position. The camera positioning process determines the camera position based on the coordinates, visually identifies the position events, and creates a more accurate map model. In the algorithmic model of 3D reconstruction, the preliminary functions of point cloud repositioning, point cloud compression, and 3D rendering are completed. The camera position is correct, and the definition uses a sliding algorithm to obtain the current frame, and then, the current point cloud is transformed into

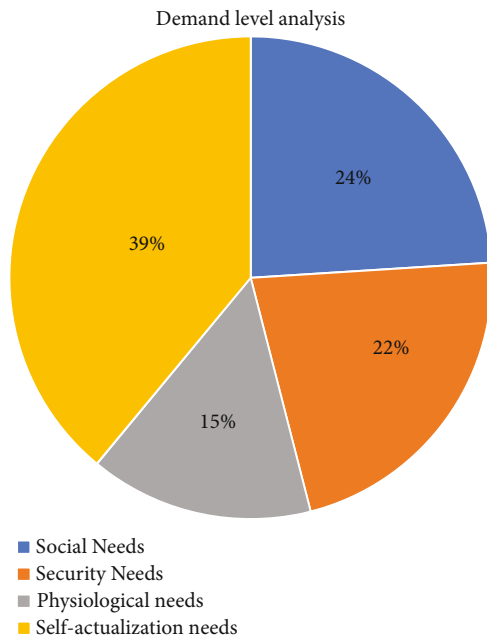


FIGURE 2: Hierarchical analysis of needs.

the global coordinate system, and the point cloud can also be transmitted in real time through Kinect for time updates and 3D rendering [8].

5. Application Example Analysis

5.1. Research Object. In the process of 3D reconstruction based on computer vision, one of the key steps is to establish the correlation between different image function points. There are also many image matching methods, but they usually include the following two: one is the result of matching from feature points; however, there is also a grayscale matching method [9]. Feature matching methods start by acquiring features in the original image, which can be points, lines, regions, etc. It has significant features. Matching techniques based on image information are generally classified into more advanced matching, such as image point matching, boundary matching, and closed boundary matching; grayscale matching method is also known as correlation matching method. The main point is to use spatial two-dimensional slip model for image matching. Different algorithms make different judgments about the correlation model and criteria. There are many kinds of grayscale matching methods, and normalized correlation (NCC) is a classical angle matching algorithm. The central idea of NCC angle matching is that, assuming that angle a in image M is the same as angle B in image N relative to the same focal point in space, the condition of similarity in position must be satisfied by adjacency in a and B . The basic principle is to measure the rate of change of gray value of each element in the nearest neighboring frame to the center point. It is a window in which the images are matched by correlation coefficients in the reference image and kernels with feature points. In the image to be recorded, a corresponding window of the same size as all feature points in the sequence

is set. The grayscale values of the two windows are combined and entered into the correlation coefficient formula for calculation [10]. The maximum size of the area window T is $(2l+1) * (2k+1)$, and the window size $(2h+1h) * (2w+1)$ is taken to the angle B in the image n . When the image m is taken, the position of the point B in the graph n is taken to be the center, and it is noted as the search area s . Then, the normalization between the area window T and the search area s is related to each other, and the maximum size of the model area is related to the search area $(2l+1) * (2k+1)$, called the SUV subgraph, where (U, V) is the image coordinate of this subgraph in M [11]. If the angle a in s in the search region is greater than the set threshold, it is assumed that a in the image m to be recorded corresponds to B in image n , which is the same point in space, as shown in Figure 3.

When the center of T lies at the boundary of the image m to be recorded, an adaptive Kalman filter needs to be extended around the boundary of m . It is a theoretical tool used to create synchronized localization systems and maps for mobile robots, and its basic principle is essentially the same as that of the standard adaptive Kalman filter, i.e., it is based on the principle of small variance linear estimation and uses a recursive algorithm to estimate and extract information about the values of interest in measurement-related information [12]. The estimation process of the state equation at moment k for the whole operation history of the EKF is as follows:

$$x_k = f(x_{k-1}, y_{k-1}, w_{k-1}), \quad (1)$$

$$z_k = h((x_k, v_{k-1}), \quad (2)$$

where the random variables are $k k w, v$ represent the excitation noise and observation noise of the procedure, and the nonlinear variable f in the state equation reflects the state at k negative one time at the current k time, and in reality, we also estimate the state vector and observation vector by setting them to zero at each time $k k w, v$ value, when actually processing [13]. In the process of 3D reconstruction based on computer vision, one of the key steps is to establish matching relationships between feature points of different images. There are many ways of image matching, but two types are usually distinguished: the first type is mainly based on the matching of feature points, and the other type is generally based on the matching of grayscale. In the feature matching method, firstly, information is required from the original graphics, and these features can be points, lines, regions, etc., with significant characteristics. Then, the matching and correspondence methods between the features of the two graphics are determined, and the correspondence methods according to the graphic features generally include image point correspondence, contour shape correspondence, closed contour shape correspondence, or higher-level feature correspondence; its use of grayscale matching is also called the corresponding matching method, and the essence of the method is the two-dimensional slide template in space different methods have different methods to determine the template relative criteria. The core idea of NCC corner point

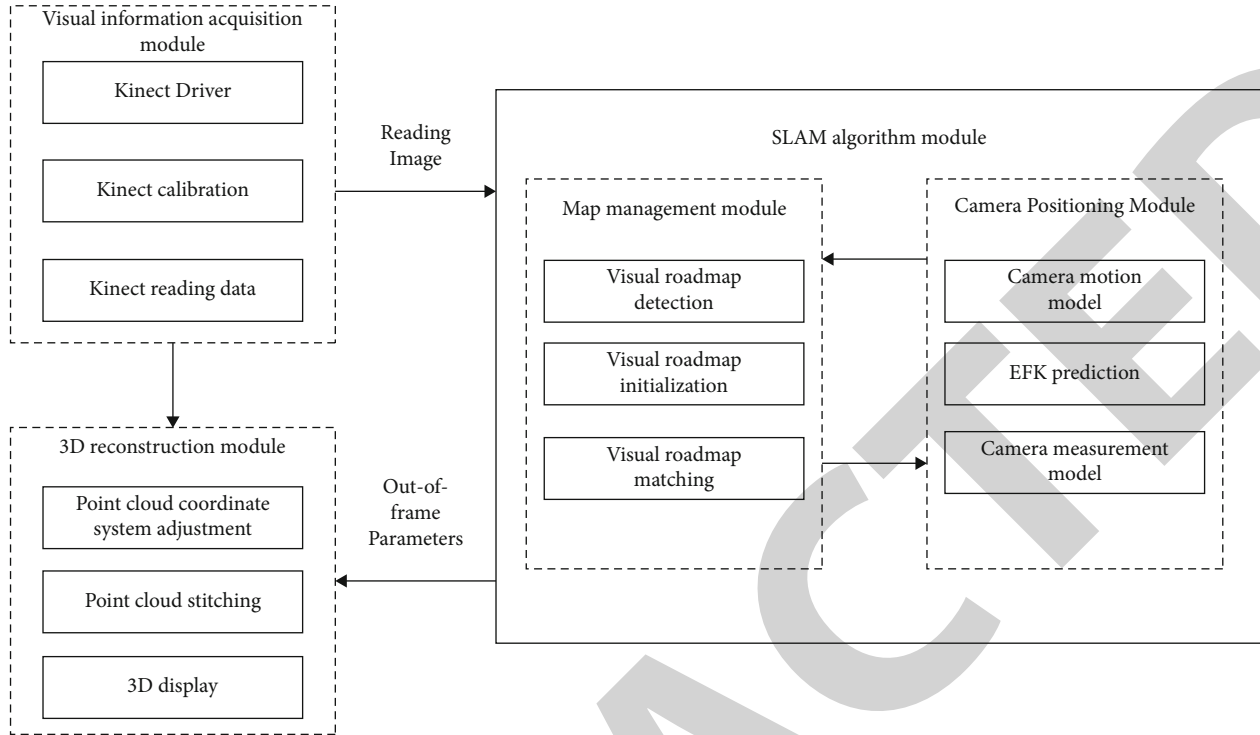


FIGURE 3: Schematic diagram of DRNN structure.

matching is that if the oblique point A and n pixel points of image m correspond to the same node in the corresponding space at the oblique point B, then A and B and all their neighboring nodes satisfy the medium grayscale similarity constraint, and the basic principle is to estimate the similarity of grayscale values of all pixels in the neighborhood of the oblique node in adjacent frames. It is to use the correlation coefficients therein to achieve image matching. The movie point centering function opens a set of windows where the part is to be registered, creates windows of the same corresponding size at each feature point in turn, and then inputs the grayscale values of the two windows into the corresponding coefficient formulas for calculation [14].

5.2. System Flow. In the software development process of single target vision slam technique based on Kalman filter, the first step is to predict the situation of the system in the next motion pattern to obtain an a priori estimate of the system state, while the second step is to analyze the tendency of the real-time picture through fast algorithm and match the detection tendency through NCC corner matching system to obtain the visual signposts in the scene. The third step is to measure the visual landmarks in the environment obtained by combining the cameras according to the prior state prediction, and the EKF is substituted into the measurement model to update the state of the calibration system. When a single camera is used, the depth information of the feature points in the environment cannot be obtained by observation, and only the orientation information can be obtained. Therefore, it is processed using the method of initializing the depth from the literature and the first observation of the corner points. The mobile robot only knows the

position of the corner points in the beam, which is an effective method [15]. The ray uses the associated covariance matrix of the conic probability distribution function to represent the position of the corner point. In the process of gradual approximation, the inconsistency and variance of the corner point positions gradually decrease, and the depth value of the corner point is finally estimated. In the fourth step, we propose a delay-free initialization method to obtain the feature point depth information. In the fifth step, if few feature points are detected in the environment and the feature map is poorly described, we should initialize new corner points [16].

The above five steps are approximate EKF-based monocular vision SLAM processing, and the whole software flowchart is shown in Figure 4.

The EKF-based SLAM algorithm can achieve the purpose of tracking the camera position and feature point coordinates in the localized environment. The coordinate systems used in this document after processing include graphic coordinate system, image plane coordinate system, camera coordinate system, and world coordinate system. We define the width of the black partition with a neighborhood size of $21.0 \text{ (cm)} \times 14.85 \text{ (cm)}$ as the x - and y -axes in the world coordinate system, perpendicular to the z -axis of the partition plane [17]. For the purpose of this paper, based on the experimental data concerning the structure-building software operating system of monocular field of view SLAM using EKF and the design of the real-time 3D structure reconstruction algorithm of monocular field of view SLAM using Kinect, the area of the circle in the figure is its uncertainty, which gradually decreases under multiframe image correction processing, i.e., the area covered by the circle

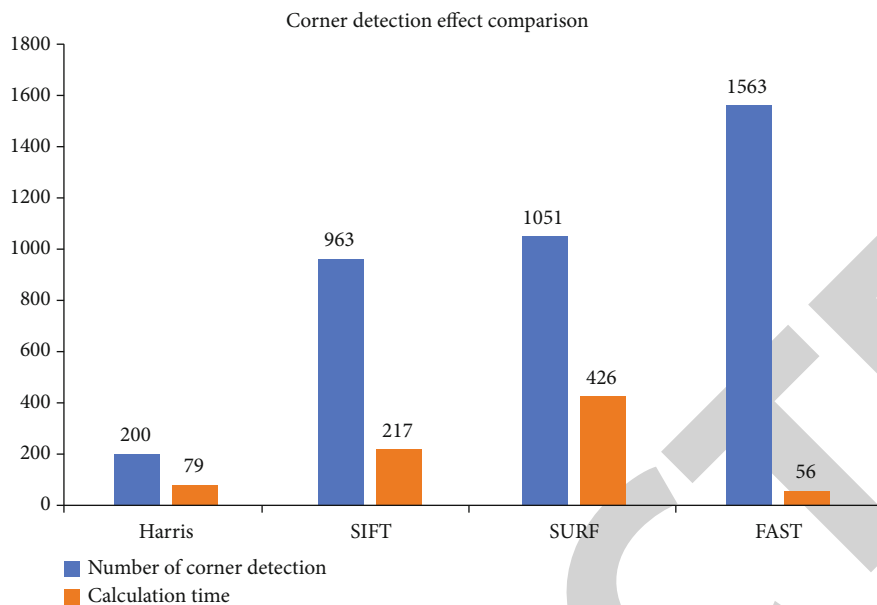


FIGURE 4: Comparison of corner point detection effect.

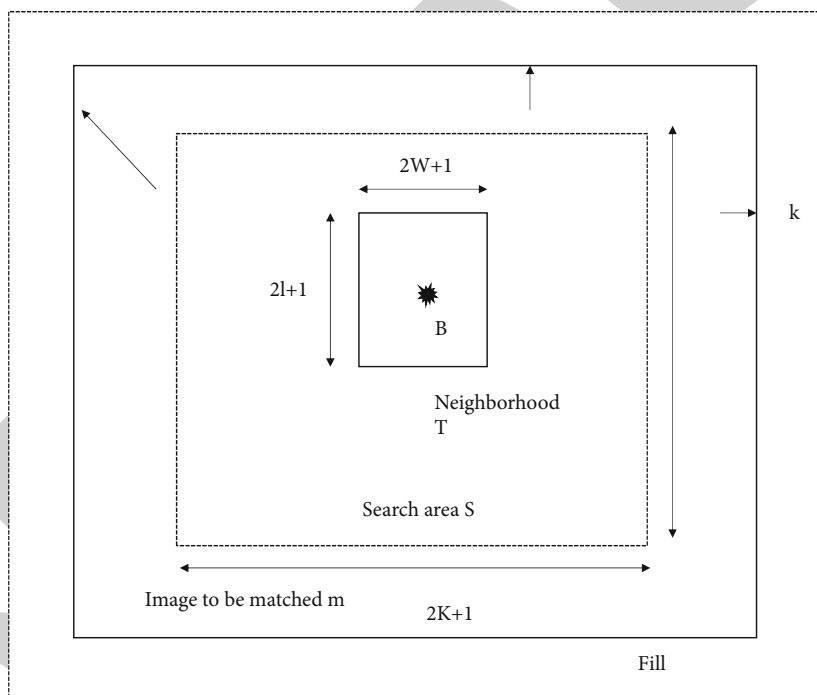


FIGURE 5: Training data analysis graph.

decreases. Finally, we mark the feature points that have been successfully located with crosses, as shown in Figure 5.

Compare the 3D reconstructed point cloud results and material selection of SFM algorithm, Kinect algorithm, and EKF-SLAM. We can see that the locations are empty, and the algorithm needs to process a large amount of data for matching. In this paper, it took a total of 8 hours to process 306 images and achieve the 3D reconstruction.

The 3D reconstruction of the internal environment based on simultaneous localization and map building algo-

rithm proposed in this paper has fewer real-time features and weak textures, but no phenomenon was detected during the 3D reconstruction. After an extensive comparison of 3D reconstruction based on optical flow tracking computation and SFM algorithm, this paper concluded that the 3D reconstruction technique based on Kinect and EKF-SLAM can achieve good real-time and reconstruction results [18]. 3D reconstruction of internal environments is also a key topic in computer vision, especially in the fields of VR, machine navigation, and entertainment life. In the paper, we focus

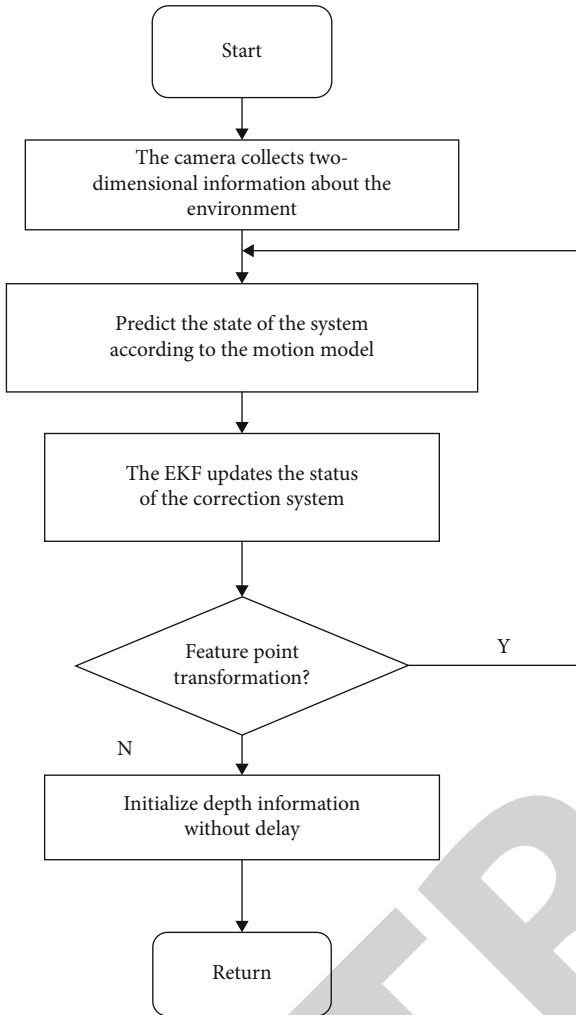


FIGURE 6: Element analysis diagram.

on the 3D reconstruction of internal environment and finally finish the real-time 3D reconstruction of internal environment, which lays the cornerstone for the future development of navigation and orientation robot, as shown in Figure 6.

It should be especially noted that in the 3D reconstruction method based on Kinect and EKF-SLAM given in this paper, Kinect is introduced to actively acquire depth information in the environment, rather than the depth of the initialized boundary marker is delayed in the visual slam. Therefore, feature point conversion and delayed initialization are not required, as shown in Figure 7.

Take a region window T of size $(2l + 1) * (2k + 1)$, centered on angle B in image n , and a window of size $(2h + 1) * (2w + 1)$, centered on the relative position of point B in image n in image m , recorded as SUV subgraph, where (U, V) is the coordinate of this subgraph image in M . If the angle a in the search region s is higher than the set threshold, A in the image m to be recorded is considered to correspond to B in image n , which is the same point in space [19]. When the center of T is located at the boundary of the image m to be recorded, it must be around the boundary of m . The design of office space should adhere to the basic principles of space

optimization, functional perfection, personalized design, and environmental purification. Soft decoration design should understand the influence of different decoration styles, their typical characteristics, and requirements for the design style. In the soft decoration design, no matter what style, we should do the correspondence and proportional relationship between the main, main background color, main color, and decorative color [20].

Nowadays, people prefer to advocate humanization, use certain artistic expressions to express their interests and preferences in the space, and set up artistic personalized business cards, highlighting the principle of people-oriented. In modern soft furnishing design, we should observe from many directions and angles. After establishing the design, you need to find the most suitable soft furnishing factors for the design. Materials, colors, and contrasts should all be balanced and consistent. Do not cover too many elements in the design. Choose the best from the best. Choose the right one. Too much decoration can make the furniture look too full. In the method of placement, it is not necessary to observe the principle of asymmetry, but you can also follow the basic principle of symmetry to find variations and make the space interesting. The design and development of office space products is a long process, always aimed at meeting the needs of their users, i.e., employees and companies. Very different social and historical periods have very different temporal characteristics. The architectural design of office space must not only meet the main functions of society but also keep up with the times, integrate the spirit of the times and entrepreneurship, and link the productivity of the enterprise with the productivity of society. In this way, we will be able to create a new kind of office space that meets the characteristics of the times and the needs of enterprises.

In this paper, we use Kinect depth mapping and color image technology, and the digital generator cannot generate information until the command requirements are determined. Among them, function generation can be started by operation, while data generation can be paused by function but without releasing node data; so far, it has been possible to read content produced by different efficacy key points. The different output keypoints correspond to various matching function formulas. Therefore, the depth generator used in this paper reads the depth data through the function of data generator; since the information generation element continues to receive new information and the application program may also adopt the original information, all the generation elements will keep the new information in the system during the actual information acquisition process until the explicit instruction of new information is obtained, and the whole acquisition processing flow is shown in Figure 8.

6. Conclusion

6.1. 3D Reconstruction Perspective of Interior Soft Furnishings. In recent years, the “light decoration, heavy decoration” has tried to change the inherent design thinking mode, so that the soft furnishing design company has also gained more people’s favor, unique design and soft furnishing

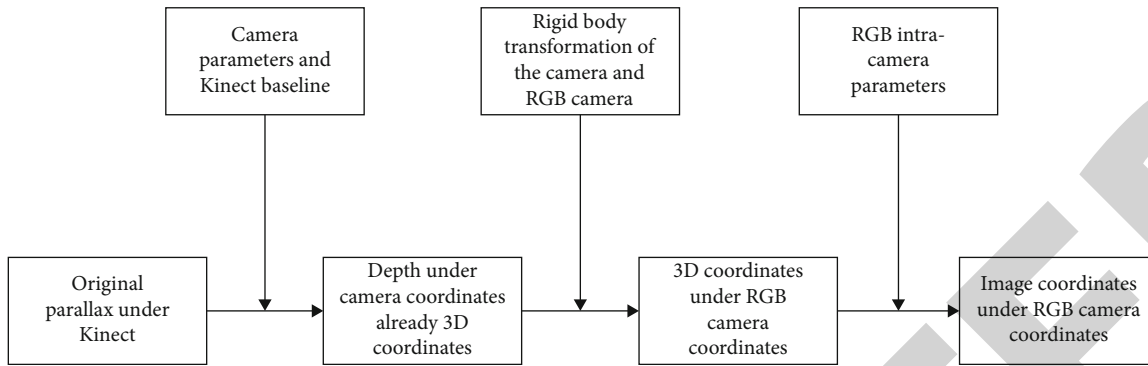


FIGURE 7: 3D coordinate model diagram.

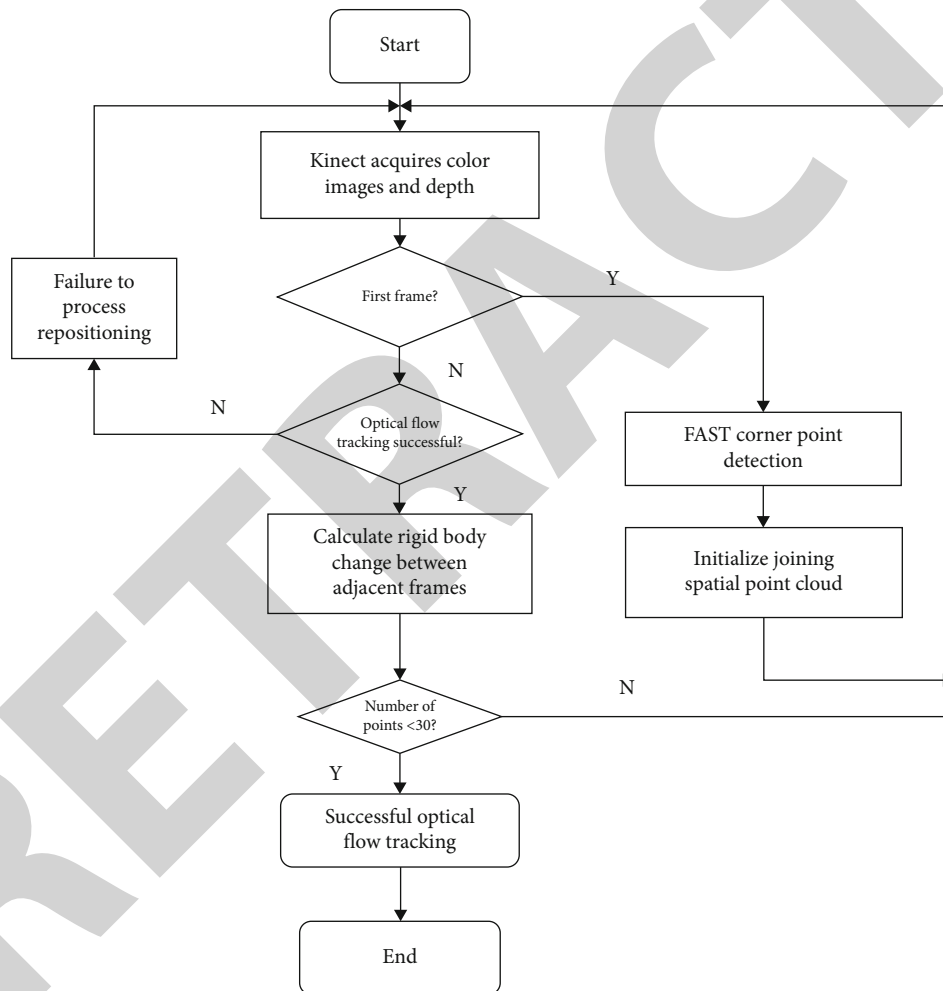


FIGURE 8: Accuracy analysis graph for different batch sample size.

design, to have an overall decoration of vibrant artistic mood. The extensive use of furniture, fabrics, furnishings, flowers, colors, etc., shortens the time distance between people. Comfortable office conditions will certainly lead to increased efficiency. The highest purpose of office space interior design is to provide people with a comfortable, square atmosphere, simple, healthy, safe, and fast office conditions in order to maximize their efficiency. The design model of office space is not always the same. Nowadays, office design is constantly

data-informed, showing the trend of virtualization. Whether employees have a home office, cafeteria, garden, etc., the office can manage business work, and the office is most often used to provide a place for mutual communication and to create an office atmosphere. Therefore, the trend in office space design is to customize the space, and it is especially important to create an environment for communication and exchange in the space. However, due to the rise of Internet technology, people have become more dependent on the

Internet, neglecting face-to-face communication, which makes workers increasingly isolated and their social attributes weakened. Therefore, in the design of the new office space, care should be taken to avoid deepening conflicts, but to find a relative balance in order to obtain the best office space.

In order to facilitate the exchange of ideas, improve the level of democratic management of enterprises, many companies in China are often using public space and open office design. This space design gradually formed the new characteristics of the modern office and then produced a new theory of modern office space design. Office furniture is constantly updated to promote the continuous progress of modern soft furnishing design, and the modern aesthetic ability of modern people to enhance the requirements of another modern design field has achieved a higher level. In the fast-growing modern world, people need more design concepts, understand and accept more advanced design cases, extract experience and apply it to their own creative fields, and gradually understand the value of knowledge in the field of modern alternative design as they grow older. New materials and new techniques are the basis of modern soft furnishing design, the essence of modern alternative design, and one of the important ways to directly reflect modern taste and personality.

This paper mainly discusses the acquisition of visual signs in natural environment by SLAM technology, and through the more common Harris, SIFT, and FAST tilt measurement technology of Shanghai Huli Foundation for Historic Architecture and Urban Renewal, the real visible road signs in natural environment are acquired by using FAST tilt measurement according to the characteristics of natural environment instant 3D reconstruction technology, and the accumulated error set by SLAM algorithm and the depth map of the natural environment obtained by using the depth camera Kinect technology were carried out, and the basis of Kinect technology was introduced systematically, and the instant 3D spatial reconstruction architecture of the natural environment using Kinect technology and EKF-SLAM technology was established, thus completing the instant 3D reconstruction technology of the indoor and outdoor natural environment.

6.2. Summary of Experience. Soft furnishing design is a type of space design that includes not only fixed or immovable parts, but also the materials and furniture that can be easily replaced. Another type of space design includes furniture, windows and doors, lighting, plants, and handicrafts. These elements, through scientific combination and arrangement, will constitute a new kind of living space. The soft furnishing design can be in accordance with personal preferences and space characteristics to form their own new space. According to your own interests, living habits, and business conditions, you can develop your own design to highlight yourself, which is one of the effective ways to break through the conventional style. In space, it plays an important role in creating an environment, creating a mood, separating space, and strengthening the internal style. In order to facilitate the exchange of political ideas and strengthen social democratic

activities, the government often implements public space and open space design to form a new feature of modern office, which also constitutes a new concept of modern office space. The continuous updating of office space design also promotes the continuous progress of soft furnishing space design, the improvement of people's aesthetic ability also makes another class of space development, and the improvement of people's aesthetic ability also makes the soft furnishing space design reach a more advanced level. In the new era of rapid development, people must constantly update their design concepts, understand and accept the most advanced design cases, and extract design experience in practice, while new materials and processes are the theoretical basis of soft decoration design, which is the core content of modern soft decoration design and is one of the important ways to directly reflect people's modern taste and reflect design style.

Data Availability

The dataset is available upon request.

Conflicts of Interest

The author declares no conflicts of interest.

References

- [1] Y. Lv, "Analysis on the present situation and development of architectural interior environment art design," *International Journal of Education and Teaching Research*, vol. 3, no. 4, 2022.
- [2] L. Gan, "Analysis of humanized treatment of interior environment art design," *International Journal of Education and Teaching Research*, vol. 3, no. 4, 2022.
- [3] G. Li and S. Wang, "On the application of new Han culture design elements in interior design," *International Journal of Education and Economics*, vol. 5, no. 4, 2022.
- [4] F. Nada, A. El Ela, A. S. Manal, and E. Sherif, "Sick building syndrome and office space design in Cairo, Egypt," *Indoor and Built Environment*, vol. 31, no. 2, 2022.
- [5] C.-T. Ann, "Behind the scenes of an exhibition: the commissioning of designs in the records of the festival office," *Journal of Design History*, vol. 34, no. 4, pp. 367–377, 2021.
- [6] R. Andreas, S. Dominik, M. Julia et al., "Improving the UX for users of automated shuttle buses in public transport: investigating aspects of exterior communication and interior design," *Multimodal Technologies and Interaction*, vol. 5, no. 10, p. 61, 2021.
- [7] A. Burçak, "Multisensory experience of public interiors," *The Senses and Society*, vol. 16, no. 3, pp. 292–307, 2021.
- [8] J. T. N. Young, S. H. Decker, and G. Sweeten, "The Boston Special Youth Project Affiliation Dataset," *Connections*, vol. 37, no. 1-2, pp. 85–88, 2022.
- [9] Ö. Maria, W. Viktoria, S. Harder Mette et al., "Productivity, satisfaction, work environment and health after relocation to an activity-based flex office—the active office design study," *International Journal of Environmental Research and Public Health*, vol. 18, no. 14, 2021.
- [10] E. Söiland, "De-scripting office design: exploring design intentions in use," *Journal of Corporate Real Estate*, vol. 23, no. 4, pp. 263–277, 2021.

- [11] M. R. Arditia, J. F. Lubis, S. Bobby, and B. Sakina, "Millennial work behaviour and its impact to office design," *IOP Conference Series: Earth and Environmental Science*, vol. 794, no. 1, article 012179, 2021.
- [12] A. Octamaya Tenri Awaru, N. Risma, M. A. Nur, and T. Supriadi, "Office interior design concept based on the development of communication and information technology at PT Indonesian Post (Persero) Makassar," *Journal of Physics: Conference Series*, vol. 1899, no. 1, article 012079, 2021.
- [13] A. Paidakaki, R. De Becker, Y. De Reu, F. Viaene, S. Elnaschie, and P. van den Broeck, "How can community architects build socially resilient refugee camps? Lessons from the Office of Displaced Designers in Lesvos, Greece," *Archnet-IJAR: International Journal of Architectural Research*, vol. 15, no. 3, pp. 800–822, 2021.
- [14] A. P. Pratiwi, A. A. A. Wulandari, and I. Rachmayanti, "Interior design of public library of arts, design and creative industries in Jakarta," *IOP Conference Series: Earth and Environmental Science*, vol. 729, no. 1, 2021.
- [15] S. S. Aljunid, M. Z. M. Taib, and Z. A. Samah, "Occupants' satisfaction towards interior design quality at inpatient units of public hospitals in Malaysia: a sustainable development framework," *International Journal of Environment and Sustainable Development*, vol. 19, no. 3, p. 320, 2020.
- [16] D. Haby, "First Miss Mohair Elsie Young Gildart later decorates Texas Governor's Office," *Ranch and Rural Living*, vol. 101, no. 10, pp. 18–20, 2020.
- [17] F. Chen, H. Zhang, X. Chen, and J. Ren, "Design method for interior decoration pollution control of buildings: introduction and application," *Building Simulation: An International Journal*, vol. 13, no. 3, pp. 637–646, 2020.
- [18] A. Rawa, W. Stuart, and B. Christopher, "Context considerations for a Children's Hospital in Palestine with a particular focus on public spaces," *Architecture Research*, vol. 9, no. 4, pp. 83–98, 2019.
- [19] F. Shao, "Interior space design of community activity center based on service function," *Open Journal of Social Sciences*, vol. 7, no. 5, p. 209, 2019.
- [20] D. S. Clive, L. Paquet Victor, A. Lenker James, and S. Edward, "Self-reported difficulty and preferences of wheeled mobility device users for simulated low-floor bus boarding, interior circulation and disembarking.[J]. Disability and rehabilitation," *Assistive Technology*, vol. 14, no. 2, pp. 109–121, 2019.