



Research article

A knowledge and data-driven optimal planning scheme for multi-modal vision transmission systems

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Abstract: Vision transmission systems (VTS) manages to achieve the optimal information propagation effect given reasonable strategies. How to automatically generate the optimal planning strategies for VTS under specific conditions is always facing challenges. Currently, related research studies have dealt with this problem with assistance of single-modal vision features. However, there are also some other information from different modalities that can make contributions to this issue. Thus, in the paper, we propose a data-driven optimal planning scheme for multimodal VTS. For one thing, the vision features are employed as the basic mechanism foundation for mathematical modeling. For another, the data from other modalities, such as numerical and semantic information, are also introduced to improve robustness for the modeling process. On such basis, optimal planning strategies can be generated, so that proper communication effect can be obtained. Finally, some simulation experiments are conducted on real-world VTS scenes in simulative platforms, and the observed simulation results can well prove efficiency and proactivity of the proposal.

Keywords: knowledge mechanism; vision transmission systems; optimal planning; multi-modal information integration

1. Introduction

In recent years, with the rapid iterative development of technology in military science and technology and other fields, the relevance of research on target tracking technology has become more obvious [1]. The increasing development of multi-sensor network communication technology, highly sophisticated three-dimensional sensor deployment technology, relatively complex big data analysis technology [2] and the significant improvement in the performance of various physical hardwares have made it possible to track and identify targets in complex environments, especially the accurate detection of multiple batches of multiple targets, such as trajectory tracking [3]. At the same time,

multi-sensor data association and information fusion technology have also received extensive attention from scholars at home and abroad [4]. In the military field, it is mainly used in the modern information-based battlefield surveillance system, battlefield intelligence capture system and target unit identification and strike system, etc. [5]. In the civil field, it plays an important role in modern medical diagnosis, complex geographic environment survey, big data map traffic command, and automation technology of various industries [6]. The information data collected in the actual engineering application has uncertainty, and multi-source image data fusion is to generate a fused image with multiple original image redundancy and complementary information by processing the node information of target units in different environmental backgrounds through characteristic rules [7]. In the digital era, the continuous development of new media technology has brought a wealth of visual communication design media [8]. The cell phone has become an essential tool in people's lives, and there are many APPs with various functions [9]. The application of the cell phone APP can be said to be the invention of the new century, in the field of education, engineering, aerospace, medical technology, heavy industry technology, and life services [10]. The cell phone APP has shown its powerful practical application ability, and become an essential new tool in various fields [11]. The development of new media technology has also broadened the communication channels of ideas and culture, and the development of new media technology has made it possible for the visual communication design, which used to be static, to be dynamic and interactive [12]. The cell phone interface has influenced human culture, life, and the way of thinking and behavior [13].

As a psychological concept that has been applied in many fields, the question of whether fluency can be applied to visual communication design to provide a new way of thinking and appreciation for visual communication design is the primary focus of this study [14]. The study is based on a feasibility study of the application and role of fluency in visual communication design. The first thing that is needed is to be perceivable and common to all people for the application of communication in design to be possible [15]. If it cannot be perceived, then it does not exist; if it can be perceived but there is no commonality, then it is impossible to apply it, and this study will use experimental methods to verify this problem [16]. If fluency can be applied to visual communication design, it can enrich the single means of visual stimulation in visual communication design and meet the visual and psychological needs of the audience in more ways [17]. As part of multi-sensor data fusion analysis, image data fusion is also often referred to as image fusion. Image fusion is defined as the process of correlating multiple images acquired by multiple or individual sensors in the same target and detection context according to a certain rule to produce a representative image with redundant and complementary information from multiple original images [18]. The goal of theoretical research is to be put into practice. Fluency can broaden designers' creative thinking, give them creative inspiration, and has the effect of improving the effectiveness of information communication, and can bring designers closer to their audiences [19]. These effects can help designers to better design practice and provide methodologies for designers' design practice. New media has become a part of our easy-to-preserve lifestyle, as the key to our access to information, and a platform for information interaction. This platform cleverly "chemically reacts" to public vision through various technologies and means, and the public also accepts its concept unconsciously. It can be seen that the visual communication effect of new media has been deeply rooted in the hearts of the people. This article is to discuss and analyze the art of visual communication design of new media art. In this study, we will collect and analyze some cases and summarize some design methods of using communication to help designers to design practice and achieve the role of

communication in visual communication design more effectively.

2. Related works

Multi-sensor co-detection as a part of sensor data fusion analysis is to make the basis for data fusion analysis. It is primarily intended to address questions about the management and allocation methods for detecting target sensors [20]. Initially, because of the need for accurate identification of detection targets in wartime, but with the continuous upgrading of combat equipment, coupled with the complexity of the battlefield environment, there is a need for many sensors to join the detection process, the detection of data is increasingly multidimensional, multi-sensor co-detection technology can improve the performance of data fusion, relying on such a background, multi-sensor co-detection technology [21]. In this context, multi-sensor cooperative detection technology was born. Liu et al. proposed the problem of how to accurately detect targets with limited sensor resources. Rothman and many other scholars have proposed multi-sensor co-detection techniques, and the accuracy of co-detection has made a qualitative leap [22]. For example, the BEAT operational information planning and enemy unit monitoring system, which was very representative at that time, focused on the use of sound sensors and visible sensors but had certain limitations because the network only acquired detection data and could not analyze and calculate the information required for actual combat interaction transmission could not be satisfied [23]. Majumder et al. propose a new classifier based on the idea of training a specific classifier for a specific target, which contains two parts, one for global detection of the whole image information and the other for partial detection containing only local information [24]. Additionally, the idea of spatial bias feature selection is introduced, which makes the classifier focus more on local area features during training and does not affect the global detection. The method processes the global information separately from the local information and improves the near-field area target detection accuracy without affecting the global detection.

Jia et al. mentioned that if people's certain needs are satisfied then they will look for another new need. Nowadays, static design performance of visual communication can no longer meet people's aesthetic needs, and designers start to look for new forms of expression [25]. Thanks to the development of new media technology, dynamic graphics with a variety of styles, dissemination efficiency are very high, with its advantages are widely used in various fields, but also received the attention of designers in the field of visual communication design, it broke free from the constraints of static design performance, for visual communication designers to open a broader creative expression space, people love the dynamic form [26, 27]. It introduces the transformation of posters from static to dynamic, analyzes the advantages of dynamic poster design compared with static poster design, and points out that the dynamic design of visual elements in dynamic posters draws on the way and method of dynamic graphics, all of which put forward a reference for the application of dynamic graphic design, and provides the basic theoretical support for the study of this topic [28]. Multi-sensor collaborative networking detection. First, analyze and study the overall sensor network architecture, then compare and discuss various multi-sensor collaborative control methods, and determine the network collaboration in complex environments and multi-climate states, and propose an optimized redundant and complementary dynamic alliance Collaborative program. Then, conduct simulation experiments to determine its optimal performance state for large-scale sensor collaborative applications. Aspects of multi-sensor data association. First, systematically analyze the tracking gates

that most of the association methods do not pay attention to, explore the various possibilities of optimizing the traditional tracking gates, and try to propose a genetic algorithm fusion coding tracking gate optimization method, and then focus on the principle and characteristics of the traditional data association algorithm. After comparing the performance of traditional data association algorithms, a particle swarm annealing association algorithm is proposed, and its performance is verified.

As we all know, visual communication design contains many different design fields, each of which has its unique function and value, and we should consider the difference between different design fields when adding new technologies for creation [29]. In this paper, through literature review and case combination analysis, we try to organize different design methods based on the characteristics of different fields of visual communication design, aiming to better integrate motion graphics into different fields of visual communication design and give them maximum effect. In practice, the author has been trying to integrate motion graphic design techniques into the creation of this specialty, and in theory, while studying motion graphic design across disciplines, he has continued to enrich the knowledge of this specialty in-depth, aiming to create intriguing works. Experts and scholars at home and abroad have conducted very comprehensive and in-depth research on multi-target trajectory tracking technology. However, with the rapid development of technology in today's society, the substantial improvement of computer simulation performance, and the gradual maturity of emerging advanced technologies such as neural networks and deep learning, the evaluation criteria for multi-target track tracking accuracy, real-time performance, and robustness have also changed. is constantly rising. In addition, the modeling methods for different types of target units are very different, so there is currently no suitable optimization algorithm with strong universality. This paper summarizes the methods of motion graphic design from the essential level of visual communication design and according to the characteristics of different fields of visual communication design, which will greatly help to give full play to its functions. It is worthwhile for designers to explore how to create aesthetically pleasing and interesting works by applying new technologies to visual communication design in a rational way. In addition to basic data association and information fusion issues, in-depth research is also conducted on issues such as area association, track start and end, and complex high-density echoes. It mainly expounds the research background and significance of this topic from the whole, and at the same time analyzes the research status of the core technology of multi-sensor multi-target trajectory tracking, including multi-sensor network collaboration technology, multi-sensor data association and information fusion technology and multi-target tracking technology. Finally, the main work content of this paper is introduced.

3. Visual communication design model with wireless communication multi-sensor fusion technology

3.1. Visual communication design model design

Dynamic elements are the main difference between static graphics and dynamic graphics. At this stage, with the help of software technology, it is easy to make the graphics “move”, “move” itself is not difficult, the difficulty is how to integrate more information into the design of dynamic graphics, to have a purpose for dynamic design, the dynamic is the focus of dynamic graphics, but also the difficulty of dynamic graphic design. Dynamic is the focus of motion graphics, but also the difficulty of motion graphics design. Due to the diverse characteristics of dynamic, it is difficult to control static

graphic design, but some laws have been summarized by previous generations in continuous practice. For example, people accept the direction of movement from left to right and from top to bottom, which seems to be more comfortable, but if the other way around, people will feel resistance [30]. The rhythm of dynamic design also affects the audience's visual perception, for example, the uniform motion will give people a dull feeling there are very few uniform things, accelerating and decelerating motion will make people have visual changes, thus affecting the audience's feelings.

Most of the creative content in visual communication design is graphic, and when the design is carried out, the works are often added with the designer's creative ideas or some metaphors, which will inevitably be compromised in the process of displaying to the audience for communication, but it is difficult to express it with textual narration, and motion graphic design can avoid this problem. The information carried by motion graphics is richer than static graphics, and one motion graphic is equivalent to dozens or even hundreds of static graphics, which will certainly become a new creative way of visual communication design to spread information. Dynamic graphic design is a widely used creative tool in all major media, with strong inclusiveness, a variety of styles and types, and the dynamic form of expression brings a strong sense of visual freshness, fast and efficient dissemination, and can spread information more effectively in a short time through dynamic expression. In this complex information environment, dynamic graphics can attract people's attention more than static graphics, in line with the needs of the modern social environment and the aesthetic needs of modern people.

Visual communication design contains a lot of information, and objective analysis of the role of fluency for this information requires an understanding of what information is and the types of information in visual communication design. In this section, after reading the relevant literature on advertising and information communication and observing many print advertisements, and analysing them, we classify the information contained in visual communication design into two types according to the different contents of the information contained. For example, in the painkiller advertisement below, the image that fades suddenly corresponds to the painful cry that ends abruptly, which firstly gives the audience the information that the drug is effective and secondly gives the audience the information that the painkiller works very quickly. The rational appeal information, mainly includes the name of the product, the function of the product, and the advantages of the product. The painkiller advertisement above contains the name of the painkiller, that is, the name of the product, the function of the painkiller, and the advantages of the product with fast effect.

The process of communication requires the existence of two identities, one is the communicator, the other is the receiver, both are indispensable, the purpose of communication is to establish to share common information or for one party to exert some influence on the other party, to get consensus. The two-way communication model emphasizes the relevance of the receiver and the communicator, i.e., the close connection between them, and the fact that the process of information dissemination is two-way rather than one-way, with a transmission process and a feedback process from the receiver to the transmitter, as shown in Figure 1. The communication process is a complete two-way communication process: the sender must send the information, thoughts and emotions he wants to express to the receiver through language. When the recipient receives information, thoughts and emotions, he will ask some questions to give feedback to the other party, which forms a complete two-way communication process. In this model, the receiver can also be the communicator, thus forming a closed loop, and noise can exist in any process of communication.

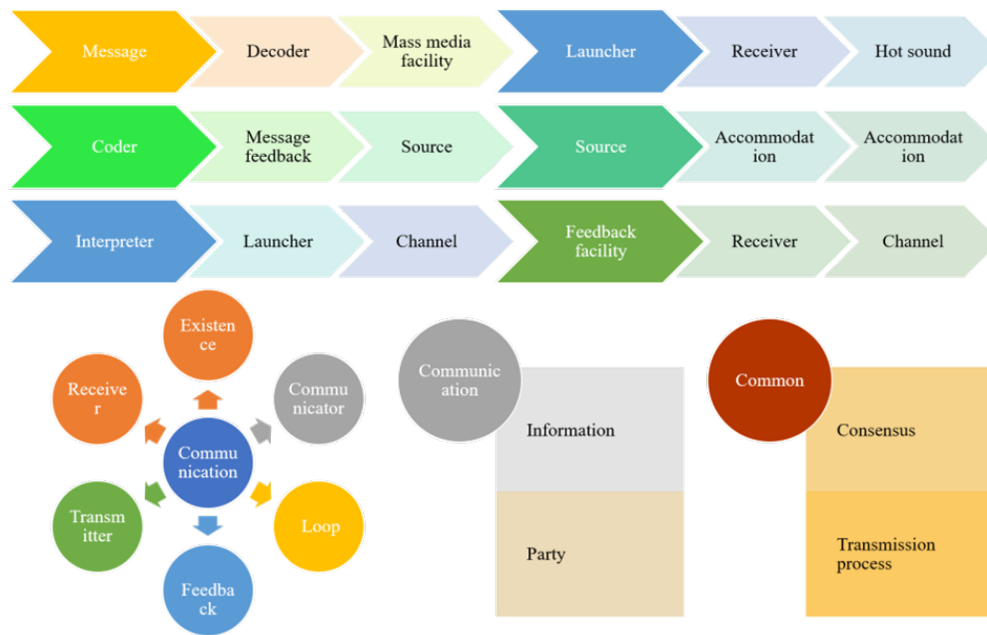


Figure 1. Information dissemination process of visual communication design.

In visual communication design, the communicator of information is the designer, the receiver is the audience and the carrier of communication is the design product. The purpose is to influence the viewer with the characteristics of the product or the emotion of the brand through the design to reach a consensus, and this process is a kind of influence and a kind of communication [31]. In this process, the audience first stimulates the sensory organs through the graphics, words, color, and other symbols in the design work, and the senses are active-active in receiving the stimulus. The human senses are boldly open to the world; they are not just put away but are active organs. Our brain combines and interconnects the information received by our sensory organs with our rich memory and knowledge reserves, thus internalizing the influence and consensus that the design is trying to convey and acquiring the information in the design. The information contained in design work is not always received with 100% accuracy by the viewer. In order to improve the performance of the system, we first arrange the basis of the principal components in order, which also reduces a large calculation process. By selecting a value with a relatively large variance, the original image information is updated and iterated, and the remaining irrelevant principal components can be calculated. Filter discard operations. However, the image result calculated by principal component analysis will have a certain abstract deformation, and the image will lose a certain richness. The viewer, as the receiver of the information in the design, will generate feedback.

The reality enhancement effect of multi-sensory interaction realizes the user's sense of connection between the APP in virtual space and the sense of use in the real world, which can meet the user's psychological needs for virtual and reality. However, the multi-sensory interaction method also receives the limitation of the real system, there is a big difference in the authenticity and immersive user experience, the reason why this difference exists is that the sensory perception of different users in the applicable population of APP is also different, the degree of participation of different users is also very different, the experience effect of different sensory interaction is also uneven, so let different

users through a comfortable way in the virtual and reality [32]. Therefore, it becomes a key research object to let different users complete the interaction experience in a comfortable way between virtual and reality. The color tones are large and the frame should be very rich in this step. To make the overall relationship, the color should be rich and transparent. However, everyone has a different style of color. I have a richer style of painting, while others have a thicker gray tone. It's all different. In terms of lightness, it is necessary to distinguish between the lightness of the tabletop and the tablecloth, front and back (generally speaking, the lightness of the front tablecloth is higher, and the lightness of the back is lower, and the lightness is slightly closer to the background), left and right, (the lightness of the receiving place is slightly lower than that of the background). Higher, as the light source sees too much). In terms of hue, consider the changes in temperature from front to back (the front tablecloth is relatively warmer, and the back is slightly cooler), and from left to right (the place where the tablecloth and desktop receive light is warmer, and the place where the backlight is relatively cold). From the front, middle and back, the front of the tablecloth is relatively purer, the middle surface is grayer and there is a little background color push space, from the left and right, the light compensation is slightly purer and so on.

The contrast of chromatic intensity and lightness are factors that affect users' psychological and visual senses. The appropriate use of color and the distribution of color layout can make the user meet the aesthetic needs in the process of use and enhance the user's experience of pleasure. Therefore, when designing the interface of an APP, the designer needs to have a certain degree of artistic quality and the aesthetics of color should be able to meet the aesthetic needs of users while having their unique style and must be fully deliberated when applying color so that the beauty of the interface design can be fully reflected, and the color information demanded by users can be perfectly presented and smoothly delivered to users. As shown in Figure 2, designers should pay attention to the hue shift, color saturation, brightness and lightness when applying digital color to interface design, based on the ability to achieve a balanced color scheme. As a designer, first, we should be clear that contrast is the basis of the core design, all the composition is from the contrast, such as size contrast, sparse contrast, etc. First of all, designers need to clarify the theme, function and applicable people of the APP, then determine their design positioning and design style, after having accurate positioning, determine the dominant color of the interface, choose the auxiliary color according to the dominant color, and decide the application of embellishment color through the matching effect of the dominant color and auxiliary color, and make sure to achieve tension and relaxation in the matching of three color modules.

3.2. Collaborative wireless communication multi-sensor fusion technology design

The introduction of wireless communication technology, while bringing many advantages, also inevitably brings some challenges, the typical problem is communication constraints [33]. The most direct idea to solve the communication constraint, in general, is to reduce the length of transmitted signal packets per unit of time. A common measure is to take quantization or dimensionality reduction of the transmitted data. This subsection introduces a structure-constrained reduced-dimensional transmission strategy, which transmits part of the information of the local optimal estimate of the sensor, thus reducing the length of the packet to be transmitted to satisfy the finite communication constraint [34]. Since the detection area may be in a harsh and complex environment, the power supply part also needs to have a self-powered system. To be able to keep the sensor node on standby for a long time, the node is put into hibernation mode when it is not working,

as shown in Figure 3.

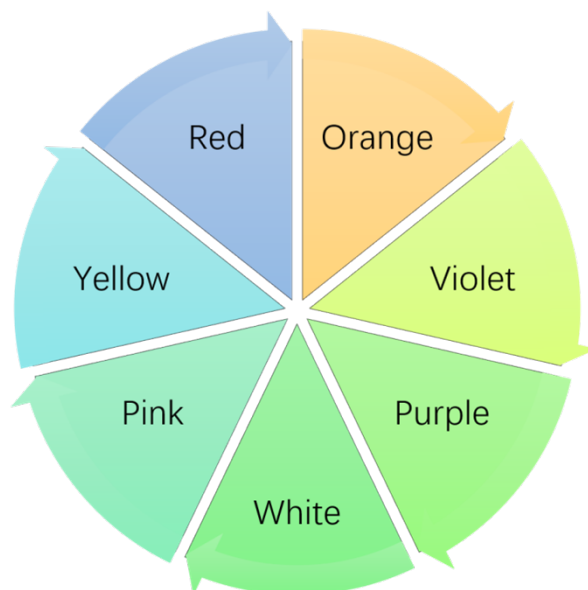


Figure 2. Color design framework.

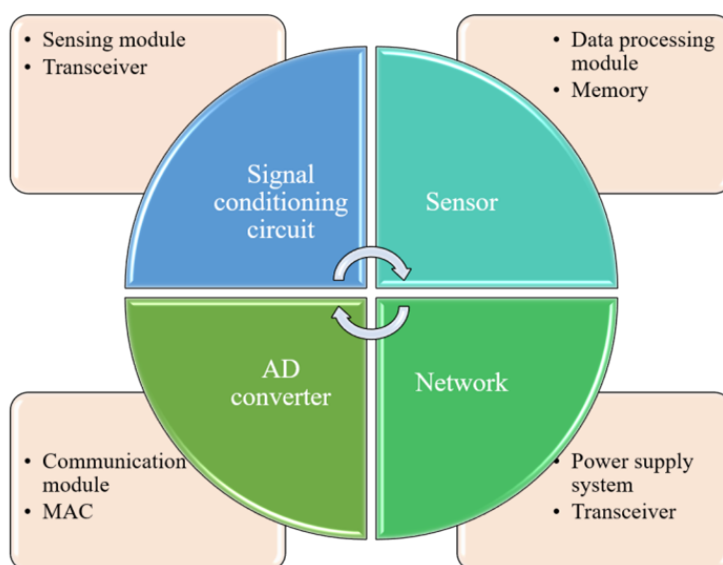


Figure 3. Sensor node structure.

Algorithms are used to solve practical problems. So far, I think you have a comprehensive understanding of genetic algorithms. Next, we will use genetic algorithms to solve a practical problem, the load balancing scheduling problem. Assuming that there are N tasks, the load balancer needs to be assigned to M server nodes for processing. The task length of each task and the processing speed of each server node (hereinafter referred to as “node”) are known. Please provide a

task allocation method to make the total processing time of all tasks the shortest. Terminal nodes are generally used as target location nodes, when the location of the detection target changes, by setting at least three terminal nodes with known spatial location, and then by measuring the radial distance between the detection target and the terminal and using the method of triangulation to move the relative positioning of the detection target [35]. For example, when doing wireless sensor network detection target localization, multiple terminal nodes are usually arranged in a fixed position in the detection area, and when the detection target enters the localization network composed of terminal nodes, the localization network will detect and localize the mobile target. Dynamic alliance-based collaborative detection of multiple sensors requires the use of self-organization through network communication between multiple sensors to organize many low-cost, sensing capabilities, data processing, and wireless communication capabilities of different types of micro-sensor nodes [36]. The utilization of sensors to the optimal state can maximize the utilization of resources, to complete the parallel processing and collaborative processing between tasks to achieve the purpose of detection in complex environments.

In a dynamic federation system, there are core nodes and other nodes. Among them, the core node is also called the ally node, while the other nodes are the ally nodes. We will make the node closest to the task event the ally node, while other ally nodes around the ally node will be responsible for real-time detection of the target event. The double arrows in Figure 4 indicate back and forth. The expert node will complete the description and decomposition of the task after observing, analysing, and processing the target event, realize the supervision and scheduling of the task by assigning subtasks to the allied nodes, and then fuse and record the subtask information of the allied nodes, and finally, transmit the result to the convergence node, and the process of realizing the dynamic alliance is completed in this series of steps. This is shown in Figure 4.

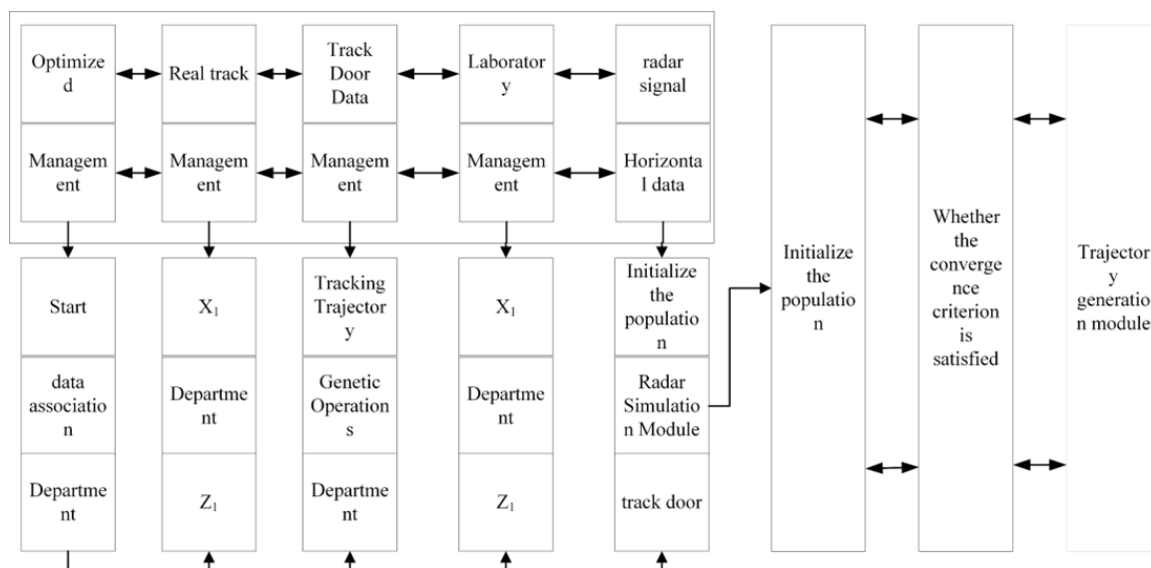


Figure 4. Flowchart for selecting better tracking gates using hybrid coding.

From the above, we can know that optimizing the tracking gate can reduce the tracking gate size and the complexity of data association afterward [37]. Until now there are many mainstream methods

of setting tracking gates, including rectangular and ellipsoidal tracking gates. In this section, while studying the traditional tracking gates, a hybrid coding is proposed to optimize and verify the parameters of ellipsoidal, rectangular, toroidal and sectoral tracking gates using genetic algorithms, respectively. Optimization of the tracking gates by using genetic algorithms has the same purpose as the optimization search for the overall multi-sensor multi-objective tracking technique. A guidance factor is obtained by tracking the power generic system to generate an error basis by which the genetic operation adaptation value is determined. By simplifying the target tracking system in this way, the complex multi-batch target is singularized and provides support for higher-level system parameter optimization content.

4. Results and analysis

4.1. Performance analysis of collaborative wireless pass multi-sensor fusion technology

While the target unit is performing the random motion, the federated tracking cluster is also dynamically rotating for detection, while the other nodes within the network remain waiting, so that the detection task can be completed well without consuming a lot of system resources. The feasibility of multi-target tracking under this SSUKF combined with cluster rotation strategy is verified by superimposing the target motion information in Experiment 1. Based on the subsequent simulation results of the target superposition operation, the tracking performance of the spherically distributed traceless Kalman filter algorithm for multi-target trajectory estimation is also verified. It can also be seen from the analytic plot of the trajectory estimation state in Experiment 2 that the spherically distributed trajectory estimation of the target unit by the traceless Kalman filter is more consistent with the real motion state of the target and has less error compared to the extended Kalman, as shown in Figure 5, with good robustness and accuracy. From the above figure, it can be concluded that the traceless Kalman filter algorithm has a significant performance improvement in the estimated distance, and has a greater accuracy improvement compared to the traditional EKF algorithm both in terms of estimated distance and estimated angle.

4.2. Collaborative wireless communication multi-sensor fusion technology design

The introduction of wireless communication technology, while bringing many advantages, also inevitably brings some challenges, the typical problem is communication constraints [33]. The most direct idea to solve the communication constraint, in general, is to reduce the length of transmitted signal packets per unit of time. A common measure is to take quantization or dimensionality reduction of the transmitted data. This subsection introduces a structure-constrained reduced-dimensional transmission strategy, which transmits part of the information of the local optimal estimate of the sensor, thus reducing the length of the packet to be transmitted to satisfy the finite communication constraint [34]. Since the detection area may be in a harsh and complex environment, the power supply part also needs to have a self-powered system. To be able to keep the sensor node on standby for a long time, the node is put into hibernation mode when it is not working, as shown in Figure 3.

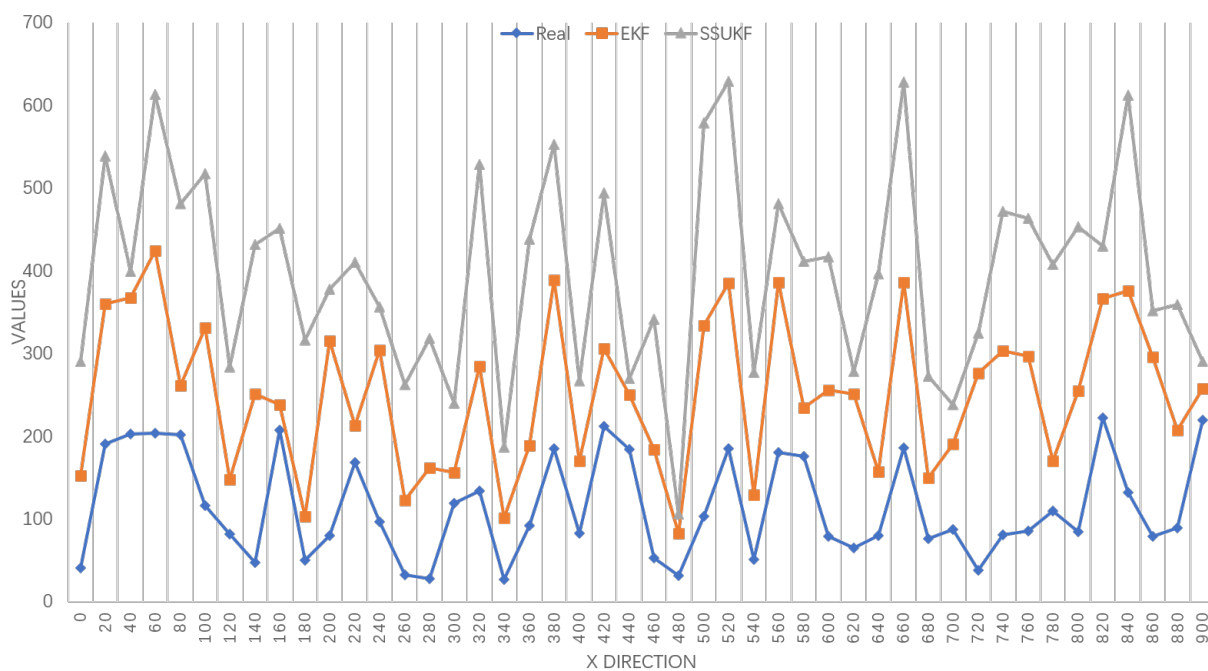


Figure 5. Comparison of estimation analysis.

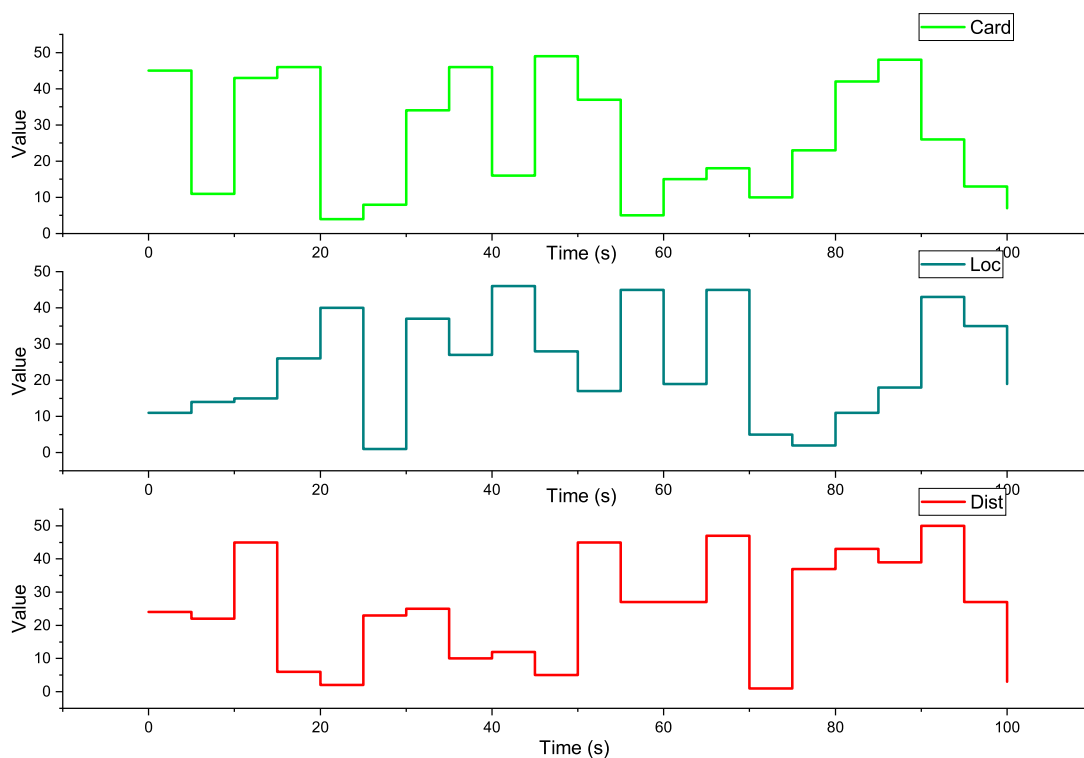


Figure 6. OSPA distance.

The actual objective function value and the two-step predicted objective function value has a certain similarity in the changing trend, the actual objective function value is also fluctuating in the initial stage of sampling, and as the more optimal packet delivery cycle is solved, the overall trend of the objective function shows a decreasing trend, and the actual objective function converges to a certain fixed value. This convergence value is 0.5244 under the above parameters, and this convergence value represents the total energy consumed by the four rooms to reach an equilibrium state.

5. Results of visual communication design model

As an important element in APP interface design, color has the role of distinguishing interface panels, highlighting information focus and guiding user psychology. So, the designer must be precise and clear in the choice of color and fully consider the application of color based on the user's visual comfort and psychological needs. Color as the most straightforward form of expression does not be too complicated, resulting in the opposite effect of painting a snake, the user due to inappropriate and excessive color matching caused visual confusion, causing visual fatigue, thus greatly reducing the user's interaction experience with the interface. The traditional standard visual image of color pursuit printing color standards, to break the shackles of a single, plain color to show a more diverse and richer color structure, so the presentation of color feeling is sometimes too grand and overly ostentatious, which often ignores the intrinsic nature of graphic expression.

Color simplicity is one of the major signs of progress in visual images, not in the simple pursuit of strong color to bring people the visual impact, but the pursuit of simple colors to balance the contemporary inpatient social environment, to bring people a relaxed, quiet a kind of spiritual comfort. Figure 7 shows the gray value at different pixel points. Color simplicity is the theme of color distilled out of the most representative two to three, which is also reflected in the modern home decorating style, simple colors can highlight the overall temperament of nobility and elegance, but also more able to highlight the main connotation of the design style. In terms of perceptual appeal information, the use of generic design techniques in advertising has a catalytic effect in conveying emotional or emotional information, can better feel the emotions created in the advertising into and atmosphere, and can better allow the audience to produce the effect of empathy, to produce a tendency to the product. The use of emotion in design helps the audience to get more information and to be more accurate. It is also easier to convey emotions in the communication of emotional appeal information and has a role in reducing the misinterpretation of rational appeal information, as shown in Figure 7.

Communication is a two-way concept and behavior, and communication can connect different senses and build a bridge between individuals. On the one hand, it allows designers to better present the information in the visual communication design during the creation process, and make the information in the visual communication design easier to understand and more memorable with the help of more understandable design expressions; on the other hand, it allows the audience to accept the visual communication design information in the process and it can reduce the misinterpretation of information in the process of the audience receiving visual communication design information so that the audience can accept the information in visual communication design more quickly and effectively. Communication between audiences and designers is more effective with the promotion of communication. Thus, communication and understanding between audiences and designers can be

facilitated by the sense of communication in visual communication design. While the target unit is moving randomly, the alliance tracking cluster is also dynamically taking turns to detect, while other nodes in the network still keep waiting, so that the detection task can be completed well without consuming a lot of system resources. At the same time, the function superposition of the target motion information in Experiment 1 verified the feasibility of multi-target tracking under the SSUKF combined with the cluster head rotation strategy. According to the subsequent target superposition operation simulation results, the trajectory estimation and tracking performance of the spherical distribution unscented Kalman filter algorithm for many moving targets is also verified.

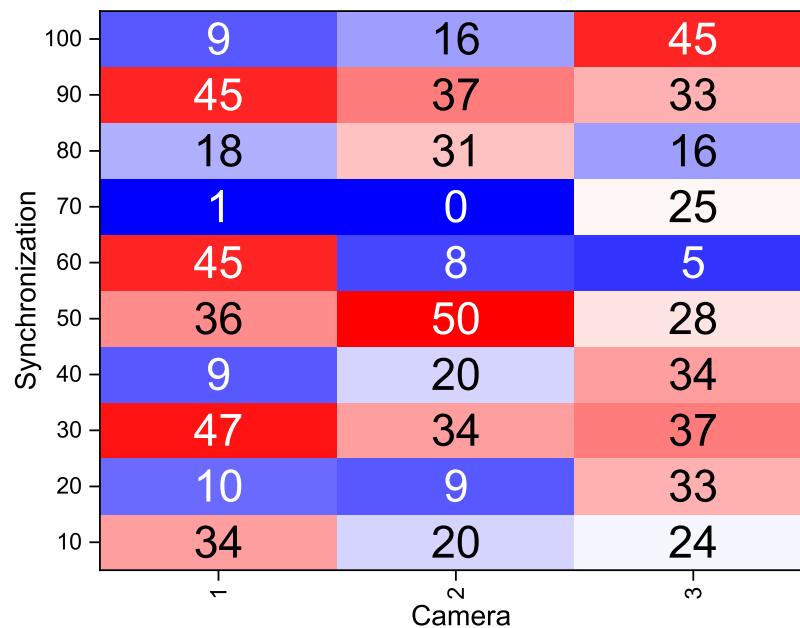


Figure 7. Time synchronization diagram.

A rational expression is based on the acquisition of perceptual experience, which means that the designer can express human feelings and emotions in a certain carrier with suitable design means and suitable expression. The process of rational thinking is not limited by space, material, texture, etc. The creative process of designers, not only needs designers with strong perception and feeling ability but also needs certain rational thinking to be able to link the visual elements with emotional perception, such as the effect of marble texture to show the high-end clean emotional perception, the connection between the designer is required to analyze the summary through rational thinking to find out. The correlation between the visual elements and the perception of emotion, such as the marble texture effect to express the high-end clean emotional perception, is the need for designers to analyze and summarize through rational thinking to find out the correlation, and finally put into the use of design with visual expression. In the visual expression of the feeling, it is necessary to combine some rational thinking methods to make a reasonable expression of the feeling, as shown in Figure 8.

The image information obtained by the two sensors in this paper has a large deviation in quality characteristics, so the technical difficulty of registration and matching has increased a lot, but it has played a key role in improving the performance and integration of the overall multi-sensor multi-target

trajectory tracking technology. However, there is still a lot of room for optimization. At present, for multi-target tracking technology, when the target moves too fast, it will exceed the applicable range of the filter, which is not enough to fully meet the target trajectory tracking technology in actual engineering. Additionally, the unscented Kalman is the probability and statistics approximation of the state. In the process of approximating the sampling point set through a nonlinear function, when the monitoring unit is in the shadow for a long time, there will still be a problem of target tracking loss waiting for optimization. Color, as the most straightforward form of expression, does not be too complicated, resulting in the opposite effect of painting a snake, the user due to inappropriate and too much color with visual confusion caused by visual fatigue, thus greatly reducing the user's interaction experience with the interface. The traditional standard visual image of color pursuit printing standards, to break the shackles of a single, plain color to show a more diverse and rich color matching structure, so presenting the feeling of color is sometimes too grand and overly ostentatious, which often ignores the intrinsic nature of graphic expression. Color simplicity is one of the major signs of progress in visual images, not in the simple pursuit of strong colors to bring people's visual impact, but the pursuit of simple color to balance the contemporary frenetic social environment, to bring people a relaxed, quiet a kind of spiritual solace.

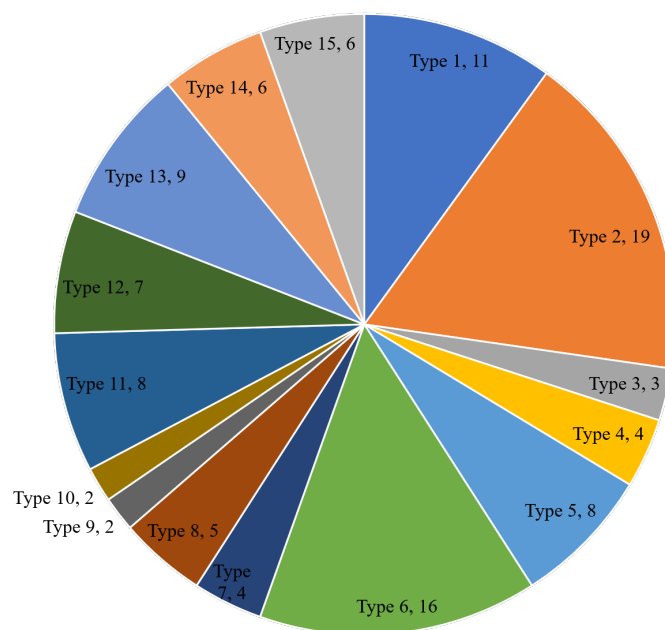


Figure 8. Visual communication result.

6. Conclusions

This paper proposes a sensor grouping and then transmission scheduling strategy in a certain time order cycle. This paper also analyzes the target tracking and prediction technology based on the multi-sensor network collaborative network, optimizes the tracking gate in data association, and proposes a particle swarm annealing association algorithm. In-depth study of image information fusion is carried out, and the method of fusion color space and discrete transformation is proposed for

fusion. This strategy first groups the sensors into multiple subsystems according to the communication conditions, and then periodically transmits the local optimal estimates in the sense of linear minimum mean squared deviation of each subsystem to the fusion estimation centre, and these local optimal estimates arrive at the fusion centre will get the global optimal state estimates by running the estimation algorithm. Several important aspects of multi-sensor multi-target trajectory tracking are analyzed in the background status quo, the purpose and significance of the subject research are clarified, and the current development status of network collaboration technology, data association information fusion technology and multi-target tracking technology are analyzed and investigated. The tracking gate technology, which is easy to be ignored in data association, is studied emphatically. Through the in-depth analysis and learning of traditional tracking gate, a genetic algorithm tracking gate optimization process of binary mixed floating-point number coding is proposed. Judgment of fine-grained indicators, tracking gate shape and threshold constant optimization is also seen.. After fully studying nearest neighbor data association, probabilistic data association and their derived joint probabilistic data association algorithms, a particle population fusion annealing algorithm is proposed. Through multiple Monte Carlo experiments, the simulation results confirm that the PSO-SA algorithm improves the accuracy of target association and tracking accuracy. The application and expression in visual communication design meet the needs of the times and provide spiritual satisfaction while satisfying people's visual enjoyment. Our research method is only applicable to this part of the research, in the future we will use this method in other fields for more in-depth adaptation research.

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