

# Research on the Artistic Presentation and Communication Effect of UAV Aerial Photography in the Context of Cultural Ecology

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**Abstract:** With the rapid development of science and technology, UAV aerial photography platform has become an important way of people's photography. The images acquired by UAV aerial photography have many characteristics, including the large space for taking images, the more artistic beauty of the images acquired, the more peculiar UAV aerial photography images, and the changeable artistic style of UAV aerial photography. In terms of communication effect, UAV aerial photography has the characteristics of more diversified communication modes, strong timeliness of communication effect, fast communication speed and guaranteed communication effect. In the future, UAV aerial photography will certainly be able to further develop.

## 1. An Overview of UAV Aerial Images in the Context of Cultural Ecology

### 1.1 Introduction of UAV aerial photography

Unmanned aerial vehicle (UAV) aerial photography is a modern photography method with UAV as the aerial platform. Usually, UAV platforms are equipped with advanced equipment, such as high resolution CCD digital camera, light optical camera, infrared scanner, laser scanner, magnetometer and so on. Then the image information is processed by computer and the final image is produced. In the use of UAV aerial photography technology, people have accumulated rich experience, and achieved obvious results in practical application. As an advanced aerial remote sensing platform, UAV aerial photography has made outstanding contributions to the national economic and cultural construction, especially for the city image publicity, tourism city construction and other related economic and cultural construction. In short, UAV aerial photography technology has played an important role in China's economic and cultural construction, which is shown in Fig.1.



Figure 1. Application of UAV aerial photography

### 1.2 Characteristics of UAV aerial photography

Unmanned aerial vehicle (UAV) aerial photography as a new era of photography, its own characteristics are very different from traditional photography. The main characteristics of UAV aerial photography are mainly manifested in the following aspects. First, UAV aerial photography can fly to a certain altitude, so that it can take pictures at altitudes that can not be reached by some traditional photography methods, or in special areas with certain dangers. Both of them can not be effectively replaced by traditional camera methods. Second, the cost of UAV aerial photography is

low. As the name of UAV aerial photography, UAV aerial photography equipment is UAV[1]. Therefore, it can reduce the cost of manned flight and save a relatively large cost. Unmanned aerial photography costs several times less than manned aerial photography. In particular, unmanned aerial photography equipment is small in size, flexible in operation, and can be used for ultra-low-altitude visual range flight. For manned aerial photography, this technology can not be achieved even if the cost is increased. 3. UAV aerial photography can take photos at will. Unlike large-scale aerial photography tools, UAV aerial photography over the city does not need to go to the relevant government departments for administrative approval for safety considerations. Because UAV aerial photography equipment belongs to remote control aircraft and is small in size, it does not need to be approved when flying. Fourth, UAV aerial photography is flexible. In the selection of shooting angle, UAV aerial photography can take off and land at any time, so it is easy to operate and flexible to select the best shooting angle.

## 2. The Art Presentation of UAV Aerial Photography

Unmanned aerial vehicle (UAV) aerial photography has unique artistic attributes, which are closely related to its unique photographic perspective. Specifically, UAV aerial photography has the following characteristics in the way of artistic presentation. It is shown in Fig.2.

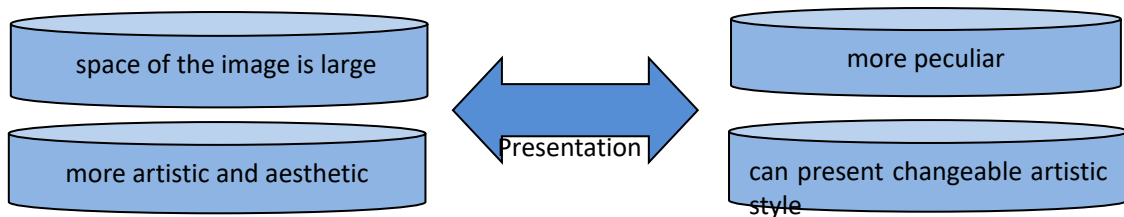


Figure 2. Four characteristics

### 2.1 The photographic space of the image is large

The most typical feature of aerial photography is the high-altitude view, so as to take images with large space sense. As an excellent photographer, they can often make reasonable use of UAV aerial photography to select the perspective of photography, and take pictures with enough space sense. Different from ordinary photography, the choice of shooting angle naturally shows different temperament of artistic pictures. Unmanned aerial vehicle aerial photography is different from ordinary ground photography. Aerial photography can take the photographic equipment to the surface space with a certain height by the pull of the unmanned aerial vehicle, and overlook the panorama with the most direct bird's-eye view. This kind of image, which is different from the conventional photographic perspective, can bring people a new visual enjoyment. It not only enhances the aesthetic feeling of the film picture, but also satisfies people's curiosity and strengthens people's overall understanding of the things they photograph. For the most familiar scenery, people can only get the relevant features from a parallel perspective and feel the features of the scenery, but they can not change the perspective to appreciate some scenery, so their visual perception is always limited. From the perspective of artistic presentation, aerial images show a larger space and a broader perspective than ordinary methods.

### 2.2 The images acquired are more artistic and aesthetic.

Unmanned aerial vehicle (UAV) aerial photography can take pictures of underground scenery from a top-down perspective, which is different from conventional photography. It is precisely because of this unconventional perspective that aerial photography images can give people visual impact and make people feel inspired. From the perspective of photography, aerial photography can effectively avoid direct sunlight, and can freely choose the best composition and light conditions, so as to take unexpected images. In aerial photography, there is a kind of photography called "full picture". Through this photography, we can choose the right time to shoot works of art with unique color and aesthetic feeling. For the same subject of photography, we can also show its different

visual beauty by aerial photography[2]. The shooting form and narrative means of aerial photography are different from the traditional way, but aerial photography is superior to the traditional way in recording things. It can not only retain the image data, but also display the unique aesthetic feeling of the photographed object from different angles and directions, which can bring deep "sense of substitution" to the aesthetic. In the commentary of Aerial Photography China, the artistic beauty of aerial photography has been described as follows: "Like a bird, it leaves the ground and rushes to the clouds. As a result, it is beyond your imagination. When you go to a place that you can't normally reach, you can see a spectacle that belongs exclusively to the high altitude and overlook the land where you live day and night, the familiar scenes also change a lot."

### **2.3 Unmanned aerial vehicle aerial photography is even more peculiar**

The traditional aerial photography method is limited by the support of scientific and technological products and advanced photography theory, and the material obtained is not rich. With its advantages in equipment, technology and concept, UAV aerial photography can break through the limitations of photography in shooting techniques and produce unique images. Unmanned aerial vehicle (UAV) aerial photography can overcome the limitations of geographical environment, can fly in high-rise cities, can also travel through the charming nature. Using UAV aerial photography, people can take close-range photographs of the life of animals and plants in the primitive forest full of crises; they can also control the UAV to come to the dangerous zone full of nuclear radiation, for example, to show people the status quo of the crisis-ridden environment; they can also fly to the mountains, despise the land, cross the desert, and explore the oasis of life. All the unique landscapes on our planet, we can try to record them with UAV aerial photography, so we can get strange landscapes that we can not see. What UAV aerial photography can accomplish, from the world around us to the unknown in the distance, can be achieved.

### **2.4 Unmanned aerial vehicle aerial photography can present changeable artistic style**

When shooting static scenery such as natural scenery, people are often limited by the fact that natural scenery is static scenery and can not show the ultimate beauty of "change". We know that a timely scenery is very beautiful, but if there is no dynamic change, it will become insipid, then there will be limitations in publicity, and people are often reluctant to watch too much. This has a negative impact on the publicity effect of the scenery. Faced with this difficulty, UAV aerial photography can alleviate this contradiction to a certain extent. Because UAV aerial photography can make use of motion to arrange photographic structure and photographic ideas ingeniously, which can create "journey experience" for viewers[3]. Aerial photography can break through the traditional direct narrative mode of documentary film, and display the same static scene subject with different angles, altitudes and motion modes that aerial photography can achieve. For example, the presentation of the same subject can go from far, from high to low, from the whole to the details, so as to satisfy the audience's curiosity psychology and their multi-angle viewing experience. Most importantly, UAV aerial photography can be flexible, easy to change the angle, fast, so the image art style of UAV aerial photography varies, rich and interesting.

In China, major cities are pursuing the creation of tourist city business cards. Therefore, how to use aerial photography to display the city's scenery and features will play an important role in the development of the tourism industry.

## **3. Study on the Propagation Effect of UAV Aerial Photography**

### **3.1 More diverse modes of communication**

Compared with traditional news, UAV news has many unique advantages. Therefore, in the new cultural and ecological background, UAV aerial photography can provide more diverse choices for the communication of images, so that the mode of communication is more diversified. Unmanned aerial vehicle aerial photography can transfer people's shooting perspective to the air, so it can present some scenes and activities in an all-round and integral way, and its artistic presentation is

more realistic and has a sense of scene substitution. In the process of communication, UAV aerial video tape has the art of "visual sense", which can more satisfy people's inner desire[4] . The common shooting methods of traditional photography are looking up and looking up, and if you want to shoot overhead, you need to find the right height space, but this is often difficult. Because not every occasion can find the right height. In addition, the traditional aerial photography in the dissemination of reports on major occasions, often can not be in place in one step, that is, the whole scene can not be presented to the audience at one time. And UAV is practical, flexible and convenient, and can be used immediately. It is an important way of communication that can not be ignored.

### **3.2 The effectiveness of communication is timeliness.**

Unmanned aerial vehicle aerial photography has an important feature: it can transmit the captured information to the Internet in real time through the mobile network, so it has a very strong timeliness and provides a strong technical guarantee for the good dissemination effect. In the era of how the trend of live broadcasting prevails, UAV aerial photography can be real-time broadcast reports through major live broadcasting platforms, so that it can play the largest role of UAV aerial photography in the dissemination effect. Nowadays, UAV aerial photography technology is used by all kinds of organizations, universities, enterprises and state units for some large-scale activities. For example, UAV technology will be used in real-time recording and dissemination of the school games in Colleges and universities to record the students'live pictures in order to show the comprehensive of the school games. Unmanned aerial vehicle aerial photography is also used to record some shocking scenes during the national military parade. The prominent timeliness of UAV aerial photography communication effect is an important advantage of UAV aerial photography.

### **3.3 The speed of communication is fast.**

After UAV aerial photography, the image data recorded by UAV can be quickly disseminated. With regard to the propagation speed of fission, of course, it does not only refer to the propagation speed of the Internet, but also refers to the fission of more dimensions for communication[5] . For example, we can take aerial photographs of UAV equipment, and each aerial photograph records different pictures, so that we can carry out propaganda on different platforms, so that people can understand the content of communication from more perspectives and directions. Why can multiple UAV equipment be used for aerial photography? This, of course, is related to the lower cost of using UAV equipment. Because there is no need for pilots, no need for administrative approval procedures, and the purchase cost is generally low, people can buy a number of UAV equipment, which will play a more promotional role in the dissemination effect[6] . It can even be said that through a number of UAV equipment, people can achieve the fission of dissemination effect, from one zone to ten, ten zones to one hundred and so on.

### **3.4 Communication effect is guaranteed**

Unmanned aerial vehicle aerial photography can achieve the characteristics of extracting materials from dangerous areas, so that the spread effect of UAV aerial photography can be fully guaranteed. We know that UAV can achieve all-weather, multi-terrain, all-media news aerial photography, can play an important role in some dangerous places, such as explosion, earthquake, fire scene, nuclear radiation area[7] . Then, in the face of these special circumstances of video communication, UAV aerial photography can go deep into the scene for real-time viewing, without the need for staff to risk their lives to go deep into the hinterland, so that the dissemination effect has been further guaranteed. In addition, UAV aerial photography has injected more powerful factors into the scientificity of the report because of its special information collection ability. Taking bicycle race as an example, UAV aerial news photography can use large data information to observe and record athletes'displacement and speed in the process of shooting, which improves the effect of scientific communication and is also a guarantee,As shown in Table 1.

Table 1. The Propagation Effect of UAV Aerial Photography

Four aspects	1. More diverse modes of communication
	2. The effectiveness of communication is timeliness
	3. The speed of communication is fast
	4. Communication effect is guaranteed

#### 4. Development Trend of UAV Aerial Photography in the Context of Cultural Ecology

In the contemporary world, with the rapid development of global economy, countries pay more and more attention to their own environmental protection and tourism resources development. In this context, UAV aerial photography conforms to this trend, which is the time to play a useful role. Reviewing the existing more common traditional shooting technology, it has been unable to meet the needs of society. Only with UAV as the platform of photography, can we meet the needs of economic and cultural development. UAV aerial remote sensing platform is not only a technology platform to meet the needs of the times, but also an era platform to lead the artistic presentation and dissemination of aerial images.

In the future, the artistic presentation of aerial images will be intelligent and dynamic. As mentioned above, modern UAV aerial photography has made breakthroughs in multi-angle real-time shooting and real-time Internet communication[8]. With the popularization of artificial intelligence, UAV aerial photography will achieve breakthroughs in shooting, communication and artificial intelligence prediction in the future. For example, in the fire scene, UAV aerial photography can broadcast the scene in real time from the perspective of overlooking, and predict the fire situation through artificial intelligence, giving the first-hand fire control information. This process combines the artificial intelligence algorithm and realizes the predictable dynamic rendering of aerial images.

#### 5. Conclusion

With the rapid development of science and technology, UAV aerial photography platform has become an important way of people's photography. The images acquired by UAV aerial photography have many characteristics, including the large space for taking images, the more artistic beauty of the images acquired, the more peculiar UAV aerial photography images, and the changeable artistic style of UAV aerial photography. These characteristics are the important artistic presentation of UAV aerial photography, representing the fundamental difference between UAV aerial photography and traditional aerial photography. In terms of communication effect, UAV aerial photography communication is also unparalleled. Compared with the traditional mode, UAV aerial photography communication has the characteristics of more diversified communication mode, strong timeliness of communication effect, fast communication speed and guaranteed communication effect. In the future, UAV aerial photography is bound to show a more different side with the development of artificial intelligence, and can create welfare for society, let's look forward to it together.

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