

# The development of visual arts in 5G environment

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## Abstract

**The arrival of the 5G era is the general trend, and accordingly, in the environment of the rise of science and technology, artificial intelligence, visual art design is also developing in the direction of diversification. The new era has brought unprecedented opportunities and challenges to designers and put forward new requirements to the design industry.**

## Keywords

Visual arts ; 5G ; new media.

## 1. Status quo and progress

### 1.1. 5G and 4G in the Internet Era

The 5th generation mobile communication (5G) is a new generation of mobile communication system after 2020. Its vision and requirements have been gradually established, but the development of related technologies is still in the exploratory stage. As a new generation of mobile communication, it should shoulder the evolution and innovation of the existing mobile communication mission. It is mainly through the evolution and integration of new technologies on the basis of today's wireless communication technology to build a long-term network society. It is the general name of the scheme after the integration of new and old wireless access technologies.

As the New York Times put it, "5G is a revolution, not an evolution, and will have an even bigger impact than electricity has on human society." At present, the rapid development of science and technology is also promoting the rapid progress of the Internet and 5G, the trendy word, appears more and more frequently in people's vision. When it comes to 5G, we can't help but think of visions closely related to human life in the future, such as VR, AR, Autonomous Driving, Internet of Everything, etc. With the popularization of 5G, technological innovation with high speed and low delay will lead the transformation of everything terminal and everything media. Mobile and communication is no longer the exclusive of smart phones, and any terminal may be used as the interface to the Internet, so that we integrate into the virtual world. But the technology's applications are still under development, which adds to the mystery surrounding 5G.

It is also interesting to see what our predecessors predicted for 4G at that time. Looking back on the Internet development in 2013, it was the time when 4G began to enter the market and be used commercially. At that time, most people were not very optimistic about the future development of 4G and could not accept the charge price of 4G. But five years later, people generally do not want to economize on web traffic. There were some glimpses of the future of 4G adoption, but they were a little too unimaginative. For example, we all know that 4G is convenient for watching high-definition videos. Most people only notice the convenience of watching videos on mobile phones. No one predicted the complete explosion of short videos. Moreover, it is well known that 4G is conducive to the popularization of mobile payment, and no one thought that relying on the network and QR code can quickly and easily replace cash payment. All kinds of e-commerce, food delivery and taxi-hailing platforms have sprung up. In

just five years, 4G and the services it spawned have profoundly changed everyone's life. At that time, the most intuitive feelings are just more unobstructed internet speed, more quickly payment, more easily access to information and not aware of the birth of computer and information technology in virtually that has brought earth-shaking changes to human life, this is because people can't jump for the forecast of the future out of the restriction of the technology and thinking.

## 1.2. Status quo and development of 5G

Each generation of mobile wireless communication technology in the Internet, from the initial vision planning, technology development, standard formulation, commercial application until its upgrade cycle is roughly ten years. At the beginning of each cycle, who can seize the technical highland, the earlier planning layout, who can get the leading advantage in the new round of 'communication reshuffle'. China has been lagging behind or slower than developed countries in the global communication competition before 5G, so countries attach great importance to and give strong support to the new round of 5G communication competition. At the beginning of 2013, China established the IMT-2020 promotion Group for 5G mobile communication research and development, which quickly clarified the vision, technical requirements and application planning of 5G mobile communication. In June 2013, the national 863 Program launched the first major project of 5G mobile communication system advance research. What is exciting is that at the beginning of 2016, China officially launched 5G technology trials, which is an important signal of China's communication industry synchronizing with the international community.

## 1.3. Design industry in 5G environment

5G technology is not just "faster", it will become one of the most important infrastructures in the next 10 years and profoundly change many industries including the Internet industry, design industry is no exception. With the support of 5G technology, we can achieve computational design, real-time rendering of skeuomorphism, dynamic interactive video... "Computational design" will inject a new force into the design industry, ushering in a digital revolution and creating a lot of job opportunities. Three-dimensional visual scenes will increase, and the quasi-physical design style based on real-time rendering technology will become popular. H5 will usher in a huge development opportunity. In the 4G era, H5 is limited by many technologies and network speed, which cannot be put into full play. In the 5G era, H5 can almost ignore the network speed bottleneck. The designers can give full play to their imagination, and "interactive dynamic video" will blowout.

## 2. Application of new media technology in visual arts

### 2.1. Features of new media

Compared with traditional media, new media in the Internet era has its own significant characteristics and advantages, including the following points: dynamic characteristics, digital characteristics and interactive characteristics. First of all, information transmission under dynamic new media technology is more effective. Traditional media only unilaterally carries out static information transmission. Therefore, there are certain constraints in the speed of transmission and the scope of influence, and the expected publicity effect cannot be achieved. Secondly, the most significant feature of new media is digitalization. Using digital network information technology can effectively integrate different images, text, and various sound data resources and the process of the network information data stored, in fact, is the so-called big data, it is vital for graphic design and people's daily life, digital network media technology in the information dissemination way has carried on the comprehensive reform and innovation. Furthermore, graphic design with interactive features should take new media as the main

communication platform, which has great advantages for its own development. With the gradual acceleration of the integration of new media technology and modern graphic design, it is necessary to deeply explore the presentation of graphic design works from a clear visual perspective. Only in this way can we lay a solid foundation for the modern development of graphic design and provide a broader development path for it.

## **2.2. 5G brings media convergence**

The changes brought by 5G are "earth-shaking". Every link in the information transmission chain -- network, terminal and information form -- will be changed. With the arrival of THE 5G era, news is gradually moving from pictures and texts to comprehensive video, which undoubtedly provides a new development opportunity for the media industry. At present, the head of the Internet companies in the video field of frequent layout and fierce competition just proved this point. Throughout the past two years, new media can be generally classified into four forms, which are H5, graphic, video and interactive games. They are embedded in each other, complement each other, in the form of combination appeared in the new media push, and the spread of the new media has broken the traditional media single mode of "text + figure", to meet user habits and usage scenarios of expression, at the same time the spread of the novel also bring content to spread more widely degrees of radiation, allowing each transmission platform of information on the Internet to turn critical point to send.

In the ear of 5G, it not only overturns the way media organize content production, but also forms a unique form of information organization in line with its terminal characteristics and network characteristics. It also brings a blowout development opportunity to the "short video" market, which has shown a trend of explosion. To some extent, 5G will be a truly converged network. In this state of convergence, media boundaries are blurred and information services will be everywhere.

## **3. Challenges and opportunities for the development of visual arts in the 5G environment**

### **3.1. The impact of artificial intelligence on visual design**

In the 5G environment, artificial intelligence enables people to enjoy a colorful visual feast in a variety of forms, inspiring the diversification of design in visual art, and brings some emerging design industries into people's lives. However, artificial intelligence has also brought influence to the design industry. First of all, less creative and more repetitive tasks will inevitably be replaced by machines, because these are exactly what AI is good at. Moreover, in this kind of work, artificial intelligence can improve the efficiency by thousands or even tens of thousands of times, which is bound to bring unimaginable changes to the whole design industry. Second, artificial intelligence can still play a supporting role in creative industries. About the realization of strong artificial intelligence, in the field of design, we are most familiar with Taobao developed an intelligent design system Luban. Lu Ban, an ai designer released by Alibaba in 2015, is said to have completed 170 million banners during Singles' Day with this artifact. Alipay developed a mini program called "Creative Posters," which not only allows users to design posters for free, but also allows users to choose their favorite styles from a variety of templates.

### **3.2. The employment crisis brought by artificial intelligence**

On the one hand, the continuous acceleration of science and technology brings benefits to human beings, and on the other hand, it also brings many challenges to human beings. Artificial intelligence brings convenience but also causes employment crisis, and the role of mechanical manual labor may be replaced by artificial intelligence in the future. 5G technology has accelerated the expansion of robot applications, and mass robots have been added to

manufacturing and service industries, bringing pressure to the human job market to a large extent. Similarly, in the field of design, the proportion of artificial intelligence applications is also increasing, and this trend has caused the employment difficulties of most graphic designers engaged in a single repetitive job.

### 3.3. Development prospects of visual art and design

The proliferation of artificial intelligence raises a question: what skills does a designer need to be more competitive in this era? Research shows that characters with compound ability are more difficult to be replaced. For example, a designer who is good at both graphic design and illustration, as well as photography and copywriting, will be more likely to stand out from the crowd. This is because such abilities are not simply the superposition of multiple abilities, but the different thinking views reflected behind these abilities. The combined effects of these thinking views can not be replaced by artificial intelligence in a short time.

At the present stage, AI is still in the state of weak artificial intelligence. In the future, it will usher in the upsurge of strong artificial intelligence, and even the era of super artificial intelligence. What we see in American science fiction movies may appear in our lives one by one. As our society moves towards strong artificial intelligence, most single jobs will be quickly replaced.

Technology serves productivity, and technology exists to release productivity, with the ultimate goal of liberating mankind. In the future, the competition will not only be between human and AI, but will become a combination of one person with his own AI technology and another person with another AI technology. At this time, AI will become a tool, which is very effective, logical and fast. Before software, we used pens, compasses and paper to draw. Later, when we enter the era of strong artificial intelligence, we need a concrete thing to directly issue instructions to the AI, so that it can conduct big data tests from the system as required, and finally extract multiple appropriate images of things in a short period of time from the aspects of style, consumer acceptance, theme matching and so on.

### 3.4. Summary

In the future, visual art design requires designers to have comprehensive ability and multi-aspect thinking view, that is, to establish their own composite ability and broaden their comprehensive ability. Among them, only by mastering the skill level first can we produce the corresponding thinking view. At the same time, thinking view can effectively and accurately guide technology, so as to achieve a perfect fit between theory and practice. In the design field of the future, it is no longer the competition between simple technologies and technologies, but the competition between ideas. These ideas are slowly accumulated through solid practice at the beginning, thinking about how to use technology to achieve the ultimate idealized goal. This concept is similar to thinking about the relationship between the elements of the whole picture and the beauty of typography in design. Similarly, designers need to understand the history of art. Only by looking at the past can we see the future. The development trend of things is cyclical and spiraling, but the technological means are different.

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