

The Inductive Practice and Essentials of Motion Graphics Design in Interface Design

Jian Zhang

Sichuan Fine Arts Institute, Chongqing 404100, China

tuke126@126.com

Keywords: Interface design; Dynamic graphics; Dynamic graphics library.

Abstract. The emergence of the Internet has changed the way of graphic design, from the practical design based on the entity to the virtual network design, from the plane and static design to the multi-dimensional dynamic design. The change of the over-all environment has improved people's demand for visual performance and a new form of artistic expression emerged, namely motion graphics design. It as a brand-new form of expression has improved the information transmission and interactive experience greatly. The research on the its form and application methods in the interface design contributes to the popularization of this new form and makes it blossoms in the new mobile internet age. This paper summarizes some elemental methods in the motion graphics design, and categorizes the application scenarios of the dynamic graphics in the interface into four big categories: dynamic scene change, dynamic page, dynamic picture interchange and dynamic components according to the different realization of the technique; and it concludes the corresponding design methods of the dynamics in the graphic design.

1. Introduction

This paper studies on the theories and corresponding cases of the motion graphics design in the interface design, aiming at clarifying its range. It is via a large amount of combination of theories and design practice, inducing the application scenarios of the dynamic graphic in the interface, and summarizing some elemental methods of dynamic graphics in real cases.

2. Application scenarios of dynamic graphics in the interface

There are different application scenarios and different realization expression according to different functions. For example, the static graphic is usually combined with the program code in some regular dynamic movement; while the dynamic graphic will be inserted into the design in some complex dynamic movement since the current program code is not able to simulate the state very well. Through the analysis of the realization expression in the application scenarios of the dynamic graphic in the current interface, combined with the theory support and current technical condition, the dynamic design can be divided into dynamic scene changes, dynamic page, dynamic picture interchange and dynamic components.

2.1 Dynamic scene changes

The word "Scene Changes" originates from the video design. Stunt skills are added to the two picture editing to complete the scene change. The expressions in the films contains the lap dissolving, fading in and fading out, flipping and others. In the interface design, the most impressive feature of dynamics is the time and space change in a whole. The space in the interface is limited, much more information is hide behind the current screen, or at the left, right, downside of the screen. There is official dynamic API in the dynamic scene changes. And some simple movements can directly apply the official dynamic API. As we all know, there are 8 official dynamic scene changes in Android, and 19 official dynamic scene changes in iPhone. The API can be directly used to do the simple dynamic scene changes.

The dynamic external forms can be categorized into the basic form and super deluxe form according to the current official dynamics combined with the re-creative dynamic forms during the

using process and the visual features. The scene change effect of the basic form is mainly realized by two pictures change, and the visual expression is rather gentle with a wide application; while the dynamic effect of the super deluxe form mainly copies some of the scene changes in the films, not fitting for the most screens, which mainly appears in some active pages of the mobile HTMLS. All these pages share a common feature: a short-time existence, which means it is in a limited time to bring visual contents to the users through dynamics. There are different directions in the same pattern of manifestation, which is closely related to the inter-behaviors of the users. Therefore, the design of scene change need to meet the psychology predict of people.

2.2 Dynamic page

Dynamic page is the most widely used of the interface design, whose realization is mainly depended on the background program. And there is no need for the users to load a player. Its dynamics can be realized through the code support to the explorer, which will not be in-fluent causing by the loading of dynamic pages, with a wider application scenes. The dynamic pages cannot be categorized directly according to its external expression. And the dynamics features need dismantling and detailing. The dynamics are mainly divided into the emergence, disappearance and stressing according to the elemental motion features.

2.3 Dynamic graphic interchange

Dynamic graphic interchange refers to a multi-graphic data recorded in one graphic file and they can be read and displayed on the screen one by one through the file itself, which means the file itself to realize the dynamics. The GIF is the most widely used dynamic graphic interchange in the interface design. Since it has two advantages: it expressed in a compressed format, which can be used in various interfaces and about 50% compression rate provides a precondition for a fluent expression in the interface; the other is that GIF can be supported by most platform, contributing to the convenient use on the multi-platform and multi-terminal.

2.4 Dynamic components

Since the space in the interface is limited, a design format in a box-like style need to be introduced in order to put a large amount of content into it. And in this format, each function module is put into the corresponding drawer box, with various small labels, from which users can predict the expanding content inside. This box form is applied in various situations, which is a very flexible interactive operative frame, and the miscellaneous functions can only be expressed in the interactive operations. The most expressive form of dynamic components is similar to the dynamic pages. While dynamic components is the functional combination of elements under various dynamic pages. For example, when inputting contents into the textbox, the textbox will expand and the corresponding buttons will appear and the contact list will sink, and the input keyboard will pop-up from the bottom. All these operations are completed in the boxes.

3. Essential elements of motion graphics design in the interface design

The development of the technology has reduce the barrier to the application of dynamic graphics. The users can make a dynamic graphic in the interface more easily, and more and more interfaces begin to become dynamics. However, an excellent dynamic design dose not equal to the simple active elements. First, it is lively and interesting, with a fluent expression; secondly, it need qualify with the interactive function, instead of a formal device.

3.1 The property of simulated dynamics

Dynamics mainly focuses on the motion changes in the real world, exploring the various factors causing these changes. All the dynamics in the interface are depended on the scene changes in the real life. The living and interesting dynamics need putting life into these elements. It has become more natural and more closely to the real life, through the property of simulated dynamics. There are several common-used forms:

(1) Simulating the inertial motion

All the objects in the real life have the property of inertia. The common scene is on the bus. The people on the bus will move backwards suddenly when the bus starts to move, and they will move

forward when the bus driver slams the brake on. The static inertial motion will be expressed in the panel path, and the graphic changes originate from a part then expand to the whole. While the inertial expression in the motion state will be rather rich. The motion effects of amplification, narrow, and complex spacial changes like flipping can be out of expectation in the common linear motion. Then these motions bounce back, which make the simple virtual motions full of energy and life and interesting.

(2) Variable motions

In the traditional motion graphics design, the changes between the graphics are usually at constant speed, which is more like a robot with rigidity. The motions need designing to make the graphics look more active. The acceleration is growing at a constant speed, from 0 to a maximum number or from a maximum number to 0, with which the graphic element expression will be in rhythm. However, in the actual process, “slowly start and sudden stop” will be adopted because it meets people’s expectation with a rhythm during the motion changes.

(3) Fragmentation motions

The cool dynamic effects adopted to the interface is one way to make it become rich. And the fragmentation is the basic way to make it. The design graphics can be divided into small elements as much as possible in a reasonable range with each element adding different motion effect. What need to be noticed is that not the endless or random dynamic effects are put into because too many without an order will destroy the dynamic effects. One or two dynamic effects with a time space will make the dynamic graphic with rhythm.

3.2 Improvement of inter-experience

Dynamics mainly focuses on the motion changes in the real world, exploring the various factors causing these changes. All the dynamics in the interface are depended on the scene changes in the real life. The living and interesting dynamic need putting life in these elements through simulating dynamics.



Figure 1 Changes of number value strengthen the guide function in interface

(1) Information indication

Any of the interface is strange to the users. Therefore, it is useful to have some information to guide the users to know the operation. And strengthening guidance through dynamic graphics is a

common-used method to improve user experience. The color and image-text already existing is the only media to transform information in the static interface. And the dynamics processing leading users to the essential parts can make the experience of the information progress more fluent. The objects in motion can always get attention from people because people are born with the property to catch the quick-move objects. The number values on the screen in Figure 1 does not appear directly instead they grow from 0 gradually along with time. The design is especially with such effects to attract users.

The other hint lies in the operation feedback from users. It is through the expression of dynamic graphics which can improve the user experience. The users need some information in the interface to confirm their operations as an acceptance of the interaction between people and computer. There are various forms of feedback along with our operation. The common one is the shaking in the phone, replacing the complex words hint. It can make the interaction more natural and fluent, bring a good guidance for users (Figure 2).



Figure 2 Icon in the compiling state with shaking

4. A simplified process

The popularity of flat design has made the whole interface flat. And the interface level has also simplified. In most time the excellent design comes from the simplified design, which can simplify the information in the interface that users can search what they need quickly. The introduction of the dynamic design make the information do not need currently hide on the screen. And these information can show up in dynamic form (Figure 3), which can simplify the operation level and improve user experience.



Figure 3 Clicking the hiding content

Motion graphics design has become a new trend in the interface design. The systemically categorization of dynamic graphics based on the application scenes can benefit to our study. In the real application, different dynamic design is applied to different scenes. It is not allowed to mix some slick dynamics to the dynamic design. The dynamic application should be as the new method to promote user experience.

5. Conclusion

The emergence of the Internet changed the way graphic design, from the previous static design to dynamic design now, in a whole new way of changing our interaction experience in the interface. Based on the basic principle of dynamic graphic design in the design of interface and the characteristic, through a lot of design practice, summed up the relevant methods in the dynamic graphic design and classifies the dynamic graphical interface, the application of the scene, depending on the technical implementation is divided into the dynamic transitions, page dynamic, swap dynamic image, component dynamic four broad categories.

Through the author's design practice, the design of the \"dynamic graphics library\" to promote dynamic graphic design in the design of interface in the product can play a role, for how to solve the dynamic graphic design in the interface design of popularization, provides a train of thought to solve problems, but the specific idea remains to be further improved.

Acknowledgements

The Science and Technology Project of the Board of Education of Chongqing. Project name: Research on the interface graphic language of Internet mobile terminal. The No. : KJ1400801

References

- [1] RJK Jacob. The Use of Eye Movements in Human-Computer Interaction Techniques: What You Look At is What You Get. *Acm Transactions on Information Systems*, 2011.
- [2] RJK Jacob, Hot topics-eye-gaze computer interfaces: what you look at is what you get. *Computer*, 2012.
- [3] BW Chang, D Ungar. ACM. Animation: From Cartoons to the User Interface Symposium on User Interface Software and Technology, 2013.
- [4] RJK Jacob. The Use of Eye Movements in Human-Computer Interaction Techniques: What You Look At is What You Get. *Acm Transactions on Information Systems*, 2014.
- [5] D Ungar. Animation: From Cartoons to the User Interface BW Chang, ACM Symposium on User Interface Software and Technology, 2014.
- [6] C Zetie. Practical User Interface Design: Making GUIs Work. Practical User Interface Design: Making GUIs Work - 2015.
- [7] C Zetie. Practical User Interface Design. Making GUIs Work. *Industrial Robot An International Journal*, 2013.