Ning MA,
orcid.org/0009-0006-9911-2628
PhD student at the Department of Multimedia Design
Kyiv National University of Technologies and Design
(Kyiv, Ukraine) maningyhh@163.com

Ruslana KHYNEVYCH,
orcid.org/0000-0002-3130-5785
Candidate of Technical Sciences,
Associate Professor at the Department of Multimedia Design
Kyiv National University of Technologies and Design
(Kyiv, Ukraine) h.ruslana.v@gmail.com

REALISATION OF ANTHROPOMORPHISM IN MODERN DESIGN

This article analyzes the concept of anthropomorphism and explores its manifestation, mechanism, advantages and significance in modern design. According to Guthrie's classification of anthropomorphism, anthropomorphism is divided into two types: limited anthropomorphism and complete anthropomorphism, and analyzes its impact on consumers' psychological image arousal and product evaluation. The paper further explores the composition dimensions of anthropomorphism, including external level, internal level and social level. The external level is mainly manifested in anthropomorphic images, anthropomorphic expressions, consumers' perception of anthropomorphism through product shapes, and anthropomorphic activities. The internal level refers to the use of anthropomorphic means to design products or brands to convey ideas to consumers, mainly including brand stories and brand personality. The social level focuses on the interactive relationship between products and users and other products, as well as the role and status of products in the social environment. Designers integrate human characteristics and emotions into modern design by anthropomorphizing form, expression, action, communication, function and behavior, and enhance product affinity and user experience. The advantages of anthropomorphic design are to improve product affinity, reduce user cognitive friction, enrich design themes, and bring broader possibilities to modern design. Finally, the article summarizes the importance of anthropomorphism in modern design and points out the future development direction. Anthropomorphism plays an important role in communication, emotional expression, user experience, etc. in modern design. Anthropomorphic design not only improves the functionality of the product, but more importantly, it enhances the emotional connection between the product and the user, injecting more human factors into modern design. In the future, with the continuous advancement of technology and the continuous evolution of user needs, the anthropomorphic design will continue to play an important role, bring more innovation and possibilities to modern design, improve user experience and satisfaction, and bring new ideas, new inspirations and challenges to design theory and practice.

Through an in-depth discussion of anthropomorphic design, this article provides detailed analysis and guidance on how to apply anthropomorphic techniques in modern design, providing theoretical support and reference for designers in practice. At the same time, this article also provides new ideas and perspectives for researchers in related fields, and contributes certain research value to the theory and practice of anthropomorphic design.

Key words: *anthropomorphic design, user experience, modern design, anthropomorphic methods in design.*

Нін МА,
orcid.org/0009-0006-9911-2628
аспірант кафедри мультимедійного дизайну
Київського національного університету технологій та дизайну
(Київ, Україна) maningyhh@163.com

Руслана ХИНЕВИЧ,
orcid.org/0000-0002-3130-5785
кандидат технічних наук,
доцент кафедри мультимедійного дизайну
Київського національного університету технологій та дизайну
(Київ, Україна) h.ruslana.v@gmail.com

РЕАЛІЗАЦІЯ АНТРОПОМОРФІЗМУ В СУЧАСНОМУ ДИЗАЙНІ

У статті аналізується поняття антропоморфізму та досліджується його прояв, механізм, переваги та значення в сучасному дизайні. Відповідно до класифікації антропоморфізму Гатрі, антропоморфізм поділяється на два типи: обмежений антропоморфізм і повний антропоморфізм, аналізується його вплив на збудження

психологічного образу споживача та оцінку виробу. Стаття досліджує композиційні виміри антропоморфізму, включаючи зовнішній рівень, внутрішній рівень і соціальний рівень. Зовнішній рівень в основному проявляється в антропоморфних зображеннях, антропоморфних виразах, сприйнятті споживачами антропоморфізму через форми продукту та антропоморфну діяльність. Внутрішній рівень стосується використання антропоморфних засобів для розробки продуктів або брендів для передачі ідей споживачам, головним чином включаючи історії брендів та індивідуальність бренду. Соціальний рівень фокусується на інтерактивних відносинах між продуктами та користувачами та іншими продуктами, а також на ролі та статусі продуктів у соціальному середовищі. Дизайнери інтегрують людські характеристики та емоції в сучасний дизайн шляхом антропоморфізації форми, вираження, дії, спілкування, функцій і поведінки, а також покращують схожість продукту та покращують досвід користувача. Переваги антропоморфного дизайну полягають у покращенні спорідненості продукту, зменшенні когнітивного тертя користувача, збагаченні тем дизайну та наданні ширших можливостей сучасному дизайну. Нарешті, стаття підсумовує важливість антропоморфізму в сучасному дизайні та вказує на майбутні напрямки розвитку. Антропоморфізм відіграє важливу роль у комунікації, емоційному вираженні, досвіді користувача в сучасному дизайні. Антропоморфний дизайн не тільки покращує функціональність продукту, але, що більш важливо, він посилює емоційний зв'язок між продуктом і користувачем, додаючи більше людського фактору в сучасний дизайн. У майбутньому, з безперервним прогресом технологій і постійною еволюцією потреб користувачів, антропоморфний дизайн продовжуватиме відігравати важливу роль, привноситиме більше інновацій і можливостей у сучасний дизайн, покращуватиме досвід і задоволення користувачів, а також приноситиме нові ідеї, нові натхнення та проблеми для теорії та практики дизайну.

Завдяки поглибленому обговоренню антропоморфного дизайну ця стаття містить детальний аналіз і вказівки щодо застосування антропоморфних методів у сучасному дизайні, надаючи теоретичну підтримку та довідкові матеріали для дизайнерів на практиці. У той же час, стаття також пропонує нові ідеї та перспективи для дослідників у суміжних галузях і вносить певну дослідницьку цінність у теорію та практику антропоморфного дизайну.

Ключові слова: антропоморфний дизайн, досвід користувача, сучасний дизайн, антропоморфні методи у дизайні.

Introduction. In recent years, anthropomorphism has garnered attention in modern design for its ability to enhance user engagement and emotional attachment. Derived from Greek roots meaning «human form,» anthropomorphism involves imbuing non-human entities with human-like traits (Pelau et al., 2021). This approach aims to create products that are not only functional but also emotionally resonant with users. The rise of anthropomorphic design methods can be attributed to advances in technology, especially in areas like artificial intelligence and human-computer interaction. These developments enable designers to create products with realistic features and interactive capabilities, fostering meaningful connections with users. Moreover, as emotional design and user-centered principles gain prominence, anthropomorphic design aligns closely to evoke emotional responses and enrich user experiences. By tapping into users' natural inclination to anthropomorphize objects, designers can create products that evoke warmth, empathy, and companionship, ultimately enhancing user satisfaction and loyalty.

Despite the growing interest and adoption of anthropomorphic design methods, systematic research and empirical evidence are still needed to guide designers in effectively applying these methods in practice. Therefore, this study aims to contribute to the advancement of anthropomorphic design methods by providing a comprehensive overview of existing methods, synthesizing empirical results from related studies, and providing practical guidance and recommendations to designers and practitioners. By bridging the gap between theory and practice and promoting interdisciplinary collaboration, this research aims to realize the full potential of anthropomorphic design to create products that resonate deeply with users and improve their overall quality of life

Discussion. Anthropomorphism refers to adding human characteristics to non-human objects and making them perceived as humans. The scope of such non-human objects can include animals, machines, natural phenomena, and virtual images**.** The way anthropomorphism works is by allowing us to compare objects that we don't understand or that need to be described in detail with «human characteristics» that everyone is familiar with, to discover the commonalities or characteristics. The reason for the existence of anthropomorphism is that humans tend to assign human characteristics to non-human things. This tendency is not learned, but innate. Its original motivation is man's desire for knowledge about non-human things. For example, consumers will discover the characteristics of a human face from the appearance design of the car, with the air intake grille as the mouth and the car lights as the eyes and perceive different «facial expressions» based on different combinations of these characteristics.

Guthrie defines two types of anthropomorphism based on animism, a philosophical doctrine that holds that all objects are alive, feeling, and thinking (Guthrie & Culture, 2015). The first type is «limited anthropomorphism». The individual will give human char-

acteristics to non-human beings, and will not regard the object as a complete human being. However, this part of the anthropomorphism can evoke human psychological images, thereby affecting consumers' perception of the product. The second type is «complete anthropomorphism». The anthropomorphic object is a touchable object that has goals, mentality and temper, and even a desire for power. In this type of anthropomorphism, the individual perceives the person as being deeply caring, imagining the person to be a real person, and treating the person as a human being.

As a widely used design and marketing method, what are the forms and mechanisms of anthropomorphism? Tremoulet and Feldman briefly raised this issue. They believed that «movement» is an important reason for anthropomorphic perception. Movement is too slow (like a clock) and will lack the necessary conditions to be perceived as anthropomorphic (Tremoulet & Feldman, 2000). At present, in discussions about the dimensions of anthropomorphism, some propose that it contains two dimensions, while others believe that it contains three dimensions. Among them, brand Anthropomorphism is a strategy that assigns human natural, spiritual and social attributes to the brand, thereby making the brand more humane and approachable. This Anthropomorphism can be framed through three main dimensions, namely the explicit level, the inner level and the social level.

The external level of Anthropomorphism. Anthropomorphism at the external level is the most intuitive of the three expression methods. Anthropomorphism at the explicit level is mainly manifested in anthropomorphic images, anthropomorphic expressions, and consumers' perceptions of anthropomorphism and anthropomorphic activities through product shapes. Anthropomorphic image refers to adding human characteristics to the «body shape» or «face» appearance of a product or brand. Anthropomorphic image is an important component of brand anthropomorphism (Wang et al., 2020). Previous research has shown that objects with human facial features or human physical appearance characteristics are more likely to be anthropomorphized (Phillips et al., 2018). Anthropomorphic expressions refer to the use of anthropomorphism by marketers to allow products to express happiness, sadness, or fear in some situations like humans. In daily life, large round car lights often make consumers feel cuter, and upward arcs often make consumers feel that the product or brand is smiling. This situation is exactly the Anthropomorphism that consumers perceive through the shape of the product. change. Anthropomorphic behavior refers to products or brands that produce human-like postures or body language behaviors, such as MM chocolate beans jumping around, robots delivering food to customers, etc.

The internal level of anthropomorphism. The internal level of anthropomorphism refers to the use of anthropomorphic means to design products or brands to convey ideology to consumers, which mainly includes brand stories and brand personality. Brand story refers to comparing the development process of the brand to the life process of people and telling the historical story of the brand in an anthropomorphic tone to arouse the resonance of consumers. Anthropomorphism of brand personality refers to using Anthropomorphism to express the brand vividly so that people can feel that the brand has the same sincerity, confidence and other characteristics as people.

Reflection of the social dimension of anthropomorphism. The social dimension of anthropomorphism mainly includes two aspects: brand communication and social role. Communication is an indispensable part of human society and is also of great importance in anthropomorphism. In academic research, many scholars manipulate anthropomorphism by manipulating language. For example, Puzakova used the first-person sentence pattern «Hi! My name is Super Act» to activate consumers' perceptions of anthropomorphism in the study (Puzakova et al. al., 2013). This is a way of transmitting information like communicating with customers. This method can greatly improve communication with customers and achieve a more intimate communication relationship with customers. According to existing research, anthropomorphic communication methods are mainly achieved through brand names, slogans, logos (Wandel, 2018). In the era of Internet prosperity, companies have used official online forums and other online platforms to communicate with users in the tone of virtual characters, which is also a form of anthropomorphic communication. Brand social role means that individuals regard the brand as a social role during their interaction with the brand. Personifying a brand into a certain social role can not only strengthen brand promotion, but also enhance the emotional connection between customers and the brand.

The cute attributes of the product will enhance the user's love and tolerance for it. Therefore, the current design of commercial service robots is mostly feminine and child-oriented, which is reflected in their appearance, expression, voice and other aspects. Humans easily accept unrealistic characters when they are always unrealistic, which is very common in cartoons. This shows that the current hyper-realistic companion chat robots that imitate the real appearance of human beings are only visual images and may not necessarily be liked by users. This is also one of the reasons why two-dimensional images such as Hat-

sune Miku are so popular. The personalized appearance also subtly reduces the hyper-realistic image in the «Uncanny Valley Theory», which makes people feel like traveling through and breaking the dimensional wall. The evolution of the virtual digital visual image of Hatsune Miku is from the hand-drawn Hatsune Miku to the AI-driven hyper-realistic virtual internet celebrity AYAYI. Among them, the two-dimensional style of Hatsune Miku avoids being closer to the real situation and will be more futuristic and imaginative, possessing human characteristics rather than imitating the appearance of real humans.

Implementation methods of anthropomorphism in modern design

Anthropomorphism of form. Anthropomorphism of form is the most direct and intuitive form of realization in anthropomorphic design. Nature has shaped the perfect human form, and human images of different ages, genders, and professions are also the source of design. It can be divided into three forms. The first type is the anthropomorphism of form. What is emphasized here is the physical geometric composition of the human form itself. The resulting form is not symbolic, but mainly conveys the physical attributes of the form. The second type, the Anthropomorphism of meaning, focuses on the expression of human expression characteristics and symbolic meaning in the anthropomorphic form, and uses a general approach to extract the human morphological characteristics. The main emphasis is on the use of metaphors in design semantics. The method makes people associate, and project the well-known human visual beauty and symbolic meaning into the design and experience these different attributes when recognizing and using the product, thereby obtaining spiritual enjoyment and satisfaction. Anthropomorphism that combines form and meaning. This type of bionics takes both the form and the meaning of the human form as the objects to be simulated. It has both symbolic metaphor and physical form imitation. While adopting the human form, we also pay attention to the expression of charm and temperament, to combine the form and meaning of the product, so that the product can achieve a high degree of unity of form and meaning, and convey the spirit through form. The most typical example is the design of humanoid robots.

Of course, there is no very strict distinction between anthropomorphism of form and Anthropomorphism of meaning. This section mainly emphasizes the difference in the focus of their imitation, rather than rigidly separating form and meaning of anthropomorphic forms, because Anthropomorphism of meaning must be It is achieved through the imitation of shapes. At the same time, the anthropomorphism of form must also be accompanied by the communication of certain meanings. The two complement each other and are inseparable.

Anthropomorphism of expressions and movements. The morphological semantics of products can carry very complex emotions. Various human expressions, movements, etc. are very common anthropomorphic design elements. By simulating the characteristics of these objects, unique effects can be produced to inspire users. Empathy allows users to more quickly perceive the meaning of products expressed through expressions and actions. For example, the anthropomorphic design of in-vehicle voice assistants abstracts human expressions and movements for voice interaction, adding interest and emotional value to the product.

Anthropomorphism of communication methods. In the design of information products, to better communicate with users, anthropomorphic design methods can also be adopted. For example, in the English teaching software Baici Zhan, the designer designed two virtual anthropomorphic images, «Guard Guard Zhan» and «Master Bao». The two form a «Bao Guo combination» to remind users to use humorous expressions when memorizing words. Language, the night mode of the software is named «Bao Adult Mode». These small details convey the optimistic character of the product, giving users a more positive psychological feeling and achieving more effective communication.

Anthropomorphism of functions and behaviors. In addition to certain material functions, humans also have other spiritual functions that are not possessed by the objects being simulated. For example, the design of a pillow that simulates the human torso and shoulders realizes the material function of a «pillow». At the same time, this pillow also assumes the role of a companion, metaphorizing the function of people's emotional companionship. These two functions better explain the duality of human material and spirituality.

Anthropomorphism is a form of artistic expression. The competition in the current chat robot industry is becoming increasingly fierce. If you want to attract more customers, you need to improve the visual image of the chat robot based on strengthening the quality of the chat robot product. You can design and build a unique chatbot. It can be seen that the anthropomorphic technique is very important in the design of chat robots. Therefore, the visual image design of chat robots needs to apply this technique reasonably and apply it according to the actual situation of the design, to give full play to its role and improve the efficiency of chat robot design.

Advantages and significance of anthropomorphic design

Good affinity: Affinity was originally a concept in the field of chemistry, referring to the correlation char-

acteristics between different atoms, but now it is mentioned more in the field of interpersonal relationships. Generally speaking, someone is friendly to other people. Being able to understand and tolerate others is said to be approachable. Affinity in design refers to certain features of a product that make people more willing to approach or use it. Human beings have an innate tendency to anthropomorphize by assigning human characteristics to external things (Horowitz & Bekoff, 2007). This tendency causes people to empathize with external objects and treat them as human beings. And hope to gain an emotional connection with things. Anthropomorphic design can apply human movements, personality, temperament, image, spirit, emotion and other characteristics to modern design through a certain degree of processing, making the design more vivid and engaging, and promoting emotional resonance and communication with the audience.

Reduce user cognitive friction: In modern design, to achieve better communication functions with the product, designers often need to perform a certain degree of manual processing on the product's interactive interface, thereby improving human cognition and usage behavior to a certain extent. Logical guidance enables products to conform to people's cognitive habits. This process virtually increases the length of cognition and reduces the user's cognitive efficiency. When faced with anthropomorphic products, users are faced with familiar external semantic features, behavioral patterns, and emotional expressions, which makes the product closer to natural communication with people, thus appropriately reducing cognitive stress. The friction improves the efficiency of cognition and operation. Of course, products cannot be completely consistent with people. Intelligence is close to people to a certain extent in terms of emotion and intelligence. Therefore, all elements of the design should be fully considered and coordinated to achieve the best results.

The subject matter is wide, and the content is rich: when «human» is used as the object of design, many aspects can become the simulated objects, because compared with other living or inanimate simulated objects, human beings have the dual attributes of natural existence and social existence. In terms of natural attributes, individuals of different races and different stages of growth have different biological structures, states, and different expressions, and they can all become objects of simulation; in terms of social attributes, the images, expressions, thoughts, and customs of specific groups of people They are also good design materials.

Result. Anthropomorphic design has important significance and broad application prospects in the field of modern design. First, starting from the concept, the form, mechanism and advantages of anthropomorphic design are comprehensively discussed. According to Guthrie's classification of anthropomorphism, it is divided into two types: limited anthropomorphism and complete anthropomorphism, and its impact on consumers' psychological diagrams and product evaluations is analyzed. In addition, diverse design elements and strategies are provided through an in-depth analysis of the constituent dimensions of anthropomorphism, including the explicit level, internal level and social dimension. In terms of implementation, human characteristics and emotions are integrated into modern design through means such as morphological Anthropomorphism, expressions, movements, communication methods and functions, which enhances product affinity and user experience. The advantages of anthropomorphic design are mainly reflected in improving product affinity, reducing user cognitive friction and enriching design themes, which brings broader possibilities to modern design. In addition, the application of anthropomorphic design in fields such as chat robots has also been fully demonstrated, playing an important role in communication, emotional expression and user experience in modern design. Therefore, anthropomorphic design not only improves the functionality of the product but more importantly, enhances the emotional connection between the product and the user, injecting more human factors into modern design. In the future, with the continuous advancement of technology and the continuous evolution of user needs, anthropomorphic design will continue to play an important role, bringing more innovation and possibilities to modern design, improving user experience and satisfaction, and bringing new ideas to design theory and practice, new revelations and challenges.

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