ISSN 2959-6149

# The Social Identity of the Robot Pet: A multi-dimensional perspective

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**Abstract:**

With the invention and application of artificial intelligence products into modern society, robot pets have become one of the important products. At present, along with the gradual integration of robot pets into human life and becoming people's intimate companions, more and more people begin to pay attention to the social identity of robot pets. In order to clarify the social identity of robotic pets in modern society, this study used questionnaires and interviews to collect the acceptance attitudes and perspectives of residents from the Yangtze River Delta region toward robotic pets as companions. It is found that there is diversity in public acceptance of robotic pets, and that health, emotional needs, and the function of the robots are important factors influencing people's choice of robotic pets. Regarding the social status of robotic pets, some people believe that robotic pets should be regarded as an integral part of society. While others believe they lack socio-emotional attributes and should not have a social identity. In the future, pet robots will move toward personalization, multifunctionality, or cross-industry cooperation, where their social identity is expected to be strengthened. In conclusion, this study organizes the social cognition of robotic pets, gives an empirical basis for the study of the social identity of robotic pets, and provides guidance for the future direction of AI products.

**Keywords:** Technological intimacy; social identity; robot pet.

## 1. Introduction

With the rapid development of society and the continuous advancement of science and technology, more and more elements of artificial intelligence gradually penetrate into people's daily life. The concept of robots has become commonplace and can be seen everywhere in people's lives. Additionally, the concept of robot pets has emerged, which refers to simulated robots that mimic real pets. The development and progress of these simulated robots will provide a certain direction and impetus for the future of humanity, promoting continuous improvement and development in human scientific and technological advancements [1]. Currently, research on the function and cognitive orientation of robot pet is highly advanced. Scholars have focused mainly on the functional design of robotic pets for their potential impact on human life. In a study on the functionality of robotic pets, a study using a questionnaire method found that most people believe that the main function of robotic pets lies in providing basic security and some simple and convenient access to provide users with quick and easy services. It can be seen that current academia delves into the functional roles of robots and explores their potential future contributions to social infrastructure and human services. However, current research on robots is focused on exploring how future robots will perceive their environment and how they will give interactive feedback. Some of the research focuses on how humans can maximize the use of robotic pets' features. Whereas research on the identity of robotic pets is still lacking. The public is not clear enough about the social identity and social recognition of robot pets [2]. What's important is that robotic pets must obtain a clear social identity and public permission if they are to truly integrate into modern life.

This study focuses on the social perception of robotic pets and delves into the views and attitudes of humans towards the social identity of robotic pets in today's society. Since the cities in China's Yangtze River Delta are more economically developed and keeping robotic pets is more common, this study chooses robotic pet keepers in the Yangtze River Delta as the research object. Through a combination of questionnaire and interview methods, this study collects a large amount of information about people's views on robotic pets and further analyzes the influencing factors behind them. Through this study, people's attitudes towards AI technology can be demonstrated, which will help to identify human needs more accurately and optimize the intelligent technology of robotic pets for the benefit of modern society and human beings [3].

## 2. Methodology

The methodology of this study was meticulously designed to investigate the wide range of attitudes and perceptions of people toward the emerging concept of robotic pets by using Questionnaire Method and interview. On one hand, the method of questionnaire survey will be utilized to systematically collect and analyze the general public's understanding and opinions on robotic pets. On the other hand, interviews will be conducted to gain in-depth insights into the acceptance and preferences of specific research subjects towards robotic pets. These interviews will further explore the direction for future development and improvement of robotic pets. By doing so, it is beneficial to enhance the comprehensiveness and accuracy of the study's results through a variety of complementary data collection methods.

### 2.1 Questionnaire Method

A questionnaire survey refers to the method in which individuals select predetermined answers to a set of questions. This research approach is considered simple, efficient, representative, and indicative. The questionnaire survey is characterized by its simple operation and high efficiency, enabling the collection of a large amount of data in a short time. This not only saves costs but also reduces the overall time required for data collection. The study was conducted with the assistance of the professional online survey platform. The questionnaire was widely disseminated through WeChat, a widely used social media channel, to ensure diversity and representation of the data. The questionnaire design adopts a multi-level and multi-branch logical structure, aiming to gradually explore respondents' attitudes and opinions on AI companion robots through progressive question guidance, as well as further exploring their potential expectations and needs. The author distributed a total of 91 questionnaires, and after collecting and organizing the questionnaires, obtained 89 valid responses. There are 89 valid samples collected, covering all provinces in the Yangtze River Delta, which is beneficial in showing the holistic attitudes of the region, which is the same situation in the interview. After completing the data collection, statistical analysis was performed on the questionnaire data to quantify the public's preference and acceptance of various characteristics of AI companion robots. Based on meticulous questionnaire design, extensive data collection, and thorough data analysis, the author has comprehensively gathered information about the identity of AI companion robots in modern society.

### 2.2 Interview

An interview is basically when researcher asks someone a bunch of questions online to dig deep into a topic using proper research methods. The interviewer chats with the interviewee, asks them various questions and gets detailed answers to find out what the author is talking about. The interview is characterized by clear purpose and two-way interaction. In order to investigate the diverse attitudes of consumers towards traditional and robotic pets and uncover insights that go beyond standardized questionnaires, this research utilized in-depth interview methods as a means of control and supplementation. Interviewees were recruited through the WeChat platform, and interviews were conducted via Tencent Meeting, an efficient online meeting tool, to ensure flexibility throughout the interview process. All participants have been clearly informed and have given their consent regarding the purpose and use of this study. The personal information of all participants will be protected and handled anonymously. The semi-structured interview questions included inquiries such as "Have you ever owned a pet" and "How do you feel about interacting with your robot pet". These questions served as starting points, allowing for flexible adjustments based on immediate feedback from the interviewees. Based on the personal experiences and preferences of the interviewees, the author deeply explores the potential motivations and influencing factors that affect people's acceptance of robot pets.

## 3. Results

After conducting an in-depth analysis of the questionnaire survey and in-depth interview data on the attitudes of residents in the Yangtze River Delta towards keeping robot pets, this study reveals a significant diversity in the stance of the local people towards accepting robot pets as companions. Respondents' viewpoints and attitudes are not uniform but rather diverse based on personal preferences, cultural backgrounds, technological acceptance, and ethical considerations, forming a rich variety of insights and reasoning systems. These different attitudes reflect the public's complex emotions and expectations towards emerging technological products. Simultaneously, the above attitudes are also valuable evidence for analyzing the social positioning, impacts, and development paths of robotic pets.

### 3.1 The Attraction of Keeping Robot Pets

The quantitative data is from the questionnaire. The survey data regarding the willingness of residents in the Yangtze River Delta to raise robot pets suggests that factors such as health, emotions, and the functionality of the robots themselves may impact people's inclination toward choosing robot pets.

One of the important reasons for allergic reactions in the body is hypersensitivity. As is shown in figure 1, for

pet-keepers, there is a demand for hypoallergenic pets, accounting for as high as 52.38%. Which reflects the modern emphasis on a healthy living environment while seeking pet companionship. As is shown in figure 2, for non-pet keeper, the lack of allergies remains a key factor in their decision-making, accounting for as much as 71.43%.

People emphasize the unique emotional bond between pets, and seek genuine interaction and response from their companions. Lots of pet owners are resisting robotic pets due to lack of emotional feedback. The shortcomings of robotic pets in complex interactions and intimate experiences, such as the absence of the joy of "stroking a cat", deepen this rejection. 64.29% of non-pet respondents also hesitate due to insufficient emotional companionship, which can be seen in figure 2. They question the ability of robotic pets to simulate real pet behavior, and their limited understanding of emerging technology collectively hinders their acceptance of non-traditional pets. Enhancing emotional interaction and enriching experiences with robotic pets, along with strengthening market education and awareness, is key to broadening their acceptance.

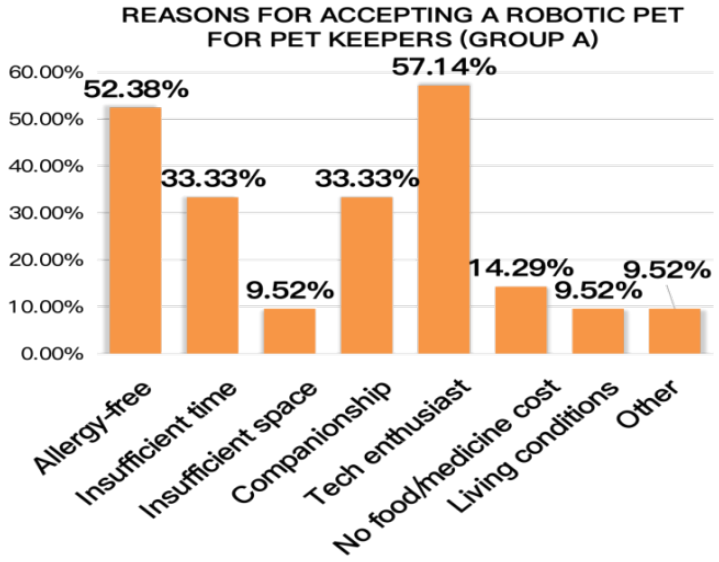


**Fig. 1 Reasons for accepting a robot pet for pet keepers**

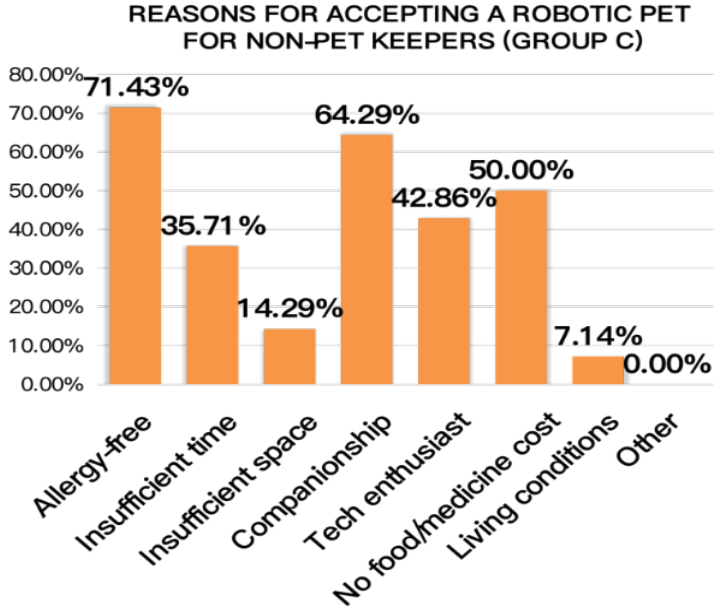


**Fig. 2 Reasons for accepting a robot pet for non-pet keepers**

Adaptability, convenience and companionship provided by intelligent systems are also important factors. Pet ro-

bots have transformed the traditional concept of pet ownership with their exceptional adaptability to different environments and their convenience [4]. They are not limited by location or physical constraints, offering a solution for pet owners' need for companionship through intelligent systems without the necessity of leaving home.

### 3.2 Different Attitudes towards the Social Identity of Robotic Pets

Interviews with residents of the Yangtze River Delta regarding their willingness to raise robotic pets indicate varying levels of acceptance concerning whether robotic pets can attain a legitimate social status. Some individuals argue that robotic pets should be considered a part of society, contending that in the broader context of exploring the sustained and rapid changes in society, the singular dominant position of human civilization is facing unprecedented challenges and reconstruction. This change is not only reflected in the increasing integration of intelligent companions such as robotic pets into daily life but also profoundly manifested in the extensive functions and far-reaching impacts demonstrated by new artificial intelligence technologies globally. A widely recognized viewpoint is that humans should actively embrace and accept these novelties rather than cling to tradition and fight alone. Specifically, this transformation requires human society to achieve a profound shift in mindset from monopoly to coexistence. Robotic pets serve as a new medium for emotional communication, satisfying not only human needs for companionship and care but also heralding the birth of a new mode of human-machine interaction.

Some individuals do not have a clear view of whether or not robotic pets should be part of society. They think in the future of human society, the social status of robotic pets will depend on their ability to meet the emotional needs of humans in terms of value and companionship. If robotic pets are capable of simulating or enhancing emotional experiences and can develop deep emotional connections as companions or family members, they may attain a higher social status [5]. However, if they are limited to performing mechanical tasks, they may be perceived as mere assistive tools and struggle to gain the same level of social acceptance as traditional pets.

Some people do not believe that robot pets can obtain a legal social identity. They believe that robotic pets are limited by their inanimate nature and lack genuine emotional attributes. Although modern technology has enabled robotic pets to imitate certain seemingly emotional behaviors, such as blinking and smiling, these actions are primarily based on pre-set programs and algorithms, lacking true emotional drive and spontaneity. As a result, robot pets appear to be more artificial and limited in their emotional expression, making it difficult for them to truly resonate with human emotions.

## 4. Discussion

### 4.1 Strengthening the Social Identity of Robot Pets

With the rapid advancement of science and technology, the reinforcement of the social identity of robot pets has become a significant manifestation of humans actively embracing the future and deepening the integration of science and technology [6]. This process not only signifies human acceptance and acknowledgment of emerging technology products but also represents a firm step of human civilization. The development and implementation of robotic pets exemplify the typical characteristics of scientific and technological advancement in the digital age. The widespread popularity and use of robot pets vividly demonstrate humanity's courageous embrace of new concepts and technologies. Furthermore, the deepening development of human-machine relationships expands the boundaries of emotional communication between humans and other species, showcasing humanity's desire for harmonious coexistence with technology in the future. Therefore, individuals should maintain an open-minded perspective and fully acknowledge the value and role of robotic pets in contemporary society, granting them the social recognition they rightfully deserve [7]. The enhancement of the identity of robot pets vividly depicts the human pursuit of technological progress. At the same time, it also deepens the human-robot relationship, demonstrating human's yearning for a future of harmonious coexistence with technology.

### 4.2 Diverse Influences on the Social Identity of Robot Pets

There are numerous factors that influence the social identity of the robot pet. Individuals' acceptance and expectations of robots are influenced by their cultural background. Some cultures may be more receptive to the integration of robotic pets into society, while others may be less open to it. Additionally, the quality of human-computer interaction, including communication skills and emotional expression, plays a significant role in shaping people's perception of the social identity of robotic pets. Furthermore, there are various other factors such as moral ethics and legal status that contribute to the inevitable diversity in this field. The aforementioned explanation indirectly indicates that the identity of the robot pet is impacted by a multitude of factors. In order to mitigate the uncertainty resulting from these diverse influences, it is essential to enhance public understanding and awareness

of robot pet through scientific education. This will help strengthen people's psychological acceptance and reduce cognitive disparities arising from different environments or circumstances [8].

### 4.3 The Development Prospect and Direction of Robot Pets

With the continuous advancement of artificial intelligence technology, robot pets are becoming increasingly intelligent. In the future, robot pets can continue to develop in the direction of personalization and integration. On the one hand, they will be capable of better understanding the needs and emotions of their owners, and providing more personalized services to meet all aspects of their owner's needs. For instance, through deep learning algorithms, robotic pets can learn their owner's preferences and habits to provide more intimate companionship and care. On the other hand, the robotic pet industry is expected to see increased cross-border cooperation and integration with other industries such as medicine, education, entertainment, and more. By the way of industry cooperation, robot pet market will get leapfrog development, and provide users with a wider range of options. In the future, robot pets will not be limited to simple companion functions; rather they will integrate multiple functions into one entity [9]. This means that robot pets will be able to fulfill a wide range of functional requirements while also protecting their owners.

## 5. Conclusion

With the development of artificial intelligence technology, robotic pets are becoming more and more closely related to humans. This study prospectively focuses on the social identity of robotic pets in the modern society, to figure out people's social acceptance of robotic pets by surveying robotic pet keepers in the Yangtze River Delta region of China. The research has revealed that there are variations in people's attitudes towards keeping robotic pets due to conditions such as physical health, emotional needs and the functionality of the robots. When asked whether robotic pets could obtain a legitimate social identity, the public was divided. Some people believe that robot pets should follow the trend of the times and obtain social identity. Others disagreed with granting robots a social identity because of their lack of emotional attributes. The authors further analyze and point out that this difference in social identity stems from cultural differences, quality of human-robot interaction, morality and ethics, and legal status. With the continuous development of artificial intelligence technology, the social identity of robot pets has a tendency to strengthen, which represents the progress of human civilization. The public needs to maintain a rational attitude and reasonably give robot pets an appropriate social identity. This study clearly demonstrates the evolving attitudes and understanding of individuals towards emerging products in the rapidly advancing field of technology, offering valuable insights into the direction and operation that such products should pursue in the future. In addition, the precise guidance it offers also aligns with the current demand in the artificial intelligence market, thereby fulfilling people's need for sophisticated and intelligent products to the greatest extent possible. In terms of future research, individuals will utilize robot pets as a gateway to the development of AI intelligent models. The focus will be on advancing real emotional interaction technology, enhancing robot pet functions, and refining marketing strategies based on the improvement of people's needs and suggestions. Furthermore, it is really necessary to there is a need to further enhance the identity of robot pets in order to promote the transformation and advancement of social science and technology, as well as human cognition.

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