# A Preliminary Exploration of Robotics Ethics in China from Cross-Cultural Perspective

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**Abstract:** Robotics culture is often influenced by multiple factors, including ethical concepts, science fiction culture, and modernization processes. Among them, ethical concepts and science fiction culture are the most important. This is because ethical concepts set the tone of robotics culture while science fiction culture is its main driving force. The research contents, methods, and ideas of cross-cultural robotics are interdisciplinary. However, we usually define artificial intelligence as a technological change, while ignoring the changed of human cognitive and cultural dimensions brought about by the robots themselves. “The Society of Human-Robot symbiotic and cooperative" is no longer a purely future-oriented concept. Due to different religious traditions and different understandings, Japanese, European and American societies have gradually developed a unique ethical robotics culture. In China, due to the lack of a modern robotics tradition, a local robotics culture has not yet been formed. However, China must establish its own robotics ethics, by integrating traditional Chinese ethics. Which is expected to stimulate international debates on robotic ethics.

## 1. Introduction

The formation of robot culture is often influenced by multiple factors, such as ethical concepts, science fiction culture, and modernization process, especially ethical concepts set the tone of robot culture, and science fictions culture is its driving force. Since the beginning of the new century, service-oriented robots have gradually entered human living space, beginning to play the roles such as assistants and partners, while also greatly influencing human selves and their perceptions of the world. Cross-cultural robots have covered a wide range of disciplines, including philosophy, ethics, literature, economics, politics, and religion, which disciplines are often interrelated. Human-machine coexistence is not a future concept. In 2017, a German robot assistant named "People-Oriented, designed for a more relaxed future" won the "German Future Award", which may help elderly robots development and popularization in Germany. However, in practical, application and utility are not always ethical. The entry of robots into traditional ethical fields such as elderly care and accompanying children, as well as people's private living space, will inevitably bring more profound challenges and changes to human cognition, culture, and ethics. In 2002, several Italian robotics experts proposed the concept of "robotics ethics" to "promote and encourage the development of robotics to make robots beneficial to human society and individuals while preventing the misuse of robots to harm humans". " Literally, "robotics ethics" seems to discuss the behavior and ethical choices of robots, but in fact, the robotics ethics advocated is not related to the “choices” of robots, but rather “ethics for robot designers, manufacturers, and users.” It is an “ethics of robot designers, manufacturers, and users”. As long as robots have no self-awareness, human will be able to make ethical choices. The ethics of robots in both reality and science fiction are within the broader scope of robotics ethics. Sometimes there is no clear boundary between robot ethics and science fiction, and robot ethics is also heavily influenced by robot ethics in science fiction [1]. In fact, the ethics of robots in both reality and science fiction are within the broader scope of robotics ethics. However, sometimes there is no clear boundary between robot ethics and science fiction, and robot ethics has been heavily influenced by robot ethics in science fiction [2]. Base on this perspective, this paper does not strictly distinguish between these two ethical phenomena, but considers them, i.e., a "broad robot ethics" or

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"human-machine ethics". Although the study of robotics ethics started late, it has developed rapidly, thanks to the long-standing rendering of robotics science fiction, the demand for robotics ethics in social reality, and its rich connotations. As early as the science and technology community began to explore robot ethics, Virugio and Oppeto were keen to identify the differences in robot ethics in different cultural contexts, but in-depth cross-cultural comparative studies are still lacking. Through an interdisciplinary approach, looking at robotics ethics from a cross-cultural perspective adds a cross-cultural and literary-cultural-historical dimension to this research. At present, there is still a gap in academic research in the field of "Chinese robotics ethics," and this field should receive further attention and research in the future.

## 2. Absence of Modern Robot Culture in China

Science fiction literature has played an important role in promoting the formation of robotics culture in the real world. Science fiction literature has even directly inspired engineers to develop modern robots. At the same time, fantasy and science fiction works are very important for human knowledge acquisition and ethical discussions, because science cannot be completely based on an omniscient viewpoint. Fantasy and science fiction are more natural materials for exploring robotics ethics, and lead the initial discussion of robotics ethics, which still forward-looking and informative. In China, the records of “artificial humans” can even be traced back to the Spring and Autumn periods. Yan showed a highly simulated singing and dancing puppet to King Zhou Mu, who even believed in humans. He sighs at the supreme “human-making” ability of the supine master, quoted and proudly summarized a dozen "robots" such as Luban Mu Yi and Zhuge Liang Mu Niu Ma. The author also admitted that "no one can guess what the secret of this puppet is", which is difficult to prove. The lack of empirical evidence has also become an irreversible flaw. The first documented Western-style robot to enter the Chinese landscape would be the “Jin Gong Biao Robot” given to Qianlong by Western missionaries, now in the Palace Museum. When the door is closed, it could turn its head and write Chinese characters such as “in all directions”. These “robots” were very popular in European Courts at the time. The Turkish chess player created by Hungarian engineer Capellen defeated the human chess player.

In the 18th century, machine intelligence was both an illusion and a hoax. However, such robots that imitated human behavior, sound and even “intelligence”. In the early days, they aroused great social interest, shock and fear [3]. For example, “Introduction to Robots”, as an image representing enlightenment and technology, the Olympics looks like people and had a great impact on people's psychology and self-awareness. However, in the Qing Dynasty, there is no historical record or literature to reflect on this exquisite craft, except for Emperor Qianlong's admiration and love for it. Even in the presence of robots, there are obvious differences between Eastern and Western literature and historical facts. There two main reasons: 1) Chinese cultural traditions do not value the crisis of personal self-consciousness as much as Western culture, and robots hardly cause reflection. In China's all-encompassing culture, people do not reject “robots” that resemble themselves, do not create contradictions, but simply appreciate them. 2) It may be related to the calligraphic dolls purchased by Emperor Qianlong, which are much smaller and more doll-like than real people. Therefore, the legends or records of the Song dolls and the “Gold and Bronze Bell” in “Yanshi” did not convey the modern enlightening message to readers. Of course, ancient Chinese legends naturally do not have the modern characteristics of Western modern literature. This is because ancient Chinese legends were self-sufficient according to their own technical, literary, and cultural characteristics, and not necessarily framed by Western standards.

In fact, the traditional Chinese “robot stories” have very limited influence on readers. On the one hand, there are many ghost stories produced by Chinese legends, religious traditions, or folk superstitions, such as the “robot story” of the supine doll, have nothing special or profound to provide, and have far less impact on readers than even folk superstitions or legends. On the other hand, Chinese literature has had little influence compared to European and American Christian culture and modern science (fantasy) literary traditions. However, it is worth exploring how Chinese “robot narratives” has “failed to penetrate into the hearts and minds”, how it relates to modern robot narratives, and how

to reflect China's scientific and technological idea and literary traditions. From a practical point, Chinese society is very curious about technological innovation, which is inclusive and dependent. The public does not deny the convenience of technological innovation, so there is no obvious psychological conflict between Chinese society and robots, such as "technophobia" or "robot phobia". There is a clear difference between the term "robot" in the European and Chinese contexts. The word "robot" in European languages does not need to be translated, and the original meaning of "slave" and "laborer" are self-explanatory. However, translating "robot" into "robot slave" or "humanoid machine" instead of "robot" in the Chinese context may change our attitude toward "robot". Compared with the burgeoning robot science fiction in Japan, Germany, and the United States, Chinese science fiction in recent years is not a hotbed of harmony between machines, and lacks a robot narrative that has a greater impact on a mass audience. Of course, Chinese science fiction has grown rapidly in the past few years, and the audience is expected to continue to expand. What is interesting is that Chinese robot film literature and images of robots from other countries will influence Chinese society's attitudes toward robots through the silver screen. In addition, while traditional Chinese Buddhism and Taoism promote the idea that all things are alive and equal, modern China is also heavily influenced by materialism and has a tendency not to view robots as "artificial" but as human beings with equal spiritual rights. Therefore, it is difficult to think of the Buddha nature of robots, so the factors that influence the formation and development of robot ethics in China are complex.

## 3. Practical Needs and Potential Characteristics of Chinese Robotics Ethics

Unlike European and American cultures, the driving force behind Chinese robotics ethics comes from real needs. In recent years, the development of service robots has been of strategic importance in China, and there is a very real need for service robots in society [3]. Elderly robots have appeared in nursing homes in Hangzhou, Chongqing, and Guangzhou, and intelligent robot toys for children are everywhere, and some people even claim to be married to robots [4]. Apparently, the application of robots involves important issues such as moral ethics, sexual ethics, and emotional interaction. However, although robots have been used in practice, the related ethical discussions have only just begun. The community is also becoming more aware of this, and experts in various fields have started to think about the White Paper on Ethical Standardization of Robotics in China. After the introduction of AI and robotics ethics in several countries, including the EU, Japan, and South Korea, China, as a major robotics country, urgently needs a robotics ethics framework that is appropriate for its society and culture. Chinese society faces unique challenges in some robotics applications, and Chinese ethical culture may offer a different perspective to the international robotics ethics debate. Take geriatric robots as an example: Chinese family ethics may pose a greater resistance to robotic aging applications than European and American family ethics [7]. This is especially true when robots are used for "empty nesters" rather than nursing homes. Unlike the relatively independent elderly care model in Europe and the United States, the Chinese family ethic of "raising children and caring for the elderly" and "filial piety comes first" is deeply rooted. People rely on home care as the main ethical resistance to its application. If children cannot take care of the elderly and can only communicate with robots, then robotic aging will reflect the loneliness and depression of the elderly living alone in modern society and the lack of sincere emotional communication in interpersonal relationships. These images have a greater impact on traditional Chinese family ethics than in European and American cultures. For the discussion of aging robots, Chinese family aging ethics still provides new perspectives and thinking space for the discussion of robot aging ethics.

## 4. Conclusion

In summary, the ethical design of robots should respect the diversity and specificity of traditional ethics and culture, and should be discussed continuously within the framework of cross-cultural robotics ethics. The research content, outreach, and role of cross-cultural robotics go beyond the above examples. At present, the rapidly changing artificial intelligence and robotics technologies and

their applications provide the possibility and necessity for the intersection and integration of different robotics cultures. Future exploration of robotics ethics should combine multiple perspectives, disciplines, categories, and approaches. From a multicultural perspective, it can be seen that at least three areas need to be explored for robotics ethics in China: 1) the challenges and implications that robotics ethics brings to human social, historical, and cultural contexts. 2) generality and specificity. 3) the implications of drawing on Chinese culture for international robotics ethics discussions.

With the globalization of AI development, future robotics ethics exploration should combine multiple perspectives, disciplines, categories, and approaches. The combination of multiple perspectives, disciplines, categories, and methods can help make the relevant exploration both theoretical and concrete, practical and forward-looking. The importance of cross-cultural robotics is growing with the increasing academic exchanges and economic cooperation on AI and robotics in different countries and regions. The future research needs to deal with various dialectical relationships such as relative unity and internal differences of robotics culture, cultural inheritance and dynamic development, difference conflict and heterogeneous inspiration, and cultural pluralism and toward convergence.

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