



## Epochal Challenges: the Robotic Revelation in Anthropology

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### **Abstract**

In this technological epoch, the development of cyborgs and robots has affected perceptions inside and outside anthropology as a new thinking model of knowledge construction. Moore (2003: 7) asserts that ‘science and technology are transforming anthropological knowledge through a transformation of its objects of enquiry’. The robotic technology has posed potential threats as well as brought new hopes to the field of anthropology. This essay illustrates both sides in terms of three anthropological topics—(i) identity; (ii) family structures and values; and (iii) religion. Through analysis, it shows the importance of reducing risks through regulations, seizing opportunities through rethinking old concepts and applying new techniques to the existing knowledge. Moreover, a pioneering spirit is called to face challenges and to make contributions for humanity’s sake.

**Keywords:** Robot; Cyborg; Challenge; Revelation

### **Introduction**

The first being to be called “cyborg”—‘a white laboratory rat’, appeared in the late 1950s in New York (Haraway, 2003: xi), marking a new era in the human history. Since then, the booming development of cyborg and robot has risen strong debates within many fields. For instance, Haraway’s ‘Cyborg Manifesto’, which in Bell’s words generated “an enormous ‘cyberquake’ reverberating across intellectual domains” (Bell, 2007: 91), has put forward post-feminism in both an ethical and a political way. Other disciplines such as philosophical, economic, and medical anthropology are also inescapably under its influence. In other words, there are too many multidisciplinary directions and further questions to be clarified in one essay. Focusing on three main anthropological topics: (i) identity; (ii) family structures and values; and (iii) religion, I will explicate the challenges posed by cyborgs and robots, and illustrate each one with detailed cases. As a pessimistic optimist, when I use the word ‘challenge’ I will analyse potential risks, trying to keep a critical edge on the robotic development, and I will elucidate the possibilities and opportunities at the same time. By nature as an optimist, I look on the bright side and consider robots as both scientific and poetic. Created by people, robots may be the purest blessing for human beings. If applied appropriately, they may expand humanistic spirits in a practical way to somewhere that mortal flesh can never reach. My aim is to make the merits explicit and picture the robotic future of anthropology.

You see things; and you say ‘why’? But I dream things that never were; and I say ‘why not?’  
 —George Bernard Shaw

### ***A Sketch of Cyborgs and Robots in Anthropology***

Cyborgs are commonly believed as ‘bionic, with organic and inorganic components’, they are also defined as ‘hybrids, body-machines, or connection-making entities’ (Braidotti, 2006: 200), while robots are ‘purely mechanical, and are rarely designed to pass for a human’.<sup>1</sup> In agreement with Braidotti, I consider cyborgs at a lower level than robots in the pyramid of technology, yet they have better connections with human beings on a special physical platform. They can lead humans to transform to post-humans, which ‘literally means a person or entity that exists in a state beyond being human’.<sup>2</sup> By contrast, robots are less human-related from the biological perspective and simply function as the autonomous or semi-autonomous, task-oriented devices. However, here I do not particularly distinguish cyborgs from robots, because the teleology of this essay is to illustrate their challenges to anthropology. Thus, it would be reasonable to consider them as an integral phenomenon in the technological environment.

In ‘Cyborg Manifesto’, Haraway (2004: 149) took cyborgs as ‘a creature of social reality as well as a creature of fiction’, with which human beings can understand the post-modernity. Later, this idea was criticised by her colleague as ‘the understanding of post-modernity will not come easily in this way’ (Gray, 1995: 2). In Gray’s opinion, the various ramifications of the types of cyborgs enhanced the difficulty of understanding, which I can hardly agree with. Both cyborgs and robots are ‘tricky terms and wily subjects’, as Dumit and Davis-Floyd remarked. I appreciate their four categories of cyborgs: ‘(1) good cyborgs as positive technoscientific progress; (2) bad cyborgs as mutilator; (3) unmarked cyborgs as a neutral analytic tool; and (4) sign-of-the-times cyborgs as a signifier of post-modernity’ (1998: 1-20). The categorization, as far as I am concerned, is a necessary and fundamental step to understand them since many ‘evil images’ created by films are exaggerated and partial—it would be naive to believe all cyborgs and robots are monsters in *Alien* (1979) or traitors in *Blade Runner* (1982). Fortunately, although the opinions and attitudes varied widely in academia, the pursuing footsteps of knowledge never stopped. Fifty years after the first generation of industrial robots started to serve in the car assembly line, some anthropologists shifted their attention to the robotic applications through empirical studies. Ron Alterovitz and his team, for example, studied robots’ roles in manufacturing, medicine, transportation and other areas, emphasising robots’ functions. Others such as Jakub Zlotowski, focused on the anthropomorphic phenomenon both from a philosophical perspective and from the empirical research of human-robot interaction (HRI). However, the repetition of one view that ‘cyborg anthropology poses a serious challenge to the human-centred foundations of anthropological discourse’ (Gary, 1995: 266) gave rise to, or rather say, strengthened the fear of cyborgs and robots, which was later defined as ‘robotophobia’ and ‘cyber-dystopianism’ (Halpern, 2012: 139). I found Gary’s anxiety quite contradictory to his own definition of cyborg anthropology that ‘as a vehicle for enhancing the participation of cultural anthropologists in contemporary societies’ (1995: 264). Since cyborgs and robots are both socially produced in this technological age, I would like to borrow Haraway’s method of ‘situated knowledges’<sup>3</sup> to further explain my disagreement with Gray. Cyborgs and robots are time and space determined, they are invented in this era because in and only in this context do they have a meaning for their existence, in other

<sup>1</sup> Concepts of cyborgs and robots, see in <http://comicvine.gamespot.com/profile/portrait/blog/the-difference-between-robots-cyborgs-and-robots/64276/>.

<sup>2</sup> The concept of post-human, see in <https://en.wikipedia.org/wiki/Posthuman>

<sup>3</sup> Haraway put forward “situated knowledges” in her essay “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective”. She took it as a way of saying that knowledge is socially produced and so is related to experience and location etc..

words, human beings chose them. There is no point holding empty worries, but to explore the unknown and to face the uncertainties with a pioneering spirit. I fully understand that the possibilities thrill some while the uncertainties scare others as the image of Frankenstein's monster is rooted deeply in their minds. Thus, I will illustrate both sides of three anthropological topics mentioned above, and try to show the bright future of robot/cyborg anthropology.

### ***Robotic Challenges to Three Anthropological Topics***

When it comes to either theoretical studies or the empirical research, cyborgs and robots seem like threats to many traditional concepts, 'identity, family structures and values, and religion' included. Potential risks do exist, while I will not upgrade them as threats. On the contrary, I believe it is reasonable to see problems on the early stage so that we can solve them and design better robotic products. The task for us, as Richard Feynman (1955: 13-15) asserted, is "to do what we can, learn what we can, improve solutions, and pass them on".

### ***Identity***

Without self-identification and self-understanding on the first stage, anthropologists stand no chance to know others, as Oscar Wilde (1914: 1-31) suggested that, 'if you wish to understand others you must intensify your own individualism'. Ricoeur (1991: 71-83) further argues that 'self' differs from 'I', and insisted to build the self-consciousness. With this self-consciousness, human beings try to answer the fundamental question of 'who they are' in the fields of psychology, biology, philosophy and anthropology, while this concept becomes complex due to the external interactions. Through communications and interactions with others, one can know others' perceptions of him/herself. These perceptions from others may affect one's self-identification. Therefore, the concept of 'identity' includes both self-identification and social-identification. When it comes to cyborgs/robots, doubts appear as: (1) Do cyborgs/robots have the consciousness to identify themselves? If so, how do they recognise themselves? (2) How do human beings identify them? Either question may lead to more questions: is their identity a threat to humans? What if human beings can no longer tell the differences between themselves and cyborgs/robots?

The blurring boundaries between humans and machines can be seen from two perspectives. First, cyborgs and robots are becoming more capable and human-like which fuzzes up the difference between humans' identity and robots' identity, as a saying goes, "we didn't cross the border, the border crossed us". Many concerns appeared from a moral perspective. Rosaleen Love believed that 'human beings identify themselves in terms of species, nationality, gender, race, class, and sexual preference', and she wanted to find out if robots can grow into the awareness to identify themselves in the same way as humans do. During her research, she realised the issues of ethic identity by posing questions in a witty way, 'what might happen, if robots learn to identify themselves as turtles or riot police, Russian or American, gay or straight...' (2001: 888) To explicate her worries behind this question, I would interpret it as the fear of robots once they share the equal intelligence with human beings, or even become superior to us. In addition, once robots realise their superiority, they may start a war against human beings. The second perspective is that humans are marching towards the identity boundary themselves. In 1995, Gray did an opinion poll by asking his students who had the 'cyborgian desires'. Depending on sex, age and major, the results varied widely yet in general, about 50 to 80 percent of his students were 'enthusiastic about the transformation of cyborgs'. Some even announced, "I'm trapped in this worthless lump of matter called flesh! I want to be free to cruise the wires and molest people's appliances...long live the new flesh! Fuck the old flesh!" (Gray, 2002: 190) The worship for cyborgian/robotic heroes in Hollywood movies, like *Iron Man*, also reflects the desire of this transformation. If humans become robotic, their

identity must be shifted. By then, are they closer to human beings or robots or post-humans? The risk is during the transformation process, humanity may be lost. This potential risk was put forward by Hogle more than two decades ago. She reminded those who long to be transformed to reconsider about the 'human-ness' left (1995: 213). The moral issues risen by cyborgs/robots' identity will not be completely nor quickly solved as Haraway (1990: 190-223) once declared, 'cyborgs are not still'. The identities of cyborgs/robots keep changing, which requires continuous studies on robots and on their relationships with human beings. The potential risks deserve an eye while comparing with the contributions and opportunities of cyborg/robot anthropology, robots shall not frighten anyone.

In terms of artificial heart and assist devices, cyborgs and robots are making marvelous contributions, which excites not only anthropologists in the medical discipline but any scholar with humanistic concerns. A detailed case is the artificial liver research in the early 1950s. After its success, 'the Japanese national project of developing a new artificial liver system started in 1979' (Hori, 1986: 211-213), saving thousands of lives. Besides, cyborg prostheses provide disabled people with convenience and a chance to lead good-quality lives. At the recent NI Science Festival<sup>4</sup>, scientists started a project which aimed to help paralytic children to play musical instruments with cyborgian devices. Similarly, Professor Oskar Aszmann replaced a young man's barely functional hand with an autonomous hand. When this young man was asked whether he regrets "being a cyborg", unhesitatingly he replied, 'no, it gave me convenience and dignity'.<sup>5</sup> In these projects, I see the opportunity for humans to get rid of not immortal bodies but the disabled parts, and pursue infinity as free figures; and I see the humanity transformed into cyborg bodies to experience the beauty of 'being humans'. It also reminds me of the spirit of artisans in Japan. Japanese people use machines on a large scale and take machines as "the spiritual extension of themselves" (Kondo, 1990: 245). Through crafting and working with machines, Japanese people gain inspirations and new perspectives on their own identities. I believe cyborgs and robots should be identified by human beings according to their contributions. The shifting identities and the blurring boundary between humans and non-humans deserve attentions. While as long as cyborgs/robots are created with good intentions and are used in well-managed ways, they can provide human beings with better self-understandings and higher level of self-realizations.

### ***Family Structures and Values***

Besides the challenges to humans' identity, the development of cyborg and robots affects family structures and family values to a large extent. Under the technological influence, the ever-changing family structures are becoming "cyborgian". New types like surrogate family with cyborgian parenthood appeared, which 'caused extreme changes in Europe and America' (Gray, 1995: 143). Similarly, the family-applied robots in Japan become more accessible to the general public with the government's support. Japanese former Prime Minister Abe had a 'visionary blueprint' for reshaping the family structures and claimed that robots would play a vital role in stabilising families by 2050 (Robertson, 2007: 369). Since the concept of 'family' no longer sticks with the blood tie strictly in a traditional way, family values change along with the new structures. In an attempt to elucidate the new family values, I will first categorise the roles that robots play in the new structured families.

The first role robots play in families is reflected in a recent American movie. The figure of Baymax as 'a personal health carer' has won robots popularity. Baymax takes care of his patients not only with medicine but also with impromptu humor. He has internal scanners and sensors to detect and evaluate threats posed by nearby lifeforms. To better protect his master, he is also programmed with fighting techniques. In this way, Baymax functions both as a family doctor and a bodyguard. Another

<sup>4</sup> NI Science Festival, which was held by Queen's University Belfast from 16 to 26 Feb 2017.

<sup>5</sup> Prof. Aszmann's project: see in [https://www.youtube.com/watch?v=lyFR\\_ymj5x4](https://www.youtube.com/watch?v=lyFR_ymj5x4)

example is the Japanese robot ‘Inobe’, who is ‘connected to the household’s and regional network, and can converse to an impressive extent with family members’(ibid.: 387). Unlike Baymax’s roles, ‘Inobe’ serves the family as a surrogate housewife by performing chores and feeding infants. While both Baymax and ‘Inobe’ are extended family members as assistants. Doraemon, a Japanese pet robot in comics, represents the second category because of his identity as humans’ companion. As a robot cat who comes from the future society, he lives in a boy’s family and uses various high-tech machines to help humans. Schodt (1988: 80) concluded that ‘Doraemon symbolized a popular fantasy among Japanese young children—the little robot as pet’. This kind of robots is described as “the companion species” (Haraway, 2003: 4) and draws many attentions among anthropologists. The above two types are helpful and considerate in the families, while the third role is comparatively unclear with moral issues involved in. In 2001, Steven Spielberg expressed his concerns in the film *A.I. Artificial Intelligence*, which was full of critical thoughts on family roles and status of robots. In this film, the parents lost their kid and the father bought a robotic boy who has emotional capacities to comfort the mother. For a while, the robotic boy enjoyed the fondness from this family and nearly became ‘the kid’. The dramatic plot went with the resurrection of the human boy and the robotic boy was cruelly abandoned by the parents. In an episode of *Black Mirror*, a robot man enters into the life of a hostess, pretending to be her dead husband. Eventually, the unclear role of this fake husband caused her confusion between nostalgia and present. These three types of robots brought both convenience, effectiveness, happiness as well as confusion and pain, which implicates a fact that robots can change the family structure yet should never replace human’s role or status in the family. Family values can be further drawn from creators’ intentions to shape the new family structures. Although Robertson (2007: 380) criticised the domestic application of robots in the Japanese robotic project ‘Innovation 25’ as nostalgic and reactionary, I think in the Japanese context this project can reduce the social pressure caused by the declining birthrate and the rapidly aging population. Thus, it may stabilise the family structure and create family values that in Gray and Mentor’s words are with “good maintenance, technical expertise, pleasures dispersed and multiple, community research and development, improved communication” (1995: 465). I consider this kind of family values based on functionalism, and moreover, humanity. Because with cyborgian/robotic technology entering into families, the elder and disabled can be taken care of, children especially the only child in the family can gain wonderful friendships, women can be free from the concept of ‘birthing machine’ or ‘full-time housewives’... and there are many possibilities have not been explored yet.

## Religion

Religion has caused debates in many fields for a long time. On the one hand, Durkheim (1995: 239-241) argued that ‘primitive religion enables human beings to make connections among seemingly irrelevant phenomenons’, showing the merit that religion can guide people to better understand the world and themselves. Freud, on the other hand, criticised religion as ‘an illusion or a shared psychosis’ (Bainbridge, 2006: 25), desperately hoping humans to build rational minds. Booming technologies intensify the debate as whenever there is an improvement in robotic study, devout believers quake in fear. In an online research, Christians’ responses to robotic technology are negative as many questioned their identities and meanings of existence in the technological age (Tamatea, 2008: 141). Radical behaviours from anti-science groups can be seen from the Luddite activity in the early 19<sup>th</sup> century.<sup>6</sup> Luddites were against the increased industrialization and new technology, and they destroyed many machines which in their eyes took people’s jobs and threatened human’s faith. While at the same time, anti-religion arguments grow vigorously. Challenging the biblical worldview by saying “the authors of the Bible did not know that the Earth is a planet in orbit around the Sun, that the genetic code is carried by DNA molecules, or that the work of the brain is carried out by neurons” (Bainbridge, 2006: 29), Bainbridge suggested that cognitive science has already threatened traditional beliefs deeply.

<sup>6</sup> Background of Luddites, see in [https://www.google.com.hk/?gws\\_rd=ssl#q=luddite&\\*](https://www.google.com.hk/?gws_rd=ssl#q=luddite&*)



All the above arguments show extremely opposite positions and strong conflicts between science and religion. In Carl Sagan's science fiction *Contact*, which was later adapted into a film of the same name, Dr. Ellie Arroway showed her firm conviction about science. Under her father's influence, Arroway was fascinated by astronomy at a young age and kept using radio emissions to contact outer space. After years' efforts, she stood as a candidate for a national science programme that almost made her goal of proving the existence of alien species within reach. Her dream collapsed when a Christian philosopher drew the public's attentions to her atheism. Arroway was judged as less representative of humanity though she argued for her own faith in science. I found the story heart-wrenching yet full of profound meanings. Although Arroway has the suspicion about God's existence, she is not extremely anti-religious. In my opinion, Dr. Arroway is the type of person who simply would like to find the answer by herself, which may differ from the majority but should never be criticised. Her dream of contacting alien species symbolises the longing for daring explorations, which I appreciate as the beauty and purity not only as the spirit of science but curiosity and courage of humanity back to the very beginning.

The purported incompatibility between science and religion in my opinion, hinders the progress of humans' development. I consider both science and religion as methods to achieve humanity without contradictory. In *Inside the Robot Kingdom*, Schodt pointed out that robots in Japan are affected by Buddhism and Shinto, "the word *dogu*, meaning 'tool' was originally a Buddhist term" (1988: 199). In addition, Geraci (2017: 236) believed that unlike 'the Augustinian tradition of Christianity', Shinto—a native animistic belief—"advocates the equality of gods, nature and human beings". Robots in Japan were originally created for the purposes of religion practices and rituals, so the successful co-existence between science and religion is found and applied. Einstein (1940: 1) said, "science without religion is lame, religion without science is blind". As a human being, I believe the farther we look into the distance of cosmos, the deeper we dig into our inner world; the two seemingly opposite directions in this multidimensional universe will eventually roll into one, shaping a globe inside us. This globe is the wholeness of humanity, and to achieve it faster, human beings use technology as the accelerator.

So far, I have illustrated the robotic challenges in three anthropological disciplines, but the existing benefits and even the promising opportunities are not enough to reduce robotophobia. I want to go further with the source of this fear and suggest some actions that humans should take. Several reasons have been mentioned that cyborgs and robots scare human beings as they may get out of control and threaten mortals' identity, family values, faith and even existence. Robotophobia is rooted both in the uncertainties of the rapid robotic development and the lack of systematic regulations to control human beings, and at this stage, I criticise the latter one and call for a change. Because there is still a long way off before robots become more intelligent than humans. I do not mean to disappoint anyone but like Sam Harris pointed out in a speech, "this is probably 50 or 100 years away"<sup>7</sup>. Since there exists a huge gap between improving them and controlling them in a right way, more precautions should be taken against humans' abuse of robots. In spite of the 'cyborg bill of rights' put forward by Gray<sup>8</sup>, practical regulations from political, social, ethic and many other perspectives are required. If regulations failed to keep pace with the robotic development, in the near future, today's worries may grow into serious issues—monopoly of cyborgian/robotic-tech in the medical market, wide-scale use of robotic military among international wars and so on. Thus, I advocate for a global law along with regulation measures to eliminate those worries and pave a path for the technological development, so that humans can use robots as tools for humanity rather than for political or economic purposes.

<sup>7</sup> Sam Harris' TED Talk, see in

[http://www.ted.com/talks/sam\\_harris\\_can\\_we\\_build\\_ai\\_without\\_losing\\_control\\_over\\_it/transcript?language=en#t-612560](http://www.ted.com/talks/sam_harris_can_we_build_ai_without_losing_control_over_it/transcript?language=en#t-612560)

<sup>8</sup> 'cyborg bill of rights', see in <http://lindseycyborg.blogspot.co.uk/2006/04/cyborg-bill-of-rights.html>

## **Conclusion**

The development of cyborgs and robots affects interdisciplinary fields directly or indirectly in this era, with many anthropological topics largely involved. Anthropologists need 'Janusian thinking' to be objective, which means to keep a critical edge and balance the opposite ideas or concepts within one mind. From my elucidation of both sides of the challenges that cyborgs/robots have posed on identity-recognition, family structures and values-reconstruction, and religious belief, I found potential risks controllable and opportunities thrilling. Besides illustrating the dichotomy of challenges, I pointed out the reasons both from robots and humans that caused robotophobia, and argued for systematic regulations to guide robotic studies on a right trajectory for humans' sake.

The theoretical rethinking on identity boundaries, robotic applications in families and religious performances are only the tip of the iceberg of anthropology studies, yet may draw more thoughts and visions. Cyborgs and Robots do not go beyond the human-centred study of anthropology because the teleology of their existence is to serve human beings. I considered them the carrier of humans' collective intelligence, the extended pioneering spirit, and the symbol of humanistic values that can transform human beings into the space that mortal bodies could never reach. Thus, the most important robotic revelation for anthropology as I can tell is to transform humanistic spirit into the bold technological odysseys. I would like to borrow President Roosevelt's words to encourage anthropologists to rethink old concepts in the new epoch. Besides linking existing anthropological concepts to cyborgs/robots, it is far better "to dare mighty things, to win glorious triumphs, even though checkered by failure than to take rank with those poor spirits". For those who have no vision but fear, it is a common scenario as the births of cars, televisions, or Facebook had all caused their trepidation. For those who lack imagination, it is understandable as the first person who dreamed of flying was teased because most of his peers can never foresee Armstrong walking on the surface of the moon. The future always needs people with courage and insight to explore, to build and to write in the right way.

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