



Assessing the Japanese Turn in AI and Robot Ethics: Extracting Meaningful Principles Between Exoticism and Empiricism in the Case of AIBO

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Abstract. The present paper critically examines a recent recurrent pattern of Western scholarship of importing sets of Japanese ethics in artificial intelligence/data/robot ethics contexts without a deeper examination of their meaning and value. The paper's outline is unfolded as such: (1) We draw on material stemming from an ethnographic participant-observer study that followed a debate between Western and Japanese people confronting the robotic AI pet AIBO. (2) We demarcate how many of the proposed Japanese values are practically relevant to the examination of human-robot interaction and how this feeds into existing questions about privacy and safety, in the context of a global overwhelming AI hype and narrative bias. (3) Finally, we discuss how a long history of Western enthusiasm and occasional misunderstandings of Japanese values comes full circle with the recent trend, and we conclude with a set of open questions that require more dedicated empirical research in order to reach more proper and practical value system in the future design of technology.

Keywords: AIBO · AI ethics · Data ethics · Ethnography · Human-robot interaction · Japanese ethics · Roboethics

1 Introduction

Academic scholarship on artificial intelligence (AI) ethics [1, 2, 7–9], data ethics [6, 8–10], and robot ethics [3–5, 18], is flourishing with research and suggestions for the coming future, and we see an accumulation of publications that review and design proposals for a variety of ethical tools in data-driven, autonomous, and robotic technologies. General disagreement about terminology¹ across different disciplines, or even

¹ There is plenty of work to be done given that the variety of technologies and applications conveniently currently placed under terms such as “data,” “AI,” “robot,” “algorithm,” that can be interpreted with an ever-increasing flexibility and unclear boundaries. The many understandings of other umbrella terms such as “ethics,” “justice,” “fairness,” “responsibility,” and the like, only make the situation more difficult and vague.

within specific ones, paired with age-old imaginaries [13] about replicating or outsmarting the human mind seem to fuel the debate and further complicate the ability to assess well new and emerging themes that are constantly added to a growing list of challenges surrounding AI, data, and robotics [23]. Policy debates [14, 19] have been similarly aiming to “catch-up” with the AI hype, currently departing from a period (2014–2017) of largely unsubstantiated concerns shaped by science fiction [11], narrative biases [38], and influential public figures [22]. However, practical everyday case studies appear to be rare and thus missing from the existing literature². Ethics appears to be mostly context-based and the construction of a unified, one-size-fits-all ethical framework is impossible. Ethical and responsible regulation is not only required but crucial, in a sense reiterating the old Collingridge dilemma of control [24, 25]: Would it be possible to implement a technology that might be risky without ethically regulating it? And can there be an ethical set of values that will be globally accepted and respected? Mundane examples and observations of existing applications appear to be the only viable approach to extract meaningful considerations about ethics in each and every one of those domains. Empirical descriptions of each and setting of boundaries are the first step in starting to understand the ethical limits and in leading to safe and friendly technological future.

Given the aforementioned challenges in generating an all-encompassing set of ethical principles for AI/robot/data-related questions, we focus on three particulars in conjunction: (1) everyday human-robot interaction (HRI) in the case of a commercially available and successful AI robotic pet, as this is observed in (2) a specific geo-cultural environment (Japan), and finally putting into test existing proposals about a Japanese turn to AI/robot/data ethics. This study started as an experimental collaboration bringing together two lines of research: one of the authors collaborated in an ethnographic study of users interacting with Sony’s robotic pet AIBO, while the other worked on a critical review of an observable trend in scholarship that involves Japanese ethics in discussions about AI/data/robot ethics. Our goal is to critically explore and compare our findings, and question to what degree are the supposedly Japanese ethical principles projected in non-Japanese AI/data/robot debates accurate. Our hope is that this initial study can open the door to new ethical values and ideas that can start a more concrete and feasible discussion on ethical regulations, as well as legal laws, of HRI and the development of advanced AI.

AIBO is a good candidate object of research as, technologically speaking, it brings in aspects of all three main strands of technology ethics we have mentioned so far: it is a robot that is intended to function and communicate with humans on a daily basis (HRI, roboethics), it uses AI algorithms (AI ethics), and its latest models are in a constant connection to the Internet cloud, which means it is constantly exchanging data with other robots of its kind and constantly gaining knowledge and information (data ethics). Other robotic pets in Japan³, are also intended to be part of a global network connected to a cloud and constantly improving itself and its interaction with the

² Perhaps with the exception of algorithmic-based decision-making and injustice.

³ The broader ethnographic project of which a segment is used in the present paper, also involves the experimental stage of a robotic cat that is to be discussed in future work.

humans they serve. As described by Wikipedia authors by the time writing (19-02-2020), “AIBO (stylized aibō, Artificial Intelligence Robot, homonymous with aibō (相棒), “pal” or “partner” in Japanese)”, hence its commercial success and inclusion in numerous households justifies its selection as an optimal case study for the practical ethics in HRI. In addition, AIBO has a long history in Japan and is known by many Japanese as well as foreign users. There were several generations of AIBO so far, and it keeps developing, growing and gaining more popularity in households with each new and improved generation.

Before proceeding, and past the brief introduction of AIBO, we would like to refer to the term “AI” and the approach we have implemented in this work (including its corollaries “robot,” “data-driven,” and so on). While, as noted earlier, the term is being largely hyped and flexibly interpreted, for this work, we will use definitions that apply to the kind of AI technology specific to AIBO (to the extent that the brand itself claims to have “AI” as part of its name). Hence, AIBO can count as an application of Blay Whitby’s non-anthropocentric assertion that AI is “the study of intelligent behaviour (in humans, animals, and machines) and the attempt to find ways in which such behaviour could be engineered in any type of artefact” [40]. In particular, AIBO further satisfies the softer view of intelligence in humans, animals, and certain machines, that is, “that quality that enables an entity to function appropriately and with foresight in its environment” [41] and does so by being a mixture first- and second-wave AI [37], that is, an embodied data-driven manipulator of programmable symbols and neural networks. AI is not only about replicating intelligence (which in itself is a term and idea that is still negotiated and unclearly defined) but also – and in this case mostly – about the ability to present human intelligence in non-human life forms and things. This model of AIBO has the ability to react to emotions, and even more, to adjust to the behaviour of a unique owner and obey only the owner’s voice and commands. These patterns make it seem intelligent and obtaining the ability to behave in an intelligent form in terms of studying behaviour patterns as well as human emotions. We acknowledge, and largely sympathise with, bodies of literature appreciating intelligence (and hence AI) as an emergent behaviour of systems as opposed to intelligence as property of information processing equipment such as brains or computers [21]. In this sense, while AIBO is considered by its manufacturers to be developed with AI software, and while humans who interact with AIBO are considered by commonsense to have natural in-born intelligence, we are interested in the opportunity of studying intelligence traits as the emergent behaviour of this HRI. We abstain from metaphysical/mystical discussions and all statements about agency are effect-oriented and not ontological.

The paper unfolds in the following order: past the present introduction of our theme follows an exemplar ethnographic observation stemming from one of the two authors’ larger project, further discussed in the next section that reviews the current trend in mixing AI/data/robot ethics with Japanese ethics; the conclusions summarise our findings, acknowledge limitations of the paper, and offer suggestions for future work. We summarize the analysis with themes relevant to the current changes of COVID-19 and the adaptation of robotic pets and their sanitation that is developed in order to meet the demands of the current and future new hygiene requirements. Our different fields of

knowledge (science, technology and innovation studies with applied anthropology and ethnographic methodologies of analysis) and view of Japanese culture on the one hand and our distinct approaches to issues of ethics and technology on the other allow us to unite and design what we hope will be an original creative way to look at the issues and to offer a set of adaptable multicultural *mélange* of values and concepts relevant to existing ethical debates on practical technology ethics.

Interestingly, in 1983, the British clinical psychologist, Neil Frude, published his book *The Intimate Machine* in which he proposed the development of intimate and romantic relationships between people and machines through animism as a connector [36], and his ideas raised anxiety rather than excitement in the mid-1980s Western context; waiting for the post-2010s for scholars to project the orientalist/animist vision as a valid proposal in AI/data/robot ethics. By that time, robots and artificial pets were already part of Japanese life and social relations. When the West was haunted by *The Terminator*, the Japanese created robot toys and games, some bearing the images of Buddha and other Japanese gods, *kami*, since each one can be a god in Japan. How do we learn to relate and to feel a difference between humans, objects, and non-human living life forms around us, and why? When is an AI robot a source of pleasure and when a source of fear? Are the emotions towards the objects that surround humans embedded in humanity from conception, or are they culturally and politically constructed and manipulated? After nearly a decade of scholarship in the area, what can ethics, policy, and governance learn from the real Japan about the value of Japanese ethics in AI/data/robot ethics? Is Frude's vision reincarnated? The following empirical section aims at offering a point of departure to debate these questions empirically.

2 Living with AIBO: Notes from an Ethnographic Observation

These questions were in my⁴ mind when I was on my way to one of Sony's AIBO centres, located at a major department store in central Tokyo, heading for a meeting with a Japanese business venture that was interested to design a new robot pet. The business was a new startup company managed by two young people who wanted to understand well the market of robotic pets. The new and small AIBO was just out in the market and provided a good opportunity to observe different reactions of people who came to play with the "doggie". Facing a fast aging population and a generation of people who live alone, the placement of the robot as a friend, family-substitute, and close emotional support becomes increasingly important and receives substantial government support. Sociological investigations of surveys about happiness and economy conducted by the government indicate clearly that the collapse of the traditional community and the loss of the value of social connectivity (*tsunagari*), that used to be the main support of people throughout Japan, led to many of the social problems seen today, such as retreat into virtual spaces, declining marriages, and suicides [33].

⁴ Given that this section expresses the ethnographic observations by one of the two authors, we use first-person singular to retain the personal experience where appropriate.

Artificial companions, especially AI/robotic pets, are considered a good solution in Japanese society, and the robot pets became part of a rising culture focusing on “healing” (Iyashi), intended to provide psychological cure for possible loneliness among the growing population of the “living alone (hitori-gurashi)” people.

The idea of “healing” appeared as an important cultural value already in the 1970s and 1980s and was part of the New Age wave of spiritual and holistic awareness. Yumiyama described it as an important idea contributing to the value of social harmony and better community life since healing leads to peace and smooth relationships [35]. The concept “healing” was attached to everything: healing nature, healing cooking style, healing clothes, healing therapies, everything that could help one calm down and feel better. However, with the changes of social and economic life that Japan has been going through since the beginning of the millennium, the large-scale “spiritual boom” is fading away and new forms of smaller groups and personal healing are taking over focusing on the value of self-cultivation which is a central ideology in Japanese healing methods [34]. Actually, the care of the self is so important that acceptance of help or support from outside is seen negatively and reduces dramatically people’s levels of happiness and confidence [33]. These values stand in strong opposition to the West where psychology and psychotherapy encouraged mental health by talking, sharing, and seeking help.

Clearly, the task of making a friendly robot pet that can become a companion and a healer is complicated and faces many technological, as well as emotional, challenges in the process of designing a reliable illusion of self-awareness. Sony surprised its customers introducing a version of AIBO with a “self-decision capability⁵” (it can “decide” to obey orders of the owner or not), awareness of its approaching “death” when the battery runs out (it can “feel” beforehand and reload itself without human help), a flexible body that moves when being touched, and a sophisticated set of facial expressions and vocal sounds. As I was standing in front of my favourite AIBO, named Shinobu, the technological success could be explained by the personal attachment I felt towards Shinobu after playing with it only twice. Two times were enough to create attachment.

As I was observing the people around, a young child of 3–4 years, walking with his mother nearby, stopped in front of Sony’s booth and wanted to play with the doggie. The mother seemed glad to take a short break, pulled her smartphone from her bag and stepped aside to check while the child went to play fetch with Shinobu which seemed to hesitate if to obey orders from the child or not. I was curious to see how a robot pet makes “decisions” in such situations. Shinobu looked somewhat confused, moved one paw to the front, then back, then stared at the people around as if unable to decide whether to proceed or not. It started barking in the cutest voice and the audience was laughing. Suddenly it sat down looking at the people around.

Right then, a group of probably foreign tourists entered into the store and quickly noticed the cute AIBO doggie and the people that gathered around it. The group

⁵ Acknowledging several misleading anthropomorphisations, we stress by the use of inverted commas the strictly metaphorical use of human faculties (e.g. thinking, deciding, perceiving) that are used to express briefly their symbolic representation in computational languages.

consisted of eight people who were chatting noisily in English, joking about the artificial dogs on display. But they kept their distance. They were all Americans, and when I asked why they did not get closer and play with AIBO, one of them said: “I can’t stand these artificial things, there is something scary in this.” My Japanese colleague was confused. “It’s a toy,” he said, “it’s not pretending to be a real dog.” No comment came in response. One man from the group approached and tried to understand how it works. The Sony people were happy to explain and all went well. He smiled, but only until he heard about the self-battery innovation. Then he seemed worried. He turned to the other people and asked to the sound of embossed laughter, “what do you think he is doing when we go to sleep?” Another American man started talking about the fact that the Japanese feel comfortable enough with artificial things but Americans do not, though he couldn’t explain well what he meant by “not comfortable.” They all felt the dog’s independent skills were disturbing. “Who knows what they put into these things with all their cameras and AI? Normal people don’t understand, they don’t explain, and this looks too weird.” However, for my Japanese colleagues, AIBO was only a tool of healing and relaxing.

Suddenly, one of the women in the group noticed the young child playing with the robotic doggie and immediately became worried. The child put his finger into AIBO’s mouth and the robot was pretending to suck it, another one of the doggie’s unique technical skills. “Why is this child playing with this thing alone?” she asked loudly, “it can bite his finger off!” I showed her his mother was nearby but she just said, “I don’t understand how a mother can let such a small kid play with this machine alone.” The conversation continued in a ping-pong of fear and misunderstandings. One of the men mentioned he could not avoid the unpleasant feeling he had regarding specific gestures, being “overwhelmed by feelings of worry and discomfort,” especially when AIBO seemed to think or refused to fetch its bone. At some point one of the people noticed the camera on the backside, near the tail, which enables it a full 360° vision. He seemed shocked. “Why does it need this ability to see me everywhere?” he asked and added frustrated, “Japanese are really weird, what’s wrong with a real dog?” The woman who was worried about the child gave a last upset look at his mother and added, “this is the last step before a killer machine, how can’t they see that? This thing can develop itself, it can become something else, it’s like these drones that you can’t see and they see everything about you. It’s dangerous!” It was clear that for the Americans it was the materialization of the much hyped AI killers that will bring the end of humanity and life of Earth, as projected through public commentators like Elon Musk and Stephen Hawking [13, 22]. The embodiment of The Terminator. But the Japanese were only confused, “these people are strange, can’t they see it’s just a toy?”

3 Glimpses of the Japanese Turn in AI/Data/Roboethics: A Critical Assessment

The present section will examine the conflicting views between the given empirical incident and AI/data/robot ethics literature referring to Japanese ethics, demonstrating the occasional wrong translations and misconceptions of Japanese concepts which sadly occur quite often even nowadays. In the minds of many non-Japanese, Japan has

an image of culture that is leading in advanced technology, with highly developed and sophisticated AI and robots in many different fields. From a cultural history of Tezuka Osamu's *Astro Boy* [15] to the great hype in the 1980s that surrounded the Fifth Generation Computers programme [26, 32] and the more recent Society 5.0 strategy [27], the interplay between artificial forms or replications of life and sustainable living have been at the forefront of Japan's industrial, governmental, and technological research interests. The global rediscovery of the uncanny valley hypothesis [28, 30], that escaped its initial domain on prosthetics applications of robotics and extended into robotic assistants, virtual reality, or aesthetics at large, is a good example of the way Japanese thinking becomes exoticised in the understandings of non-Japanese scholars and consumers of theory. Anthropologist Jennifer Robertson's recent book *Robo Sapiens Japonicus: Robots, Gender, Family, and the Japanese Nation*, was a detailed attempt at bringing to a non-Japanese speaking audience the different layers of robots in Japanese society, from policy to the household [15]. Robertson has been flagging out how Japanese theorisations about robotics are paired with long Buddhist and Shintoist traditions according to which all matter is to be treated in a ritualistically respectful way. It is interesting, however, that this relationship between Japanese spiritual tradition and technical innovation has been emphasised in international debates only in the last 15 years, that is, since the third revival of AI and robotics hype.

Before exploring the current wave of Japanese AI/data/robot ethics, we will refer to two thinkers from the previous century: Lafcadio Hearn and Vilém Flusser, both of them Western thinkers whose tragic life and social context led them to find shelter in Japan (literally in the case of Hearn who moved to Japan, and metaphorically in the case of Flusser who spoke about the orientalised of the West). In that, we are following Irmela Hijjiya-Kirschner's assertion that "[l]ooking back into the past, we can discern typical patterns of 'differences' and 'similarities' in the perception of Japan, and while these judgements remained surprisingly constant throughout the centuries, we can also see how these images were utilized on both sides for political purposes" [16] – and across the lines of "political," we read academic, ethical, manufacturing, policymaking, and so on.

Lafcadio Hearn, also known by his Japanese name Koizumi Yakumo (1850–1904), after a tumultuous and life, tragic in many respects, found himself in Japan where he became one of the most well-known Japanese folklorists in the last 15 years of his life. Hearn opposed the dominance of Western industrialisation over Japanese traditions, partly being an enthusiast about this culture, and partly seeking something different, and hence safe, against the world that treated him as different. In the words of Allen Tuttle who has written the only existing scholarly article on Hearn's ethics in 1949: "Having fled the strong wills and broad shoulders of the West to a land of enchanted miniatures, where the lotus was actually eaten, he could not forget that he was still a spiritual alien, seeking absolutes in a world of relativity" [17]. Hearn's descriptions of Japan speak about "its extraordinary goodness, its miraculous patience, its neverfailing courtesy, its simplicity of heart, its intuitive charity" (from his classic book *Glimpses of Unfamiliar Japan*, 1894 [17]). In the same book, he further states that Japanese people of his time lose their kind manners only in ports, where in contact with European tradespersons, thus expressing his aversion to Western culture.

Vilém Flusser (1920–1991), who living a very similarly tumultuous and migratory life, developed his existentialist philosophy of media and communication built on the idea of nomadism, while a typical theme in his writings was the interplay between oriental and occidental traditions. For Flusser, who occasionally defended orientalist views in his writings, an initial harmony existed between the Western appreciation of the gigantic, with capitalist large cities, buildings, and corporations being its greatest effectuations, and the Oriental appreciation of the minuscule, the zen minimalism, and the selflessness. However, in late capitalism, the Western exploration of the East results in a perverse capitalisation of the minuscule. Although written in 1983, this passage appears to be very relevant in contemporary debates about data ethics: “The tiny is even less human than the gigantic. The gigantic may be at least ‘admired,’ but the tiny disappears from view, it is ‘worthless.’ The ‘small man’ and ‘self-management’ are even less human than the ‘big men’ and the multinationals. Never before has man ceased to be the ‘measure of all things’ so radically as with miniaturization. In miniaturization, man becomes a particle, ‘information data,’ ‘bit,’ or worthless entity” [31]. Hijya-Kirschner, in her article “A Farewell to Exoticism—Japan and the Western World,” is the first to make an argument that Flusser was already dismayed by the Western distortion of Oriental philosophy, precisely because he was in deep appreciation of the latter. She translates the following revealing passage from Flusser’s 1973 autobiographical text:

“Oriental tradition therefore appeared to us not so much as the antithesis of Western tradition, but as a structure into which Western tradition could be integrated [...] The East was superior to the West, not because it had a better perception of the same things, but because it had no perception whatsoever; not because it taught us higher values, but because it knew no values; not because it taught a true faith, but because it taught no faith at all... To admit this proves that we read the Eastern texts completely differently from the Western ones... Therefore, our very approach to the East contained the seeds of our later feeling of superiority towards the East.” (Flusser in [16]).

Hearn criticised, in English language, Western habits by stressing the values he saw prevalent in Japan; and Flusser criticised, mainly in Portuguese language, the Western habit of misconceiving Japan. These two steps are crucial in our theoretical understanding of a stereotyping misconception on behalf of the Western culture, typical of a long orientalist tradition in the West. In a sense, the overall outcome of what Flusser denotes as Western superiority over the East, can be seen in the reactions of the American tourists who instantly boxed Japanese “weird” culture in the way they did (although it was their choice to travel there).

The first printed (although not widely cited at the time writing) account on the importance of Japanese ethics in robotics came from the Japanese scholar Naho Kitano, and was included in a 2006 information ethics journal issue dedicated to ethics in robotics [18]. Kitano’s argument is that the Japanese concept of Rinri (elsewhere written as Rin-Ri), that is “the reasonable way (or course) to form the order and to maintain harmonized human relationships,” and its promotion of “the superiority of social harmonization over the individual subjectivity” as an extension of the belief in “spiritual life in objects or natural phenomena” (Kitano in [18]). For Kitano, AI/robot-related ethical questions Westerners have been concerned with (moral agency, civil rights, robotic overlords, etc.) are not part of the Japanese discourse on the topic

because “[i]n Japan, the direction of such discussions is more practical than theoretical/philosophical” and “this contributes to accelerate robot R&D, and after all, leads to legitimize the being of social robots in the human society with its consequent necessary regulations change.” Thus, the discussion focuses on social harmony of all participants in society – humans, animals, nature, and objects – rather than an anthropocentric set of values. Kitano explains Rinri as “the study of the community, or the way of achieving harmony in human relationships” where “each individual has a responsibility toward the universe and the community” – hence, from a Shintoist perspective, as long as Rinri is taken as a fundamental principle in design, the development of such technologies cannot be non-beneficial or harmful for society. Most probably, this captures to a great extent the Japanese people’s responses in the aforementioned discussion of the previous section.

Spyros Tzafestas’ 2015 volume on Roboethics appears as one of most analytical collection of approaches to the field, although probably prepared and certainly published exactly on what can be perceived to be the hype transition from roboethics to AI ethics⁶. In opposition to Western ontological views and in agreement with Kitano’s ideas, Tzafestas dedicates 21 pages of his book to explain and demonstrate the relevance of Japanese ethics to roboethics [5] by emphasizing Japanese culture’s avoidance of “abstract concepts in several issues of life” and “straightforward emotional expression” in order to create an optimal framework for a harmonious cohabitation of humans and robots, “based on the exploitation of the relation among human, nature, and artifacts” [5].

Tzafestas further refers to the Japanese concepts of “Shinto (relation to past),” “Seiken-Tei (everyday appearances),” and “Giri (duty),” which, in his view, extend to further values of Japanese culture that feed into design principles in robotics. Such values include: “Iyashi (healing, calmness), Kawai (cute), Hukushimu (living), Nagyaka (harmonious, gentle), Kizutoku-Kokoro (sensitive inner minds)” [5]. For Tzafestas, and intercultural roboethics, taking into account both Western and Japanese (as well as other cultures’) ideals for designing robots is crucial for the development of the domain. It should be noted here that one of us, being fluent in Japanese, suggests that the translation of some of these concepts is inconsistent to their official dictionary translations; while some words such as Hukushimu do not appear in most dictionaries, something which raises the problem of translation at a higher level of metaphorical abstraction in Western orientalism. Tzafestas refers to these principles without specifically linking them to examples, and while values such as cuteness or healing (with “soothing” being more adequate than calmness) indeed are taken into account in Japanese robotic design, principles such as duty or the inner mind, although important for Japanese culture, are not specifically applied to robotics.

⁶ Although, a sociology of AI/data/robot ethics is lacking; and is beyond this paper’s scope.

Closer to the data ethics strand, Mireille Hildebrandt's 2016 book, *Smart Technologies and the End(s) of Law: Novel Entanglements of Law and Technology*, dedicates a chapter to "The other side of privacy: agency and privacy in Japan." Hildebrandt stresses that "the Japanese legislation on privacy and data protection has been enacted merely to comply with the demands of Western trade partners⁷," and that the Western concept of privacy is external to Japanese tradition to the extent that the Japanese word for privacy is actually the imported English word – *purabashii* [20], that means a *gaikokugo*, or "foreign word," a transvocalised version of the idea of privacy in other cultures outside of Japan. Hildebrandt's work contributes to a list of Japanese values that do not speak to HRI only, but also in terms of humans' relationship with their conceptualisation of privacy. According to her, these values are "the 'Inbetween' (Aida)," "politeness as 'Face' or 'Place' (Basho)," "Situating Discernment (Wakimae) and the Culture of 'As-If'," and "the Indulgence of Restraint and Acuity: *Amae* and *Enryo-sasshi*" [5]. While space limitations do not allow for a thorough analysis of these values (and criticisms of their translations as similar problems occur like in the case of Tzafestas), the following passage is capturing the essence of Hildebrandt's understanding of Western ownership of privacy as opposed to Japanese environmental affordance of privacy:

"In Japan, to recognize and qualify particular interaction patterns as a manifestation of privacy requires sensitivity to privacy as a relational concept, rather than an attribute of individual persons. The question is not whether a person 'has' privacy, but whether the environment 'affords' a person a degree of privacy. The 'environment' refers, first, to the material surroundings of an individual person, such as walls made of stone or paper or the presence of specific monitoring technologies, and, second, to the interpersonal and institutional environment that determines disclosure of our various identifications" [5].

Interestingly, the concept of privacy in Japan has been explored by several scholars, especially after the adoption and implementation in Japan in 2003 of the Act on the Protection of Personal Information (sometimes translated as Data) [55], tracing the meaning of privacy in Japan as perceived in a very different way than in Western societies, however, influenced by the latter [54]. Most authors agree that privacy exists in Japan as expected in a collective society that developed based on what Takeo Doi identifies in the concept *amae* which explains this mutual dependency and the value of cooperation as a core principal in Japan [51]. This array of articles mention Doi's ideas of privacy and separation of *uchi/soto*, the inside-outside, as a key to understand the uniqueness of Japanese privacy [51, 53, 54]. Of particular interest, is the history of the development of the concept of privacy since the Meiji Restoration; as Adams, Murata and Orito point out, the Meiji Constitution of 1889 included specific references to the protection of personal information, something that is at apparent odds with the idea of trust in a collective society [53]. However, according to these authors, this complementarity of opposites is the key to understand the uniqueness in Japanese perception of privacy. In such a collective society, the individuals inside a group, the *uchi* group, depend on each other and this guarantees trust; with simultaneous respect to each

⁷ Cf. Hearn's comment on Japanese kindness being "poisoned" only in ports where locals came in contact with European tradespersons.

member's private information. Finally, harmony is also the key to understand information privacy in the modern age. However, these already relatively contradictory presentations of Japan are rather theoretical interpretations. It is useful to take a look in more empirical examples.

The debate between American tourists and Japanese locals, in the way of fears expressed by the Americans, is indicative of the way data ethics of privacy can be part of AI ethics of safety, when, in the case of AIBO becoming a dangerous opponent equipped with a camera, privacy is at stake, and separates the toy function from the robot; as opposed to the Japanese view showing that the "toyiness" of AIBO grants privacy and safety to the environment. But how much of this can be said to be valid in cases of unintended uses of technology, such as the scandal of Cambridge Analytica [7]? Privacy issues exist as part of a growing research agenda of the AI-robotics-online-media-data-digital ethics spectrum. The most common point of challenge in the user-technology interaction is the "privacy paradox" [46], that is, the increasing awareness of connected technology users who have privacy concerns about the potential harmful misuse of data provided to the systems oddly competitive with the increasing usage of such systems. To review the entire array of this literature would be futile for the scope of this paper⁸, however, it would be useful to look at certain recent (post-2019) empirical studies offering sufficiently opposing results, examining similar subjects from slightly different perspectives. US-based participants surveyed by Lutz and Tamò-Larrieux [46] are "concerned about data protection on the manufacturer side, followed by social privacy concerns and physical concerns." A similar survey on general attitudes towards implementation of robots (not necessarily social robots) in everyday life showed that "attitudes towards robots in Europe have become more negative between 2012 and 2017" [48] (nonetheless, this period has been marked by the simultaneous AI-phobia hype as shown in [22]). Kertész and Turunen's international survey of AIBO users [47], offers a very comprehensive and broad scope of questions, including gender, age, and cultural background (but unfortunately does not control specifically for privacy of similar specific cultural traits). Their survey finds a rather negative attitude of Japanese people towards AIBO, thus, being antithetical to the stereotypical notion, as they emphasise, of Japanese people's likelihood towards robots. We did not meet such reactions in our research and we attribute it to the unique perception of privacy in Japanese culture.

3.1 Comments on Intercultural Responses to COVID-19 and Existing Challenges in International Policy and Research Practice in Pet Robots

Between the initial research and the final study of the current work, the world, faced the challenge of the Coronavirus disease 2019 (COVID-19), with numerous lessons to be learned in the near and far future. On a blog post, international and Chinese business lecturer Xiaobai Shen suggests that cultural differences in terms of privacy

⁸ The literature on privacy challenges mutually shaped by technological advances is constantly renewed [52].

intrusiveness between the UK and China, enabled regions in the latter to return to regular working habits in a matter of weeks by accepting the use of digital health apps that have caused a series of concerns in the UK and other Western cities [45]. According to one of the statements she collected about the question concerning intrusion: “Yes and no. Are we not intruded on from the day we are born?...; we also intrude on others.” This represents well the Asian perspective on the collective society and the place of the individual. The different values are also well-observed when it comes to personal hygiene and the attendance of health issues in objects and people around.

The swift appearance of COVID-19 resulted in heightened alertness to health problems and the need for anti-viral external layers in material objects, especially metal-made objects that seemed to be able to enable the virus for long time. While many parts of the world had to learn new forms of cleanliness and go through hand-washing training, the Japanese didn’t need Covid19 to learn the value and importance of body hygiene. Purity and cleanliness are central concepts in Japan’s religion, Shinto, and they are celebrated regularly by daily rituals of hand cleaning with alcohol napkins, teeth brushing after every meal, and the night bath. The practice of purifying the body outside of the bathtub, the traditional *ofuro*, originates in the Shinto belief that people soak in clean water after they have purified themselves, inside and out, from their daily interaction with the mundane world [56]. Any interaction with the world outside is a process of contamination.

The obsession with cleanliness and high level hygiene is observed in every small aspect of Japanese daily practices: clean cloths, an endless variety of good smells and deodorants for every small part of the body and the house, the little alcohol napkins each one is expected to carry in the bag. A simple glass of water is always served with an alcohol napkin, and people automatically clean their hands thoroughly before touching anything, even their own glass of water. It is easy to understand why the eruption of the virus led to emphasis of practices that had already existed and need to be extended to new objects. Products that had already existed won an upgrade and media attention, such Maruzen’s anti-viral textile products [57] and Tokyu Hands which has launched a series of anti-bacterial and anti-viral products [58]. Walking in the department of new hygiene and sanitary products, the shop sellers were demonstrating each product and its uses for specific types of objects, lovely robots obviously included with their own special spray.

Linking this to the previous discussion about Rinri, ethics and the individual responsibility in Japan are also a core value in body purification and maintenance of hygiene and health as part of social responsibility towards other people and respect towards the heaven, in contrast to the western perspective which regards hygiene as part of the care of the Self.

From our paper’s perspective, we wish to further stress two dimensions relevant to near-future research, in order to address the disruptive nature of technological progress often problematised by the entrenchment of solid expectations: (a) the practical health issues and the role of policy and regulation of their production and distribution, interwoven with (b) large-scale cross-cultural differences that seem to be growing and gaining vast importance beyond the ones examined in this paper. During the early days of the COVID-19 the other side of exoticism was apparent in the West, as several cases

of racist commentary against an abstract scapegoat notion of the East was covered, including cases of speciesism against nonhuman animals associated with the disease. In the case of a popular, embodied, interactive, and zoomorphic product manufactured in Japan, these challenges are already being resolved. Future discussions should take place at national as well as international levels since they have an impact on the materials used and the forms of interaction between humans and robots globally. Hence we recommend that lessons have to be learned from a long history of innovation systems and basic scientific research interacting with science and technology studies as well as cultural studies [43]. The symbiotic relationship between healthcare and innovation, often obstructed by political constraints and shaped by symbolic cultural narratives [44] is a growing empirical field that has to be benefitted by and benefit the investigation of post-COVID-19 robotic companions' technological trajectories, especially since robots enter the healthcare world and are becoming part of hospital care and support.

How helpful can all these frameworks be to any AI/robot user (no matter the geographical location) when the very foundational “stuff” of AI and robotics (units of separable data), refer to an already Western ontological traditions of formal logic [37] that are incompatible to equally Western idealisations of Japanese ethics? This full cycle of Western spiritual escapism to exotic morals in ages of technological uncertainty has to be studied in finer detail, and this paper offers only a very early stepping stone towards the investigation of the informationally rich but likewise complex arena of ethical and technological forking paths. The empirical work conducted in the area is growing and will most likely need be revised in light of responses to the pandemic, new regulations of merchandise, development restrictions, and the changing global market needs. Current proposals to implement algorithmic schemes based on decision trees to AI and robotic systems to render them “beneficial” [2, 49], although innovative, are far too simplistic to accommodate any of the aforementioned frameworks or to resolve any of the challenges in a purely mechanistic manner. “Interaction” in HRI should be the key concern in ethical debates that tend to place more emphasis either on the human or the robot/AI. As Grudin has shown [50], every period of distrust in AI (the so-called AI winters), equals to a human-computer interaction (HCI) summer. It can be possible that given the recent advances, this HCI summer will extend to HRI as well.

4 Conclusions and Future Work

Moral uncertainty related to Western industrialisation has led thinkers such as Hearn (in the early steps of industrialisation), Flusser, or Frude (in the turn to post-industrialism), to look for alternative, non-Western ontological frameworks, often associated with oriental worldviews, such as Shintoism, Rinri, and other sets of Japanese Ethics. A similar turn appears to be found in the post-2010 hype curve of AI/data/robot ethics, generating an observable (Western) socially constructed narrative bias [38] of exoticism as alternative to other similar biases such as the AI robot killer. We would like to maintain that in principle “[b]eing a collective society, harmony and social peace are the most important values in Japanese culture exceeding individual satisfaction, especially in the public sphere” [39], and we would aim at promoting such values

beyond the stereotypically Japanese scope; in a sense, to be able to “perform” the valuable lessons from the Japanese traditions in the same way that actors around of various backgrounds appropriate Japanese theatrical styles such as Kabuki or Noh. In this paper we have reviewed such proposals and comparing them to an ethnographic experience of a single encounter between Western and Japanese cultures, we find that much of the discussion of Japanese ethics in these technological domains is redundant, and even misleading. Nonetheless, the empirical case study is very much limited; and the theoretical templates examined are focusing on the Japan-related proposals only. There exists a multitude of empirical case studies to be conducted and assessed with different technologies, and, as cited in the introduction, an abundance of AI/data/robot ethical frameworks to test. To this, we should add the ensemble of rearrangements in terms of health supervision, policies, research practices, and attitudes towards robots, in light of the COVID-19. Given that AI and robotics is often perceived as an imitation or augmentation of intelligence, more fundamental comparison between, for example, European and Japanese understandings of art and mimicry and the social history of artificial life; but also, the acceptance of death. How can these be implemented to HRI? Or better: how can we use HRI to assist human existence in a world in which the disruption of harmony becomes the main rule? It has been shown in the literature, that Japanese ethical principles such as Rinri and the value of healing are perfectly compatible with Western understandings of systems thinking, such as Gregory Bateson’s ecology of mind, or Félix Guattari’s ecosophy [12, 13]. A more fruitful and international dialogue between orientalist traditions (instead of their romantic projections by Westerners) and Western pluralist ontologies in light of everyday life applications of AI and robotics is lacking, and this paper aims to stress the need for a consistent cross- and inter-cultural examination of these.

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References

1. Vakkuri, V., Abrahamsson, P.: The key concepts of ethics of artificial intelligence. In: 2018 IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC), pp. 1–6. IEEE (2018). <https://doi.org/10.1109/ICE.2018.8436265>
2. Allen, C., Smit, I., Wallach, W.: Artificial morality: top-down, bottom-up, and hybrid approaches. *Ethics Inf. Technol.* 7(3), 149–155 (2005). <https://doi.org/10.1007/s10676-006-0004-4>
3. Poulsen, A., Burmeister, O.K., Kreps, D.: The ethics of inherent trust in care robots for the elderly. In: Kreps, D., Ess, C., Leenen, L., Kimppa, K. (eds.) HCC13 2018. IAICT, vol. 537, pp. 314–328. Springer, Cham (2018). https://doi.org/10.1007/978-3-319-99605-9_24

4. Lin, P., Abney, K., Bekey, G. (eds.): *Robot Ethics: The Ethical and Social Implications of Robotics*. MIT Press, Cambridge (2012)
5. Tzafestas, S.G.: *Roboethics: A Navigating Overview*. Springer, Berlin (2016). <https://doi.org/10.1007/978-3-319-21714-7>
6. Birhane, A., Cummins, F.: Algorithmic Injustices: towards a Relational Ethics. arXiv preprint [arXiv:1912.07376](https://arxiv.org/abs/1912.07376) (2019, under review)
7. Kerr, A., Barry, M., Kelleher, J.: Expectations of AI and the performativity of ethics: implications for communication governance. *Big Data Soc.* **7**(1) (2020)
8. Greene, D., Hoffmann, A.L., Stark, L.: Better, nicer, clearer, fairer: a critical assessment of the movement for ethical artificial intelligence and machine learning. In: *Proceedings of the 52nd Hawaii International Conference on System Sciences*, pp. 2122–2131 (2019). <https://doi.org/10.24251/HICSS.2019.258>
9. Selbst, A.D., Boyd, D., Friedler, S.A., Venkatasubramanian, S., Vertesi, J.: Fairness and abstraction in sociotechnical systems. In: *Proceedings of the Conference on Fairness, Accountability, and Transparency*, pp. 59–68 (2019). <https://doi.org/10.1145/3287560.3287598>
10. Metcalf, J., Keller, E.F., Boyd, D.: *Perspectives on Big Data, Ethics, and Society*. Council for Big Data, Ethics, and Society, 23 May 2016. <http://bdes.datasociety.net/council-output/perspectives-on-big-data-ethics-and-society/>
11. Asimov, I.: “Runaround: A Short Story”. *Astounding Science Fiction*, March, [Reprinted in “I, Robot”, Gnome Press, New York, 1950] (1942)
12. Bateson, G.: *Steps to an Ecology of Mind: Collected Essays in Anthropology, Psychiatry, Evolution, and Epistemology*. University of Chicago Press, Chicago (1972)
13. Galanos, V.: Singularitarianism and schizophrenia. *AI Soc.* **32**(4), 573–590 (2016). <https://doi.org/10.1007/s00146-016-0679-y>
14. AI HLEG: High-Level Expert Group on Artificial Intelligence: Ethics Guidelines for Trustworthy AI. European Commission, 09 April 2019. <https://ec.europa.eu/digital-singlemarket/en/news/ethics-guidelines-trustworthy-ai>
15. Robertson, J.: *Robo Sapiens Japonicus: Robots, Gender, Family, and the Japanese Nation*. University of California Press, Oakland (2018)
16. Hijiya-Kirschner, I.: A farewell to exoticism—Japan and the Western world. *Forensic Sci. Int.* **69**(3), 177–186 (1994). [https://doi.org/10.1016/0379-0738\(94\)90382-4](https://doi.org/10.1016/0379-0738(94)90382-4)
17. Tuttle, A.E.: Lafcadio Hearn and the Ethics Beyond Evolution, *English Poetry*, 2, December 1949, pp. 17–21 (1949)
18. Capurro, R., et al.: Ethics in robotics. *Int. Rev. Inf. Ethics* **6**(12/2006) (2016)
19. House of Lords. Select Committee on Artificial Intelligence: AI in the UK: Ready, Willing, and Able? Report of Session 2017–19. Ordered to be printed 13 March 2018 and published 16 April 2018. The Authority of the House of Lords (2018)
20. Hildebrandt, M.: *Smart technologies and the end (s) of law: novel entanglements of law and technology*. Edward Elgar Publishing, Cheltenham, Northampton (2015)
21. Galanos, V.: Artificial intelligence does not exist: lessons from shared cognition and the opposition to the nature/nurture divide. In: Kreps, D., Ess, C., Leenen, L., Kimppa, K. (eds.) *HCC13 2018*. *IAICT*, vol. 537, pp. 359–373. Springer, Cham (2018). https://doi.org/10.1007/978-3-319-99605-9_27
22. Galanos, V.: Exploring expanding expertise: artificial intelligence as an existential threat and the role of prestigious commentators, 2014–2018. *Technol. Anal. Strateg. Manag.* **31**(4), 421–432 (2019). <https://doi.org/10.1080/09537325.2018.1518521>
23. Dwivedi, Y.K., et al.: Artificial Intelligence (AI): multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *Int. J. Inf. Manag.* (2019, in press). <https://doi.org/10.1016/j.ijinfomgt.2019.08.002>

24. Collingridge, D.: *The Social Control of Technology*. St. Martin's Press, New York (1980)
25. Kudina, O., Verbeek, P.P.: Ethics from within: Google Glass, the Collingridge dilemma, and the mediated value of privacy. *Sci. Technol. Human Values* **44**(2), 291–314 (2019). <https://doi.org/10.1177/0162243918793711>
26. Furukawa, K., Fuchi, K.: Knowledge engineering and fifth generation computers. *IEEE Database Eng. Bull.* **6**(4), 17–19 (1983)
27. Fukuyama, M.: *Society 5.0: aiming for a new human-centered society*. *Japan Spotlight* **1**, 47–50 (2018)
28. Mori, M.: The uncanny valley [Bukimi No Tani Genshō [不気味の谷現象]], *Enajii[Energy]* **7**(4), 33–35 [original text in Japanese] (1970)
29. Mori, M.: *The Buddha in the Robot: A Robot Engineer's thoughts on Science and Religion* (tran. Charles S. Terry). Kosei Publishing, Tokyo (1974)
30. Mori, M., MacDorman, K.F., Kageki, N.: The uncanny valley [from the field]. *IEEE Robot. Autom. Mag.* **19**(2), 98–100 (2012). <https://doi.org/10.1109/MRA.2012.2192811>
31. Flusser, V.: *Post-History*. (trans. Rodrigo Maltez Novaes, 2013). Univocal, Minnesota (1983)
32. Garvey, C.: Artificial intelligence and Japan's fifth generation: the information society, neoliberalism, and alternative modernities. *Pac. Hist. Rev.* **88**(4), 619–658 (2019). <https://doi.org/10.1525/phr.2019.88.4.619>
33. Tiefenbach, T., Kohlbacher, F.: Happiness in Japan in times of upheaval: empirical evidence from the national survey on lifestyle preferences. *J. Happiness Stud.* **16**(2), 333–366 (2014). <https://doi.org/10.1007/s10902-014-9512-9>
34. Gaitanidis, I.: Spiritual therapies in Japan. *Jpn. J. Religious Stud.* **39**(2), 353–385 (2012)
35. Yumiyama, T.: Varieties of healing in present day Japan. *Jpn. J. Religious Stud.* **22**(3–4), 267–282 (1995)
36. Frude, N.: *The Intimate Machine: Close Encounters with the New Computers*. Century Publishing, London (1983)
37. Cantwell Smith, B.: *The Promise of Artificial Intelligence: Reckoning and Judgement*. The MIT Press, Cambridge (2019)
38. Williams, R.: Compressed foresight and narrative bias: pitfalls in assessing high technology futures. *Sci. Cult.* **15**(4), 327–348 (2006). <https://doi.org/10.1080/09505430601022668>
39. Reisel, M.: From “Galapagos Syndrome” to globalization: Japanese businesses between tradition and virtual reality. *Int. J. Bus. Anthropol.* **7**(2) (2018)
40. Whitby, B.: *Artificial Intelligence: A Beginner's Guide*. Oneworld, Oxford (2003)
41. Nilsson, N.J.: *The Quest for Artificial Intelligence: A History of Ideas and Achievements*. Cambridge University Press, Cambridge (2010)
42. Gómez-Urrego, J.D.: The intersections between infrastructures and expectations: repair and breakdown in Yachay, the city of knowledge in Ecuador. *Tapuya: Lat. Am. Sci. Technol. Soc.* **2**(1), 495–539 (2019). <https://doi.org/10.1080/25729861.2019.1649963>
43. Williams, R.: Why science and innovation policy needs Science and Technology Studies? In: Canzler, W., Kuhlmann, S., Simon, D. (eds.) *Handbook of Science and Public Policy*, pp. 503–522 (2019). <https://doi.org/10.4337/9781784715946>
44. Mittra, J., Mastroeni, M., Haddow, G., Wield, D., Barlow, E.: Re-imagining healthcare and medical research systems in post-devolution Scotland. *Sociol. Res. Online* **24**(1), 55–72 (2019). <https://doi.org/10.1177/1360780418823221>
45. Shen, X.: The digital health app got China back in business within six weeks after Covid-19 lockdown - food for thought for the UK? *Medium*, 31 May 2020. <https://medium.com/@xiaobai.shen1/the-digital-health-app-got-china-back-in-business-within-six-weeks-after-covid-19-lockdown-food-5def59447801>

46. Lutz, C., Tamó-Larrieux, A.: The robot privacy paradox: understanding how privacy concerns shape intentions to use social robots. *Hum.-Mach. Commun.* **1**, 87–111 (2020). <https://doi.org/10.30658/hmc.1.6>
47. Kertész, C., Turunen, M.: Exploratory analysis of Sony AIBO users. *AI Soc.* **34**(3), 625–638 (2018). <https://doi.org/10.1007/s00146-018-0818-8>
48. Gnamb, T., Appel, M.: Are robots becoming unpopular? Changes in attitudes towards autonomous robotic systems in Europe. *Comput. Hum. Behav.* **93**, 53–61 (2019). <https://doi.org/10.1016/j.chb.2018.11.045>
49. Russell, S.: *Human Compatible: AI and the Problem of Control*. Penguin, UK (2019)
50. Grudin, J.: AI and HCI: two fields divided by a common focus. *AI Mag.* **30**(4), 48–57 (2009). <https://doi.org/10.1609/aimag.v30i4.2271>
51. Doi, T.: *The Anatomy of Dependence*. Kodansha International (1971)
52. Edwards, L., Schäfer, B., Harbinja, E.: (eds.): *Future Law: Emerging Technology, Regulation and Ethics*. Edinburgh University Press, Edinburgh (2020)
53. Adams, A.A., Murata, K., Orito, Y.: The Japanese sense of information privacy. *AI Soc.* **24**(4), 327–341 (2009). <https://doi.org/10.1007/s00146-009-0228-z>
54. Miyashita, H.: The evolving concept of data privacy in Japanese law. *Int. Data Priv. Law* **1**(4), 229–238 (2011). <https://doi.org/10.1093/idpl/ipr019>
55. Japanese Law Translation. Act on the Protection of Personal Information, Act No. 57 of 2003. <http://www.japaneselawtranslation.go.jp/law/detail/?id=2781&vm=2&re=02&fbclid=IwAR22BRnIwaYtUFiQ9oFEKJRJbRGkFCcXECKFf1a3ePOoXDWXG0h3jmwOAO>
56. Boyd, J., Williams, R.: Artful means: an aesthetic view of shinto purification rituals. *J. Ritual Stud.* **13**(1), 37–38 (1999)
57. Maruzen Co. Ltd. Launching various antiviral textile products that have been proven as effective and safe by third-party organizations (2020). <https://shinkachi-portal.smrj.go.jp/en/webmagazine/352mp/>
58. Hint Magazine. Disinfectants/Anti-bacterial Products: From stand-alone to spray-on types, the 5 leading companies in the industry have gathered here today to show us all of the newest items in the market! (2019). Tokyu Hands. <https://www.tokyu-hands.co.jp/en/hintmagazine/cleaning-and-laundry/jyokin.html>