KiwiBots on Kampus:
A Case Study of Neoliberal Technology in Black Spaces

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Abstract:

The KiwiBot is a food delivery robot developed by a Colombian-owned start-up in 2017 at the University of California, Berkeley. After first piloting in the City of Berkeley, Stanford University, and San Jose, KiwiBots now deliver to twenty-six American campuses including Howard University. Branded as cute and friendly helpers that should be a part of the modern world, these diminutive, 22" tall x 22" wide white robots, trundle around campus like a member of the community. Based on this branding, the company frames the relationship between humans and machines as one of friendship, servitude, and growing reliance. This paper examines the many possible injustices arising from the supposed friendship between these robots and students on an Historically Black College or University (HBCU) campus, especially with the well-documented problems of computer vision. Drawing on Joy Buolamwini and Timnit Gebru's groundbreaking 2018 paper "Gender Shades," this essay provides a case study of computer vision in Black learning spaces in 2023. It examines how the neoliberal positioning of the AI project leave very important social concerns unaddressed and amplified.

The friendliness of the KiwiBot is an essential part of its design and therefore one of the main sources of ethical inquiry about the purpose of this AI machine in Black spaces. More than half of the front of the robot is dedicated to displaying a range of pixelated emojis. When the average Howard University student passes by a KiwiBot on the Yard, they are greeted with a funny emoji expression. These pixelated expressions range from a kissing face to a frustrated expression when the robot's path is obstructed. The cute, emotive design aligns with popular conceptions that robots are "friends" to humans. The idea of Artificial Intelligence (AI) friends has a long history of criticism from ancient Egypt and Greece, Hatshepsut and Hephaestus to the present. Starting in the eighteenth century examples abound. When Mary Shelley's lonely, friendless, creature wreaks his vengeance on humanity, it becomes clear that this notion of friendship with artificial life forms is fraught. Even the concept of friendship as developed in the ancient world from China and Africa to Ancient Greece, friendship centers virtue ethics, developing the selves of parties who share equal moral status and uplift those below them, the young as well as the lower classes and outsider groups (Lu, 2010; Ogunyemi, 2020; Curzer, 2012). Based on the concept of a virtue friend, a robot cannot be considered a friend to humans because they are not designed or capable of being our equals in terms of the capacity to morally reason (Coeckelbergh 2020). Therefore, the friendly design of the KiwiBots is nothing more than a marketing campaign with little reflection on the long and troubled relationship between humans and artificial life forms. At Howard University, the KiwiBots present themselves as humanity's new "friends," who are also servants interested in our values and needs.

With little reflection on this history, KiwiBots have been brought to the Howard community with the promise to serve us in a friendly fashion. Such an attitude characterizes the neoliberal attitude of AI technology, which obscures problematic histories and assumes an easy relationship between humans and robots. But nothing could be farther from the case. Consider even the KiwiBot's basic function of delivering food, which involves entering Black space. To complete the task, the order system has to interface with the food provider and collect the completed meal from the food provider. Then, the robot traverses sidewalks and walkways to reach the user's location. The KiwiBots utilize robotics machinery, computer vision, lasers and location tracking to complete the task given to them (Appendix A). This servant status causes the average witness and user to not view the robot as nothing more than an object that executes the desires of humans.

Dr. Ruha Benjamin presents an emerging analysis that articulates how a mindset of AI servitude perpetuates the legacy of enslavement and indentured servitude (Benjamin, 2019). In particular, Benjamin analyzes a 1957 advertisement to illustrate the racist ideology central to the Atlantic Slave Trade also drives the development of robot servants. The advert proclaims with glee: "We'll all have personal slaves again… slavery will be here to stay." (Benjamin, 2019). Additional scholarship varies widely on the ethics of viewing AI as servants, from Bryson who says "robots should be slaves" (2010) to Bakpayev, who argues these machines start out as mere tools but have a capacity to surpass human capacities, and should be considered differently in the future (2022). Coeckelbergh, who revisits Kant's argument about treating dogs well, not because they are human, but rather because we should practice habits of respect for others even if they lack our moral status, makes a similar argument for AI. Just like Kant, who grants no agency to animals, Coeckelbergh argues that because we currently build these AI as tools and servants, humans have to make the moral choice to treat their robot servants well. Such treatment, both philosophers claim, reflects our duty (Kant) and relationality (Coeckelbergh) to humanity, since we wouldn't practice ill-treatment on our fellow humans. But we do in fact. History offers many examples of unjust treatment of human servants which persists around the globe today. The slave and master relationship is the complete antithesis to a virtue friendship as Aristotle defined it in the Nicomachean Ethics (Aristotle 8.1, 2014). There is no interest in equality, the expansion of power and violent subjugation of the enslaved is the point. In fact, the Kiwi Campus is a participant in the widespread practice of severely underpaying human workers in the Global South. The earliest iterations deployed at the University of California, Berkeley relied on the supervision of remote Colombian workers who were paid $2.00 USD an hour (Lynn, 2020). The devastating contradiction is evident. The KiwiBots are meant to represent the progress of a Black American institution while also being a technological system that relies on exploited workers in a non-Western country. Given the larger domineering context of its deployment, the presence of KiwiBots on Howard University's campus is yet another instance of the expansion of neoliberal power propelled by all of the organizations involved.

KiwiBots still roam the campus amid such moral complexity, which becomes even more fraught as the company endeavors toward ubiquitous adoption beyond campuses and out in the world. Such ubiquity while seemingly a neutral tech industry goal presumes that the KiwiBots presence in different contexts can be equally benign as if all social spaces enjoyed the same privileges. This "view from nowhere" as Donna Haraway theorized it and Abeba Birhane developed in her important article "Algorithmic Injustice" (2021) dominates tech industry

perspectives that technology is neutral, evitable and deeply intertwined with human life. Indeed, from their origin, these robots displayed a neoliberal impulse to spread technology with little reflection on its design or potential harms. KiwiBots were first built and deployed on the campus of University of California, Berkeley to fulfill the project of graduate students (Appendix A). However, now the robots are being brought to campuses by way of the food services and facilities company that runs dining halls at universities across the United States and Canada, Sodexo (Appendix A). Sodexo was the one who brokered the partnership with Howard University and the other twenty-five universities that they are partnered with (Appendix A). In fact, Howard University proudly shared that they were the first HBCU to have KiwiBots. Furthermore, in order to reach the goal of having the robots throughout the city the company has to work with the local government. Kiwi Campus has also recently branded the robots as a solution for safely delivering food during the Covid-19 pandemic. The company is assuming an active role in responding to a public health crisis by establishing deep relationships with large social institutions such as the local government and universities. Their approach to deployment contributes to the central idea of neoliberalism: business innovation is more equipped than institutions to solve or assist in solving large social problems. While this does seem promising especially if technology is supposed to have a prominent role in our society, there are some issues that are overlooked by this perspective.

KiwiBots bring surveillance into a variety of public spaces. In fact, last year when I interviewed David Rodriguez, one of the founders of the company, I learned that Howard University is a stepping stone toward deploying KiwiBots across the city of Washington, D.C (Appendix A). They deeply believe in their product and believe that society will be better if KiwiBots become fully integrated. However, there is little to no consideration of the values embedded in the goals of KiwiBot ubiquity. In the meeting with Rodriguez, he made it very clear that his company Kiwi Campus valued privacy, constant iteration and improvement of the robot. Indeed, like many tech startups who are aware of privacy and surveillance issues with their technology, Kiwi Campus endeavors to operate with minimal invasiveness as its website elaborates in many sections (Kiwi Campus). Such attempts to ease the concerns of the communities the KiwiBot enters, remain flawed and function as more of a neoliberal marketing technique. With these privacy commitments, the company presents itself as self-regulating and capable of handling user data without oversight about the communities it impacts.

Consider that the company places great emphasis on its claim that the camera on the KiwiBot does not collect Personally Identifiable Information (PII). PII are data that can be used to figure out the exact identity of a person and is increasingly regarded as an important privacy concern by technology companies. Especially when these robots are deployed in public spaces without the consent of the other humans or objects around them, it is important that this type of information is not collected. In fact, Rodriguez went as far to explain that the robot does not process human faces as they are making their delivery. When the robot's camera detects a person walking by the person using embedded computer vision technology, the human is blurred and detected as an unidentified human object. By blocking out the human there is little to no chance that a person’s image is processed by the robot. Despite this assertion, there is no publicly available documentation of this human omission technique.

However, such privacy measures remain unclear. There is a lot of ambiguity about their privacy features because the company is not fully transparent about their technology. The Kiwi Campus asserts that their robots process data through a stream that is not stored or collected by the company. The idea that a data stream is less invasive than storing image data collected by the moving robot is reasonable. However, the fact that people are still under surveillance by the robot is a privacy problem. The average person does not understand that videos and images of them are not being saved. So when a pedestrian is constantly perceiving cameras collecting images and videos in public spaces, they will always feel like they are being watched. Based on a complex analysis of privacy by Cohen, the perception of surveillance also hinders collective development because people will feel discouraged from making their own decisions in public space (Cohen, 2013). This concern is extremely relevant to contemporary Howard life. In 2021 when Howard students occupied the Blackburn Student Center to demand an improvement of housing conditions, surveillance was a major concern (Cory Smith, 2021). Many students were worried that if they were identified as a participant their institutional scholarships would be revoked or worse, they would be expelled from the school. This concern is not unfounded given the history of student struggles on campus and the fact that in this year, three of the leading organizers of the occupation were expelled. If the KiwiBots were on Howard's campus, even if they clearly expressed that their cameras were not being used to surveil protesters, it may have resulted in less students joining the occupation for fear of being identified by the administration.

Additionally, the idea that personally identifiable information is hidden and obscured from collection can also be interrogated in terms of privacy. It is good to know that the face of a person is omitted from the KiwiBot's knowledge. However, a person can be identified from information that is not on their body, as well. A person can be identified by their surroundings such as the buildings they enter or exit, license plates on cars, posters or signs. These objects all have information that could be used to determine groups of individuals and what they are doing. Also the idea that privacy is only an individual consideration does not encompass all the dimensions of privacy. Privacy can also be a collective concern (Mantelero, 2017). It is important for robots to understand traffic patterns and other trends in movement. If they are able to track movement patterns, for example students leaving classes, then personal information about the collective student body could be tracked and used to reveal the important information about the community (Solove, 2008). Indeed, there is a lot more to consider about privacy than simply obscuring information. Privacy also involves how collective behaviors, movements and trends are being tracked and surveilled. The threat or presence of surveillance that is not fully understood can also affect the behaviors of the humans that encounter possible AI agents of surveillance. While these technical solutions to privacy are impressive, they still do not recognize more complex and nuanced understandings of what privacy should mean in a technological world.

Given the neoliberal opaque approach to the KiwiBot design, it is difficult to ascertain what exactly KiwiBots do with information they collect. There is little to no transparency or publicly available information about the internal procedures of the company. Whether it is about the actual mechanics, the underlying AI that is used in the robot and the performance metrics or simply the plan of its deployment, the lack of transparency hinders any form of fairness evaluation. This lack of transparency then places the responsibility of investigating and

mitigating bias in the KiwiBot on the company. However, if the KiwiBot is meant to be a part of our society then it should also be accountable to our society.

As the KiwiBots have been deployed around Howard's campus, I have overheard anecdotal concerns from the students. For example, one student noticed that the KiwiBots were making kissing emoji expressions only at women and was made uncomfortable by this pattern. Another student noted that the KiwiBot consistently displayed its frustrated face every time they happened to walk by the robot. Since there is not an explanation of how the expression algorithm works or what triggers certain expressions these concerns cannot be fully explored and addressed.

Another fairness concern that is supported by well-regarded research is the racial and gender bias of computer vision. According to the findings of "Gender Shades," a paper about the racial and gender bias of computer vision, the most prominent facial recognition tools work very poorly on darker skin women (Buolamwini & Gebru, 2018). In addition, there also has been work that reveals that Autonomous Vehicles (AV) have a problem with recognizing pedestrians of darker skin tones (Wilson, 2019). The current inadequacy of computer vision is very relevant to how the KiwiBot operates. If the robot streams video data and makes an effort to blur out humans, it may not be completely sound to assume the detection works for everyone. As a Black institution with a community of people with a variety of skin tones and in particular darker skin tones, this evaluated discrepancy becomes even more relevant. If you are not detected as human you are inherently treated differently by the robot, therefore understanding the accuracy of the robot's human detection is very important.

Finally the method of deployment is an important part of the fairness and social impact of this technology. In the current phase of KiwiBots at Howard University, they physically take up a lot of space. As a result, the KiwiBot operation takes over social space and resources from the Black institution. On the Howard University campus, the KiwiBots now operate out of the "Restaurant" in the Blackburn Student Center, a dining hall for students. Although the robots usually do not cause a buildup in foot traffic, their presence also is a representation of progress that distracts from the actual conditions at the university. The University does not have the infrastructure to provide reasonable housing conditions (Cory Smith, 2021) to their student body, yet there are robots that cost thousands of dollars roaming the campus. There is tension between the priorities of the administration and the rest of the Howard community that must be contended with.

The presence of the KiwiBots on campus has been clearly mentioned as a stepping stone for further deployment in cities and larger spaces. However, when Black spaces are constantly not being maintained, how can you ensure a modern world for Black people if essential infrastructure for our survival is not prioritized? This is how the bias of technological advancement neglects marginalized people who will not be able to benefit from these advancements in the same ways that already privileged communities will.

Although these data are not widely shared it seems that there is fairly low utilization of the KiwiBots at Howard University. Nevertheless, they still travel around the campus and train to improve their performance. However, if the technology is not being fully utilized by the student

body, their presence on campus ultimately benefits the KiwiBot company and not the student body. If students do not have stable housing or are living in poor living conditions, the KiwiBots service does not actually meet the needs of users. So by propelling this technological development it could be seen as another slap in the face to students and the larger Howard community who are not being cared for by the institution.

Given this social neglect, where does the true responsibility lie if an incident or mistake occurs? For example, even though the KiwiBot is very good at recognizing traffic signs, if it accidentally goes into the road and causes an accident, who would be responsible for the accident? Or if a robot harms a pedestrian as it is traveling then who would be in the direct line of responsibility and taking care of the student? Finally, in a larger sense if the KiwiBots bots are taking up operational space, attention, and resources away from the larger infrastructural problems at Howard, who is responsible for addressing this societal failure? Based on the manner in which responsibility was discussed in AI Ethics, machines cannot be held responsible because they do not have the capacity to make moral decisions (Coeckelbergh, 2020). If the actual robots cannot be blamed, I would argue that there are three main actors, the Kiwi Campus, Sodexo and Howard University bear the responsibility for the KiwiBot's impact.

When technology is deployed through companies and businesses there is less of concern about its social impact and more about making profit. It seems that the company that makes these robots earns money by making deals with dining halls such as Sodexo, not by the deliveries that they make. Given this reality, Kiwi Campus is more in relationship to the corporation rather than the community they are bringing their technology into. That is a major problem because as the KiwiBots are being deployed publicly, the public and the larger community do not have a say in determining who is responsible when they are impacted by technology and how they can receive some sort of redress. Unfortunately, given Howard University's propensity to partner with morally abhorrent organizations such as the United States Department of Defense, it is clear that the University is not interested in advocating for the concerns of the Howard community (Althouse, 2023).

To conclude the discussion, the technological neoliberalism articulated in the book *Algorithms of Oppression* provides useful insight to the presence of KiwiBots on Howard University's campus. The author, Noble, shows how Google's focus on generating profits meant that their technology neglected and actively harmed marginalized populations (Noble, 2018). There is a trend in which the focus on making profit in the capitalist system leads to further marginalization and an acceptance of the status quo that can harm marginalized people in many ways. While in Noble's book she focuses on Google, the deployment procedures of the KiwiBots on campuses such as Howard University presents a new chapter in neoliberal tech intervention in Black communities. Considering the Kiwi Campus vision of ubiquity even in places like HBCUs where students arrive to explore Black culture and life, KiwiBots can become intrusive.They take up space in the community without actually being a part of or needed by the community. This relationship to the users does not yield a positive impact in the long term. While the KiwiBot looks friendly and helpful, its values, privacy measures and neoliberal positioning demonstrate little concern with its impact and even less commitment to improving the quality of life for Black students and minoritized groups everywhere.

References

1. Althouse, M. (2023, January 25). With a $90m USAF contract, Howard U will lead a new Defense Tech Research Center. Technical.ly.
2. Aristotle. (2014) *Nicomachean Ethics*. (R. Crisp Ed.). Cambridge University Press.
3. Bakpayev, M. (2022). Robots: Friend or Foe, Master or Servant? In *The Routledge Handbook of Digital Consumption* (pp. 139-151). Routledge.
4. Benjamin, R. (2019). Race after technology: Abolitionist tools for the new jim code. Social forces.
5. Birhane, A. (2021). Algorithmic injustice: a relational ethics approach. *Patterns*, *2*(2), 100205.
6. Bryson, J. J. (2010). Robots should be slaves. *Close Engagements with Artificial Companions: Key social, psychological, ethical and design issues*, *8*, 63-74.
7. Buolamwini, J., & Gebru, T. (2018, January). Gender shades: Intersectional accuracy disparities in commercial gender classification. In Conference on fairness, accountability and transparency (pp. 77-91). PMLR.
8. Coeckelbergh, M. (2020). AI ethics. Mit Press.
9. Cohen, J. E. (2013). What privacy is for. Harvard law review, 126(7), 1904-1933.
10. Cory Smith, N. R. (2021, October 13). Howard University students stage sit-in over housing conditions. NBC4 Washington.
11. Curzer, H. J. (2012). *Aristotle and the Virtues*. Oxford University Press.
12. Lu, X. (2010). "Rethinking confucian friendship." *Asian Philosophy 20*.3 : 225-245.
13. Lynn, J. (2020, January 6). Why do I want to kick those cute little food-delivery robots? Medium.
14. Mantelero, A. (2017). "From group privacy to collective privacy: towards a new dimension of privacy and data protection in the big data era." *Group privacy: new challenges of data technologies* : 139-158.
15. Noble, S. U. (2018). Algorithms of oppression: How search engines reinforce racism. New York University Press.
16. Ogunyemi, K. (2020). "The relevance of African virtue ethics traditions today." *African virtue ethics traditions for business and management*. Edward Elgar Publishing,. 155-165.
17. Solove, D. J. (2008). "The end of privacy?." *Scientific American 299*.3: 100-106.
18. Wilson, B., Hoffman, J., & Morgenstern, J. (2019). Predictive inequity in object detection. arXiv preprint arXiv:1902.11097.

Appendix

a. KiwiBots on Kampus: Ethics and AI Final Project