The Importance Media Consumption Possesses:
Hindering and Accelerating Technological Advancements of Robotics and Exoskeletons

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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Introduction

As time progresses, people are generally living longer. In 2021, the average life expectancy was 71 years in comparison to in 1900, the average life expectancy being 32 years (Dattani et al., 2023). With elderly age, the quality of life diminishes as there is just simply less you can do. According to Yen, the increase in age tends to correlate to an increase in sedentary lifestyles; in turn, this has worsening effects that become more and more detrimental with time. According to the Harvey et al. in the National Library of Medicine, 72.7% of people between the ages of 65 and 74 years are said to be sitting for 4 or more hours per day. Additionally, this percentage increases to 76.2% when people reach the age of 75 years and older (Harvey et al., 2013).

Most of the elderly people's health in our society is worsening due to these sedentary lifestyles as they tend to live alone or with another elderly person. As a community of people, not only looking to assist them, but to assist our future selves, we should be working on a way to change this trend and solve this dilemma. Elderly people do not have the same voice in our young, technological society as other generations do. Therefore, it is an issue that must be addressed on everyone's behalf: for the care of our beloved folk of older generations and on behalf of ourselves (as we hope to live long lives). With time however, the issue is worsening. In the scope of life expectancy, we are projected to live longer as a new generation compared to the last and the one prior, so this issue needs to be resolved before getting there. The status of the resolution to this issue is minimal, and in those minimal solutions are extremely costly resolves. Made bulky and heavily technical oriented, these large devices are both impractical and not cost-effective, considering our target audience is typically retired individuals.

In the United States alone, there are about 58 million people over the age of 65. In 2022, this made up about 17.3% of the population. By 2040, this number is projected to climb to 22% of the country's population being 65 and older (United Health Foundation, 2023). It is crucial that we begin to advance our technology to better the quality of life of these individuals. These technologies must allow them to be physically active (within their respective boundaries) and assist in daily human activities at the minimum. One clear problem we see in older generations is the increase in sedentary lifestyles. These lifestyles only promote and expedite medical issues that result in a lower quality of life, if not worse, resulting in living a shorter life. We must not only create technology that can resolve these dilemmas, but it must be practical. With people 65 years of age and older making up less than a quarter of our population, about 80% of these people are retired (Taylor et al., 2009). Therefore, our advances in technology must be practical in price so they be employed. Additionally, we must design it in a way that allows for predominantly weaker individuals to maneuver and wear the device. There are a multitude of factors to be set in place when creating this new technology so our population may reap the benefits.

As we look toward the future, we can only hope that those who can help, will help. We hope these engineers, scientists, and doctors do their best to take care of all people. With these advances however, we hope that they do not lose sight of what really matters…people. The current route of technology focuses on working toward enhancing technology so that it may understand humans and act and speak like us. There are robots who have been created that can walk and talk like humans, but they lack the consciousness of humans. These robots can partake in a dialogue but the ability to feel emotionally has not yet been achieved. However, why exactly are we working for this? Do we not want to better life for humans? Instead, we are creating life

for technologies aimed at being ‘better’ than humans in every aspect possible. We need to collectively decide that we must focus on better equipping them to assist humans in their lives so we may see a valuable change.

Now wait. After proving that this is an issue and assuming that an exoskeleton is created, how would society react? Now maybe people won’t dislike grandma because she’s wearing a gadget on her legs, but what about beneath that? How will people react to being able to buy a wearable robot? Media and entertainment influence how we think, and futurism finds itself at the forefront of several productions. The representation of robots in particular ranges from Team Umizoomi, a children’s cartoon about two mighty math superheroes whose smartest team member is their friendly robot named Bot, to an adult anime like Futurama, where a main character named Bender “fulfills a comic, antihero-type role in the show, and is described by fellow character Leela as an ‘alcoholic, whore-mongering, chain-smoking gambler’” (Wikimedia, 2024). This only scratches the surface of representations of robots in our media and entertainment today. My greater question remains: How does the representation of robots in our media affect our acceptance of advances in technology? It is our responsibility to continue to develop technology to assist and cure those who are less fortunate. However, we must additionally address the problems that will occur in our society as technologies advance. We must distinctly draw a line to limit *technologies* from instead of assisting, just being. It is projected that life expectancy increases with each generation, but we must make sure that we have a life expectancy to look forward to and not look forward to a life for *technology* instead of us.

Background and Significance

When analyzing the analytical frameworks of advanced technological designs, there are a multitude of avenues to pursue. When specifically analyzing that of exoskeletons and assistive technology, it is easy to disregard the perspective of these devices on those not positively affected by these devices. It is very important to consider the interpretive flexibility and the technological stabilization that these devices introduce. To do so, it is essential to recognize the perception of those witnessing these devices as they are what attribute mostly to this sociotechnical problem. The way this is possible is to analyze the data we have; this data, however, looks very different from what we are used to. Typically, data is numbers and percentages, but in this instance, it is important to analyze our media. The media is a clear testament to how these larger technologies, like robots, are portrayed. Not only how they are portrayed but how they are utilized, and more importantly, weaponized. By doing so, we are given a unique perspective on the issue at hand. Older generations are more conditioned to see these technologies as evil or killing machines as used in older films like Robocop and the Terminator. Meanwhile, younger generations are watching movies like WALL·E where a robot is all cute with his cockroach pet, and watching ads for Apple's Vision Pro that change how you see the real world, providing a whole new perception on robots.

As we begin to analyze how technology and robots are portrayed in our media, there are several bits of information important to consider. Firstly, when considering whether there is a need to develop technology for people of elderly age, it is simply a matter of deontology. It feels morally wrong to not assist an elderly person and if given the opportunity to resolve an issue for a large majority of these individuals, how could one not do this? The idea of developing technology for a portion of our population that's only growing seems extremely conspicuous.

Additionally, once we have agreed to do this and develop exoskeletons and more advanced robots, we must be able to digest the sociotechnical issues that come alongside this. To do so, we must understand exactly how other people view technology. According to a Nielsen Media Data, a 2023 report shows that adults alone "spend more than 10 hours each day with media, with about half dedicated to TV content" (Gordoni, 2024). Of course, there are a multitude of factors that play major roles in this consumption like age, location, and personal preference, but this is the majority of people. The report goes on to say that "It's an exciting time in the television business, especially for content-hungry viewers who spend about 33 hours each week with TV in the U.S. While the writers' strike constrained the stream of new content for the year, the growing abundance of programs and movies across linear and streaming channels continues to engage TV audiences for about half of their daily time with media" (Gordoni, 2024).

Methodology

Equipped with this information, we must now dive into what exactly the media portrays. We must thoroughly understand the messages being portrayed as technological constructivism is at play in this scenario. Both technology and society are continuously influencing one another in great amounts of complexity. This is why newer and older generations often feel so different about the advances in technology. Classic movies that portrayed robots and advanced technology were not typically portrayed in a positive light. For instance, The Terminator (1984) features a cyborg assassin sent back in time to eliminate a woman who would give birth to a future leader of the human resistance. In this film, a famous line goes as follows: "It doesn't feel pity, or remorse, or fear, and it absolutely will not stop, ever, until you are dead!" hence why this cyborg is known for the line "I'll be back!" Another example is the film RoboCop (1987) that features a heavily armored cyborg with no memory of its former life, but he was a man that was murdered

by a gang in a near-future dystopia. This law-enforcement droid would be designed to supplant police in a Detroit city on the brink of social and financial collapse. As you can likely imagine, people of older generations view big new technologies unfavorably as all the majority of what they have seen alongside this topic is destruction and violence. Meanwhile, younger people from more recent generations may not have the same bias as media has developed and changed over time with technology. Children now are watching animated film series like Transformers that begun in 2007 and are currently making films that follow the adventures of sentient robots who can transform into vehicles, gadgets, and other disguise objects. Another very popular animated film produced by Disney is Big Hero 6; based off a Marvel comic book, this film portrays a young robotics prodigy who teams up with friends and a healthcare robot to save their entire city from a villain. From destruction and violence, the portrayal of this type of technology has been reshaped to portray exceptional and impressive robots that are not hurting humans and instead doing the opposite. This variety in media promotes the variety in opinions about advances in technology and the polarized stances on technology in our society.

Ultimately, in all the examples of media provided thus far, robots have been living alongside humans. Whether doing good, bad, or being remarkable, robots have been portrayed coexisting on Earth with humans as their own being. However, this is not always the case. Outside of WALL·E (2008) being an extremely famous animated film with a cute robot, the story behind WALL·E, Waste Allocation Load Lifter: Earth Class, is one that raises an eyebrow when magnified upon. The plot to this story begins on a "[29th century Earth that has become a wasteland due to an ecocide, caused by rampant consumerism, corporate greed, and environmental neglect]" (Wikimedia, 2024). After a seven-hundred-year failed mission, WALL·E has developed a personality and even has a pet cockroach for companionship.

Although, in the end, humans and robots turn the ravaged planet into a paradise, the portrayal of society's downfall is extremely related to the development of technology yet the usage of technology to help restore it. This is particularly interesting, leaving adults who watch it taken back and young kids unbothered by their lack of recognition of the underlying message. This, however, is not the first-time technology and robots have been portrayed in a more negative light toward the future of humanity. Beginning in 1939 and continuing to about 1995, Isaac Asimov wrote a collection of short stories and novels that explore the intersectionality of humans and robots. Although he does not depict robots taking over in the traditional manner, he "does explore themes of robot autonomy and the potential consequences of creating intelligent machines. Throughout the stories, Asimov portrays robots as complex entities capable of both great good and unintended harm, raising questions about the ethical implications of artificial intelligence."

There are several different portrayals of technology and robots in our media and each of its respective audience is affected differently. The excess consumption of media that humans partake in greatly echoes in the way we think. Because of this, I found it necessary to dig deeper into documental analysis and really understand what it is people are partaking in watching. This not only shows us more about what people enjoy watching but teaches us about how people are thinking. We can differentiate that the mindsets of different individuals are dependent upon their chosen source and genre of media, and what that portrays in a technological lens. We have reached a state of technological stabilization in the context of many different technologies, but robotics at a large scale has not. The social acceptance of these advancements has not yet been achieved, but the ethics of the more developed advances have not been addressed either.

Therefore, we need to find our current state of acceptance and solidify limitations to these advances so we may live in a world that is harmonious between humans and machines.

Literature Review

When attempting to analyze the acceptance or rejection of a new idea into society, we must attempt to understand how people think and why they think that way. To do so, we must further analyze the intricacies of media consumption as it subtly warps our perceptions and reasoning (Bouygues, 2022). Despite recent rapid advancements in robotics, most people still only encounter robots via mass media (Stein et al., 2023). Media is a significant part of people's daily lives that influence conversation topics and the thinking process (King et al., 2017). One may argue that social media alone does not encapsulate a majority of the population, but that is false. According to international data, there are 5.04 billion social media users around the world in January 2024, equating to 62.3 percent of the total global population (Kepios, 2024). That alone only focuses on social media, not even considering shows, movies, newspapers, and other avenues in which people entertain themselves. Through consuming a multitude of diverse media outlets, we allow for the exposure to several perceptions that successively affect how we view the world around us. No matter the manner or direction in which our perception is skewed, it is attributable to the influx of media. Now, apply this way of thinking to something that is brand new. For instance, if a video of a flying car popped up on your screen, the way in which it is portrayed will matter tremendously. If the first exposure to flying cars is a video that portrays an accident where the vehicle hits a tree or simply malfunctions, it is safe to say most people would not be onboard with the new technology due to this first impression alone. However, on the flip side, if the first time a person seeing a flying car is a video in which a car stuck in traffic suddenly rises above the other vehicles and continues on its way, I believe most people would be

intrigued. There would be a desire to become informed about this technology and the inclination of society would likely be more accepting of this new technology because of its positive appeal.

Discussion and Results

Keeping this in mind, let's focus on the technology I am building. A major question I posed earlier in this paper was how does the representation of robots in our media affect our acceptance of advances in technology, and I would like to address it. Through vast amounts of research, I have found that social robots—(semi-) autonomous machines with the ability to simulate human sociality—are increasingly entering human social spheres; despite these integrations though, most people still encounter social robots through media representations like television shows, documentaries, and movies (Stein et al, 2023; Mara et al., 2021; van Oers et al., 2016). However, the effect of how media is shaping viewers attitudes is dependent upon the particular depiction of robots. [Sadly, scientific focus has rested mainly on the *quantity* of robot representations in media, but not yet on their *quality*, corresponding to more negative depictions of this emerging technology. Consequently, robot-related attitudes are often the result of habituation and cultivation processes, due to repeated media exposure] (Stein et al., 2023). Although the quantity of exposure is useful and necessary long term, it remains insufficient without the accompaniment of qualitative aspects as well. Stein and Bank's paper highlights that "media representations have the potential to convey depictions of robots that reinforce existing understandings, to disrupt them, or to shift how those understandings are evaluated." Therefore, it is crucial to recognize that media influences people's emotions and attitudes toward these technological actors. Scholars urge us that the future adoption of robots is critically dependent on how media portrayal will shape people's attitudes and impressions prior to actual societal implementation (Stein et al., 2023; Savela et al., 2021). So, when looking to media, we must

attempt to understand where people are formulating notions about robotics. In fact, science fiction is suspected to have more of a significant impact than both fiction- and fact-based robot information on the field of robotics and people's perceptions of robots (Bartneck et al., 2007; Bruckenberger et al., 2013). Therefore, fictional media will muster the direction in which society perceives the possible risk and benefits of a world concurrently populated by robots and advanced technologies—from lives of increased comfort to impending doom (Stein et al., 2023).

Conclusion

As we begin to understand how and why humans may embrace or refuse the idea of living with robots, we must have evaluated the media we are ingesting. It is explicit that media is affecting our perception and way of thinking, so we must be more cognizant of our intake; even more so, we must be aware of the exposure that children are receiving through multiple lenses. In terms of cognizance however, there is no specific perception toward robots that is more acceptable than another. Therefore, it is our own decision to grow repugnant, become jubilated, or feel anything somewhere in between about robots. However, I find it necessary to acknowledge that several studies have indicated that children's perceptions of robots are partially influenced by how they are presented to them (van Straten et al., 2023; Somanader et al., 2011). Therefore, if we wish to continue advancing technology to incorporate robotics with the goal of enhancing the quality of life, abhorrence toward robots cannot be a commonality. From a young age, media portrayal must predominantly reflect that of positivity. The social construction of technology, explicitly of robots, is dependent upon its portrayal and the role technology takes; therefore, the future of its acceptance lies in the hands of the creators of media. The way in which society views robots will entirely map the projection of the complex relationship between society and technology. So, as we continue to advance technology, we must regulate it, steering

away from the ‘uncanny valley’ phenomenon—a well-known theory suggesting that machines become increasingly attractive the more human like they become until reaching a threshold at which they become too human like and are considered uncanny and creepy (Brink et al., 2017). The portrayal of robotics in media aimed to create a positive emotional reaction will help foster trust and acceptance for humans, but creating robots that are too human-like will trigger feelings of unease and discomfort. This invisible threshold is extremely important as it will navigate the projection of acceptance or denial of robotics in our society, through its representation to us rather than its functionality. To one day see a world where robots are undoubtedly accepted in our societies, working to assist humans, we must be intentional with the media we perpetuate the creation of by our consumption. At the end of the day, the consumers are the drivers of society and what we partake in consuming will pave the path to what our future looks like down the road.

The expenditure of our time in the consumption of media influences the way we view and understand the world. From child to adult, we are groomed into perceiving societal norms and abnormalities through the lens of media creators with their own personal perspectives. The decisions we make on what to consume through different media outlets will shape the way in which we accept or do not accept advancements in technology. It is our responsibility to become aware of the world around us and formulate our own opinions rather than solely falling captive to biases projected onto us. The implementation of technological advancements relies on the acceptance of our society, but its creation hinders due to the unpredictability of society’s standards. Once we have become informed, we will be able to regulate technology so that its creation is focused on perpetuating human success and assistance.

Our next step is to create media that envisions exoskeletons and similar technological advancements as positive tools for the humans of the future. The creation of these robots will be created to assist with the inevitable feat of aging and the withering of able bodies, both for future ourselves and the betterment of humans of the future. But for this to become a reality, we must consume unbiased content that will allow us to better the world through technology.

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