

Thesis Project Portfolio

The Squat Bot: A Minimally-Invasive, Low-Cost Exoskeleton for Sitting and Standing
(Technical Report)

**The Importance Media Consumption Possesses:
Hindering and Accelerating Technological Advancements of Robotics and Exoskeletons**
(STS Research Paper)

An Undergraduate Thesis

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Executive Summary

The creation and implementation of exoskeletons do not only have the potential to change science forever but change peoples' lives. The creation of these devices is necessary to better the life of those with impairments and enhance the quality of life. Whether it be due to old age and sedentary lifestyles or medical conditions and impairments, this advance in technology can change the scope of the future for its users. Additionally, however, we must acknowledge that society has been trained to view these types of devices through media consumption. With these views varying both positively and negatively, we are tasked with navigating the interpretation and reactions by our human counterparts. We hope to analyze these details that may currently seem minute but may lead to unintended social consequences if not considered during the creation of these engineering applications.

In my technical research I am creating wearable exoskeletal technology that could enhance human life and make tasks less strenuous. Acting as a support, the development of this technology will work as a medical device while concurrently preserving our bodies during physical activities. As a result, humans can continue to live active lives even in the face of old age and the onset and progression of medical conditions. These devices will aim to change what life looks like for people over the age of 65 and fix the issue of sedentarism amongst the older population. With the advancement of this specific technology, we may be able to change what life looks like for years to come.

Meanwhile, in my sociotechnical analysis, I have realized that the creation of this device may have unintended consequences on our society. When taking a step away from focusing on the positive technical advantages, it is evident that technological constructivism plays a major

role. Through vast amounts of data analysis with different forms of media, I am equipped with the knowledge to understand how we are being trained to think. Utilizing an array of media from children's cartoons and movies to films made for adults, we can see how technology, and more specifically robots, are not always viewed in the best light. To allow for the acceptance of this technology in the future though, we must first consider how technology is currently viewed and the advancements that will come along the way.