

Human machine symbiosis, what this has to do with you?

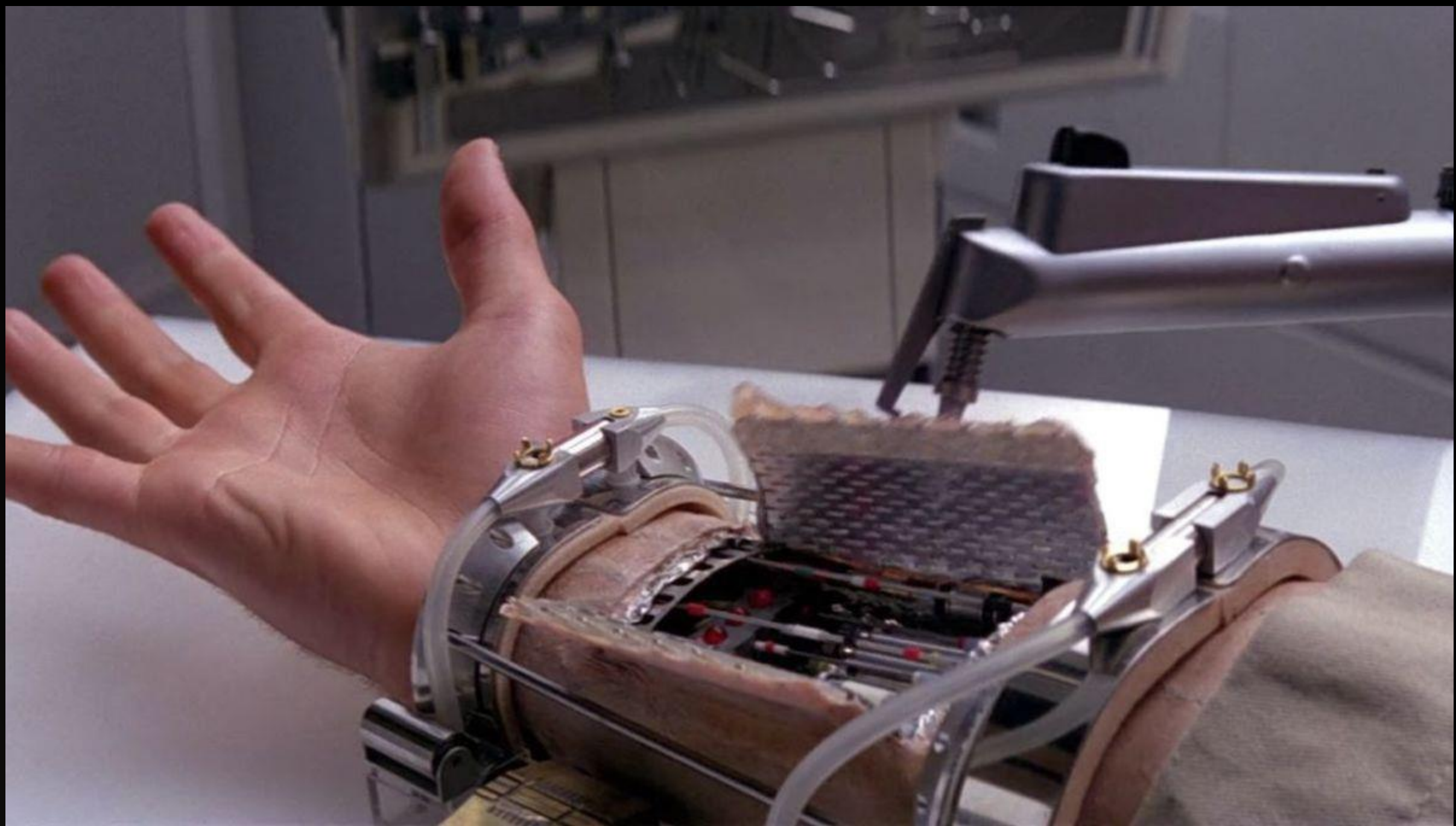
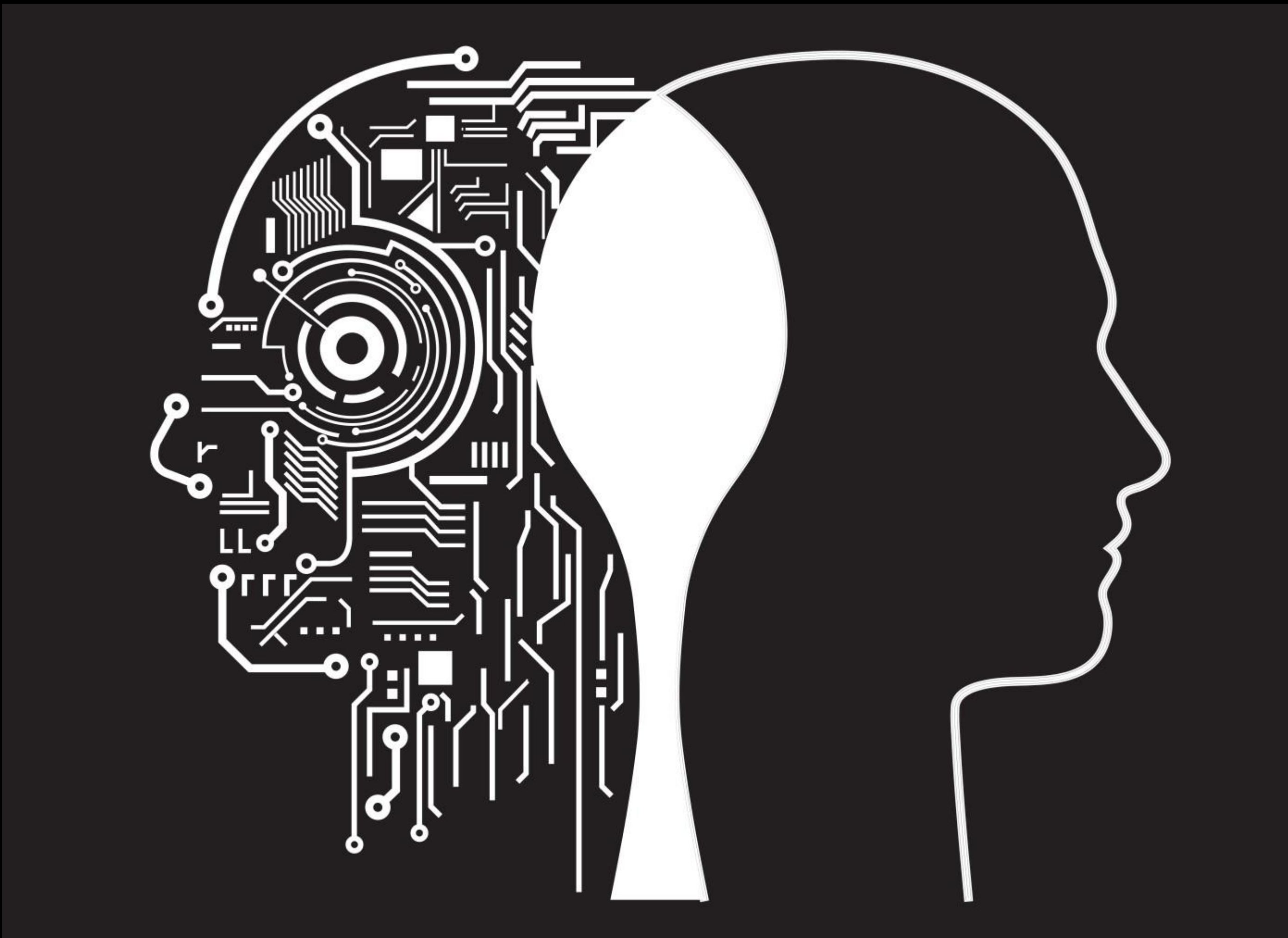
Matthew Cornelius

Introduction

I will be taking a look at the relationship between humans and machines. Specifically how they benefit each other and how they may have a negative impact on each other. Examples of this type of relationship between human and machine shall include topics such as human augmentation, machine presence in the workplace, and human machine codependency. Artificial intelligence shall be called into question regarding its impact on decision making in business organizations. I will also look at media representation of human machine symbiosis, ranging from video games, movies, cartoons, and books.

Why is this Data Science?

The general definition of data science is that it is a field of study that implements topics such as domain expertise, programming skills, and knowledge of mathematics as well as statistics to draw meaningful insight from data. Data science users apply machine learning as well as other tools to produce artificial intelligence to perform tasks that would normally require human input. The topic of human machine symbiosis has the potential to relate to data science in that the foundation of augmentation of the human physiology with machine requires the use of artificial intelligence. Data science revolves around gathering data in all aspects that data could be conceived. Human machine symbiosis in short means human anatomy that has an interaction between a machine which is in close physical association, typically to the advantage of both. This topic also ties into data science when it comes to things such as the ethics of use. Data science has a big issue with how data is to be gathered and what use the data could be applied to. A posed question could be that in order to maintain functionality for example of a robotic hand to replace the original, the builders or some third party may have to routinely check on the systems and gather data on the parts used.



What is the deliverable for this project?

Human machine symbiosis is thriving more than ever when concerning human augmentation, especially within the medical field. I will be performing a deep dive into the many academic research papers, books, and blogs pertaining to this subject to gain information on the topic in hopes of understanding the mindset of experts when it comes to combining human and machine. This project's intention is to give insight on the modern days' thoughts about the subject. The ethics of living in such close proximity with machines. Use of the machine when living in context of a symbiosis relationship. And lastly the possible consequences of being involved in a human machine symbiotic relationship. This in turn should summarize the needed information for easy audience digestibility on the topic.

Conclusion

The Human machine connection is becoming more and more entangled today than ever, there is still quite a ways to go for accessibility. In terms of the medical field usage we are seeing more automated prosthetic units, that record data such as movement patterns to help the ease of use. While in some other areas such as cell phone use we see more each year how they are being further integrated into our personal lives. Accounts tied to you store multitudes of information such as passwords, credit card information, personal search history, among many other topics. All of this data is saved in a cloud on the internet, the cloud is said to be protected but there as with any kind of storage, there is always a risk of what's inside (data) becoming available to unwanted parties.

Acknowledgements

Dues Ex: Mankind Divided - Inspiration

[1] "1 Introduction," Man-Computer Symbiosis, groups.csail.mit.edu/medg/people/psz/Licklider.html.

[2] Bejan, A. abejan@duke. ed. (2017). Evolution as Physics; The Human & Machine Species. European Review, 25(1), 140–149. <https://doi-org.ezproxy.bellevue.edu/10.1017/S1062798716000417>

[3] Boy, G. A. (2011). The Handbook of Human-Machine Interaction : A Human-Centered Design Approach. Surrey, U.K.: CRC Press. Retrieved from <http://search.ebscohost.com.ezproxy.bellevue.edu/login.aspx?direct=true&db=nlebk&AN=398138&site=eds-live>

[4] Daugherty, P. R., & Wilson, H. J. (2018). Human + Machine : Reimagining Work in the Age of AI. Boston, Massachusetts: Harvard Business Review Press. Retrieved from <http://search.ebscohost.com.ezproxy.bellevue.edu/login.aspx?direct=true&db=nlebk&AN=1798833&site=eds-live>

[5] Foster, Ian. "Human-Machine Symbiosis, 50 Years On." ArXiv.org, 13 Dec. 2007, arxiv.org/abs/0712.2255.

[6] Hancock, Peter A. Mind, Machine and Morality: Toward a Philosophy of Human-Technology Symbiosis. CRC Press, 2017.

[7] Hawkins, Andrew J. "Elon Musk Thinks Humans Need to Become Cyborgs or Risk Irrelevance." The Verge, The Verge, 13 Feb. 2017, www.theverge.com/2017/2/13/14597434/elon-musk-human-machine-symbiosis-self-driving-cars.

[8] Hookway, B. (2014). Interface. Cambridge, Massachusetts: The MIT Press. Retrieved from <http://search.ebscohost.com.ezproxy.bellevue.edu/login.aspx?direct=true&db=nlebk&AN=761199&site=eds-live>

[9] Ingham, Lucy. "Half Man, Half Machine: Preparing for Humans' Symbiotic Relationship with Technology." Factor, 10 Apr. 2017, www.factor-tech.com/feature/half-man-half-machine-preparing-for-humans-symbiotic-relationship-with-technology/.

[10] Jarrahi, M. H. (2018). Artificial intelligence and the future of work: Human-AI symbiosis in organizational decision making. Business Horizons, 61(4), 577–586. <https://doi-org.ezproxy.bellevue.edu/10.1016/j.bushor.2018.03.007>

[11] Karamjit, S. Gill. Human Machine Symbiosis: the Foundations of Human-Centred Systems Design. Springer, 1996.

[12] MONTEALEGRE, R., & CASCIO, W. F. (2017). Technology-Driven Changes in Work and Employment. Communications of the ACM, 60(12), 60–67. <https://doi-org.ezproxy.bellevue.edu/10.1145/3152422>

[13] Pilkington, Geoff. "You're Already A Cyborg." Medium, Mission.org, 26 Sept. 2018, medium.com/the-mission/youre-already-a-cyborg-b95ead28f1be.

[14] Prabhakar, Arati. "The Merging of Humans and Machines Is Happening Now." WIRED, WIRED UK, 1 Feb. 2017, www.wired.co.uk/article/darpa-arati-prabhakar-humans-machines.

[15] Romero, David, et al. "Towards a Human-Centred Reference Architecture for Next Generation Balanced Automation Systems: Human-Automation Symbiosis." SpringerLink, Springer, Cham, 7 Sept. 2015, link.springer.com/chapter/10.1007/978-3-319-22759-7_64.

[16] Roy, D. BT Technology Journal (2004) 22: 121. <https://doi.org/10.1023/B:BTTJ.0000047590.43185.1b>

[17] Simonite, T. (2014). Software that augments human abilities: how chess and financial fraud led Palantir to human-machine symbiosis. MIT Technology Review, (2). Retrieved from <http://search.ebscohost.com.ezproxy.bellevue.edu/login.aspx?direct=true&db=edsbig&AN=edsbig.A360798014&site=eds-live>

[18] "US9333652B2 - Safety Monitoring System for Human-Machine Symbiosis and Method Using the Same." Google Patents, Google, patents.google.com/patent/US9333652B2/en.

[19] van Veen, H. A. H. C. (2012). Workshop on Supervisory Control of Multiple Uninhabited Systems - Methodologies and Human-Robot Interface Technologies. Supervisory Control of Multiple Uninhabited Systems - Methodologies & Human-Robot Interface Technologies, T-1-T-10. Retrieved from <http://search.ebscohost.com.ezproxy.bellevue.edu/login.aspx?direct=true&db=mth&AN=97333594&site=eds-live>

[20] Walsh, K. R. ., Hoque, M. T., & Williams, K. H. . (2017). Human Machine Learning Symbiosis. Journal of Learning in Higher Education, 13(1), 55–62. Retrieved from <http://search.ebscohost.com.ezproxy.bellevue.edu/login.aspx?direct=true&db=eue&AN=122824688&site=eds-live>