An Electronic-Evolution

Joshua Hendrickson

Northern Virginia Community College

This paper is being submitted on November 3rd, 2021, for Professor Goodacre's ITE115 Information Literacy course.

Mankind is expanding the fringes of possibility with the aid of continuous advancements in technology. In 1876, Alexander Bell was credited with the creation of the first telephone; In 1913, Henry Ford started the first mass production of automobiles; In 1914, Tony Jannus took to the skies, piloting the first commercialized airplane; In 1920, radio saw its first commercial use and the year 1927 saw the demonstration of the first television. All of these inventions have had a profound impact on the everyday life of the average person. These machines and devices were refined throughout the 20th century, however one of the most impactful advancements was the conception of "artificial intelligence" in the 1950's. One of the earlier applications of an A.I. began as a simple program that was capable of playing checkers, but since the turn of the century the scope of what artificial intelligence(s) has become and can achieve has increased exponentially. A common misconception is that "A.I." is a singular term which refers to a specific area of development or expertise in the world science and engineering. This, however, is not the case as the subject of "artificial intelligence" spans over a variety of different fields including psychology, medicine, business, commerce, transportation, etc., with each field taking a different approach due to varying goals. The study of A.I. in the field of psychology, for example, seeks to examine and compare the learning curve and behavior of software and machines to that of a human's learning experience/process, with a potential goal of replicating human cognitive processes/personality traits. There is also a large subfield of A.I. called machine learning, in which machines or programs are fed data in order to "learn" and increase their autonomy and efficiency. Just this one subfield has a near infinite list of possible applications, and as this list grows the larger concept of "artificial intelligence" continues to evolve. As this growth continues, so does mankind's fall into an electronic evolution, bringing with it great benefits and severe detriments.

One benefit is that the application of artificial intelligence spans across all aspects of our society: work, education, infrastructure, etc. In one of his articles, Adam Uzialko—the main editor at Business News Daily, and an award-winning journalist—discusses how A.I. is transforming the world of business, as "[m]achine learning is one of the most common types of artificial intelligence in development for business purposes today" (*How artificial intelligence is transforming business*). Adam explains that an A.I. is far more efficient than a human brain since it's able to analyze and process a vast amount of data in just a fraction of the time. By analyzing this data, such business intelligence systems can expedite and streamline the decision-making processes, allowing for greater efficiency and potential profit. This type of artificial intelligence can also improve businesses relationships with their customers by helping manage their CRM systems. Normally a customer relationship management system requires human intervention in order to keep the information up to date. Via the application of an A.I., this process can be made autonomous, allowing for fewer errors and better allocation of employee time and energy. This template, where an A.I. sits in the middle of a business-consumer interaction, can be used to increase overall business and profit as well by allowing the A.I. to monitor and handle the advertising for the company. The A.I. would more effectively advertise to future consumers by direct-targeting products and recommendations based on the consumers previous purchase history or known affinities: a method which was successfully implemented by Amazon.com in the form of their "recommended items" list and is now backing over a third of their sales. The popularity of social media sites provides a further platform for an A.I. to reach possible consumers based on the places the individual visits the most; the types of food they eat the most; and even what they view on their screen the most. As our finances, commerce, and methods of

doing business continue to become more virtualized, more and more companies will need to implement such methods if they want to keep up with their competition and stay relevant.

Also reaping the benefits of such implementations are our teaching methods and our overall educational system(s). This idea is expanded upon by Bernard Marr (successful influencer and respected leader/partner in the world of technology and business), who addresses these benefits in one of his articles and suggests "as AI educational solutions continue to mature…AI can help fill needs [and] gaps in learning and teaching and allow schools and teachers to do more than ever before" (*How is AI used in Education).* Essentially, an A.I. would give students a tailored learning experience by producing a completely unique and personalized style of teaching that's based on the individual students needs and priorities –a feat seldom met by human-instructors. Our educational system(s) would experience a spike in quality and efficiency, creating a snowball effect, further increasing the speed-of-growth and potential for advancements in fields such as medicine, transportation, infrastructure, and so much more. Another benefit that stems from the application of an A.I. in an educational setting is the expedited development of cultures and societies. A.I.s could help make education more accessible to people all across the globe, no matter what language a person may speak or where they live. This enables underdeveloped and remote, third-world countries to increase the base education levels of their citizens, which has the far-reaching effect of benefitting the advancement of mankind as a whole. Afterall, you're only as strong as your weakest link.

Even though A.I.s could help conceive a more productive, brighter, interconnected future, they also have the great potential to halt our progress as well. With the vast number of different ways humanity can benefit from integrating various artificial intelligences, comes a vast number of potential risks, threats, and drawbacks. Bernard Marr raises the question to several of these

risks in a separate article, stating “Since recent developments have made super-intelligent machines possible much sooner than initially thought, the time is now to determine what dangers artificial intelligence poses” (*Is artificial intelligence dangerous?)*. Marr is emphasizing the urgency of “getting ahead” of the curve, and the need to start proactively setting measures and regulations as to avoid potential dangers. One of these more prominent dangers involves *how* humanity decides to utilize A.I.s, as Marr suggests that the idea of a “nuclear arms race” will instead be a race of who can acquire the best autonomous weapon(s). The desire to bring such machines into creation would be fueled by several factors: countries wanting to lower soldier fatality rates by implementing technology such as drones or (potentially) robotic combat units; and to possess weapons that don’t pose or result in major environmental hazards, such as the radiation contamination brought about by our current nuclear weapon set. In fact, our military just recently started testing a new drone model called “the Switchblade”. Rather than having the drone fly over the targeted area and drop bombs from above, “The Switchblade” would instead be a discreet, remote-controlled drone that also couples as the bomb, which can be guided right to its designated target. A possible future-advancement of this idea could be an A.I. system that controls a large handful of such drones, which could all simultaneously be guided to their respective targets, with pin-point precision.

Human beings weaponizing artificial intelligences would be one of the most detrimental decisions, however there are more sinister possibilities as well. Utilizing advanced A.I.s, governments could create intricate networks and systems that spy on and monitor their citizens and anyone within their borders –effectively eliminating any notion of privacy. This is actually one method implemented by communist countries such as China, that allows their regime to keep a firm grip of control. Even without being backed by ill-intent, artificial intelligences could pose

severe risks, as Bernard Marr further warns “if we aren’t clear with the goals we set for AI machines, it could be dangerous if a machine isn’t armed with the same goals we have” (*Is artificial intelligence dangerous?).* Marr is essentially emphasizing the need for properly coding in rules and boundaries, as a miscoded or configured A.I. could result in a various number of damages or even casualties. For example, a smart car told to get its passenger from point A to point B will naturally follow the shortest route, however if the programming is off this might entail the car driving on the wrong side of the road or even using sidewalks and medians as shortcuts. Despite the allure of possibilities that A.I.s present, it’s important for their creators to tread carefully and thoughtfully.

To conclude, we are still far from creating the level of advanced or sentient artificial intelligence seen in science fiction, however, we are getting closer and closer to bringing them into fruition. And as we trend closer to this reality, our advancements in innovation continue to spike over all aspects of our culture, from commerce to education. As such it’s important to start discussing and building the ethics around A.I.s before we hit a critical junction where the future of our species falls to the wrong hands, people, or programs in power. Therefore, with so much at stake, it is imperative that we tread carefully and try not to lose our sense of humanity while in the face of the artificial.

Work(s) Cited

- Uzialko, A. (2019, April 22). *How artificial intelligence is transforming business*. Business News Daily. Retrieved November 3, 2021, from https://www.businessnewsdaily.com/9402-artificial-intelligence-business-trends.html.
- Marr, B. (2021, July 13). *How is AI used in Education -- real world examples of today and a peek into the future*. Bernard Marr. Retrieved November 3, 2021, from https://bernardmarr.com/how-is-ai-used-in-education-real-world-examples-of-today-and-a-peek-into-the-future/.
- Marr, B. (2019, March 14). *Is artificial intelligence dangerous? 6 ai risks everyone should know about*. Forbes. Retrieved November 3, 2021, from https://www.forbes.com/sites/bernardmarr/2018/11/19/is-artificial-intelligence-dangerous-6-ai-risks-everyone-should-know-about/?sh=1e9feee12404.