The key areas that I will be focusing on in this presentation is the integration of AI into cybersecurity, disaster-relief and self-driving cars and the opposing viewpoints that surround this integration. Artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems to perform tasks that humans would. They can repetitively improve their skills without human intervention based on the experience they gain which allows them to adjust to new inputs and advance.

AI has potential within the field of cybersecurity can be trained to generate alerts for threats, identify new types of malwares and protect sensitive data for organisations. Sixty-nine percent of organisations believe AI is necessary to protect against cybersecurity attacks. One of the main advantages of using AI for cybersecurity is that it can identify unknown threats which normally a human would not be able to identify. Most of the time these come in the form of attacks which can be deadly as they already attack the network before they are even identified therefore, we can use the AI and how it continuously develops to be prepared for any attack. This could mean we could defend the system from attacks that the hacker might have produced by thinking sophisticatedly. Examples of the successes of AI in cybersecurity can be seen in big companies such as *Google who unveiled new security programs, 'Cybersecurity Action Team' and partnerships with CrowdStrike, Palo Alto which have integrated AI to help with cybersecurity* (cm-alliance, 2022)(ZDNet, n.d.)

In contrast, the drawback of using AI is that hackers could already be using AI within their system to develop malicious viruses and attacks and so are one step ahead than companies who are just starting to use AI to help with cybersecurity. This could mean it will cost even more time and money for the company to get better AI defence systems. As a result, a company could be in a dilemma where they are attacked by hackers and have an AI defence system in place, but the hackers have an even stronger AI system that can bypass it and can be very deadly. Therefore, these companies should try to invest in backup systems to regularly back up their data which is more efficient in such scenarios. In the future hackers could use AI to conceal malicious codes in supposedly benign applications. They program the codes to execute at a specific time, or when a targeted number of users have subscribed to the applications.

The overall main drawback of AI within cybersecurity is that hackers could bypass AI systems and could be using their own to help with it and if in the wrong hands within cybersecurity hackers can exploit this opportunity and continue with ease therefore it can do more harm than good in contrast people might argue that with years of development they could be made flawless and impenetrable however I think this is still a really early stage to tell whether its will be a success within the field of cybersecurity as development have only just begun. (Society, n.d.) (eccouncil, n.d.)

Within disaster relief, AI has the potential to speed up our understanding of natural hazards, analysing large volumes of data from different sources and improve proactive rather than reactive actions for disaster risk reduction**.** A successful example of how AI has helped with disaster relief is when Artificial Intelligence for Disaster Response (AIDR) was used by the UN to gather info about the 2015 earthquake in Nepal. They used AI to find out about the damage and emergency response after the earthquake had hit. This allowed them to provide most aid and support to the most affected area by the earthquake. AI can be used differently to predict and help with aid in different natural disasters. For example: In regard to earthquakes, they can be trained with the help of seismic data to analyse the magnitude and patterns of earthquakes and predict the location of the earthquake and the aftershocks. In regard to floods researchers can input previous flood and rainfall records to monitor and predict possible locations for floods in the future. In regard to volcanic eruptions AI systems can accurately predict volcanic eruptions with the help of seismic data. Finally, AI can use satellites to predict and monitor the path and intensity of tornadoes.

In contrast the disadvantage of using artificial intelligence is that the data is based on past records of natural disasters. Therefore, AI-powered applications cannot process the changing trends and magnitudes of natural disasters such as floods and earthquakes. And there is no way to introduce the effect of climate change on natural disasters in current AI-powered applications. Since AI is trained using past records, the systems are unable to analyse the effects of climate change. Hence, it is difficult for artificial intelligence to predict long-term trends of various natural disasters that are affected by climate change.

In addition, another disadvantage of AI for disaster relief is that it is prone to making mistakes as artificial intelligence is built by humans who are not perfect and are capable of making mistakes. Therefore, if a mistake had cost a lot of lives, it would be a dilemma for who would get the blame; would it be the creators or would it be the people who authorized the use of AI within disaster relief as it could cost lives and could cost a country a lot of money.

The overall main concerns of implementing AI within disaster-relief are the ethical and economic concerns as a small error in prediction could cost a lot of lives as the AI could say there will be a hurricane in a week’s time, but it could have hit sooner therefore then there would be a dilemma on who the people would blame in addition this can cost millions in damage. However, some people argue that AI can be more reliable in this field as it has already been successful in some circumstances, and these outweighs the errors it has made. It has real potential within this field as disasters are unpredictable and AI can soon and already be proving to be really helpful e.g., Helping California with wildfires using AI powered cameras. (GovTech, n.d.) (Heteren, n.d.) (Joshi, n.d.)

AI can be used to create autonomous/self-driving cars. In which it has the potential to increase the safety of travel in a vehicle by reducing human error and eliminating distractions while driving. One of the main ways they can do this is by reducing the thinking time to reduce the overall stopping distance. Normally thinking distance is affected negatively and is increased because the driver is under the influence of drugs or alcohol and using AI could mean the reaction time is instantaneous as AI cannot really be distracted. Therefore, reducing it will decrease the stopping distance as stopping distance = braking + thinking distance. According to Mike Hawkes of the Society of Motor Manufacturers and Traders*. “*Automated driving systems could prevent 47,000 serious accidents and save 3,900 lives over the next decade through their ability to reduce the single largest cause of road accidents – human error.”

In addition, the implementation of fully autonomous cars can mean that they be economically and socially beneficial as they can go faster therefore save money on petrol and diesel as they will not get distracted and are not prone to human error as time and effort spent developing this technology could make them perfect and mean they make no mistakes. This could also mean that police time can be better spent as they do not have to worry much about speeding and road accidents and can be quicker to reach possible crime areas and catch suspects more easily.

Furthermore, another advantage of fully autonomous cars is that it will make travel easy and accessible for the disabled and elderly. For example, elderly and disabled people who are not able to drive due to physical and mental problems can easily get around this themselves by travelling in a self-driving car without being dependent on anyone or have to book a taxi this can make them more self-sufficient. Also, it can allow a lot these people to possibly work as transport could have been an issue prior and can socialize more with people at work and betterment their mental health. Research shows it will ***“create new employment opportunities for approximately two million individuals with disabilities and save $19 billion annually in healthcare expenditures***from missedmedical appointments**. “**

In contrast there are major downsides to implementing AI within cars to create autonomous cars. One majorly issue is that autonomous cars are AI based which are just complex codes. Therefore, hackers can in the early stages of autonomous cars very easily hack into the even most complex systems as it all roots down to the complex codes and hackers can exploit this by manually controlling the car themselves and causing accidents. Therefore, in these early stages of deployment and testing security will be a major problem even with lots of investment and protection to the network therefore the best way to tackle this would be to mandatory penetration testing before safely deploying these cars onto roads and companies will need to invest a lot of time doing R&D to also prevent hackers from controlling the user’s and manipulating their car reading , also from tracking down the user’s car and knowing frequent destinations e.g. Their home, workplace etc. *The EU Agency for Cybersecurity (ENISA) and Joint Research Centre (JRC) released a*[*report*](https://www.enisa.europa.eu/publications/enisa-jrc-cybersecurity-challenges-in-the-uptake-of-artificial-intelligence-in-autonomous-driving)*warning that autonomous vehicles carry serious cybersecurity risks*. The most notable cybersecurity challenges associated with physical components include DDoS attacks (Denial of service attacks), Sensor Jamming, Information disclosure.

Furthermore another disadvantages of autonomous cars using AI is that it can dramatically increase congestion within the roads as more people who don’t have a driving license could get on the road and just make the environmental situation of global warming even worse therefore there are some ethical issues with this technology as if the AI started malfunction and the driving didn’t know how to drive it can have disastrous consequences so it risks the safety of the passengers within the car and other passengers on the road. Therefore, the government must until the technology is proven to be completely reliable with little to no faults tell drivers that they must be able to drive the car manually until major development is done towards this system. Now, *partial self-driving or “hands-free” driving*[*will be allowed (with specified rules in place) on UK roads by*](https://www.bbc.co.uk/news/uk-53830947)*the end of 2021. The Department for Transport said that automated lane-keeping systems (ALKS) are the first type of hands-free driving to be recognised in the UK. The Highway Code is expected to*[*establish key safety laws*](https://www.gov.uk/government/consultations/safe-use-rules-for-automated-vehicles-av/rules-on-safe-use-of-automated-vehicles-on-gb-roads)*regarding the use of autonomous driving technology, and this will cover the responsibility of drivers.*

The overall main concerns of AI with cars to enable fully autonomous cars is that there are ethical and security issues with it. If there are an accident and people die it is a dilemma who should take the blame also, they can be very easily hacked, be controlled manually and hackers could gather valuable information therefore unless it is completely dependable fully autonomous cars are not the way to go forward. In contrast people argue this can reduce accidents as there will be less accidents due to substance-abuse and could have little to no reaction time therefore making them much safer. I think fully autonomous should be implemented just yet as there still need to be more developments in AI and they should slowly be incrementing from what level cars are legal on the road currently it is level 1 and two this should gradually increase till we reach fully autonomous at level 5. (Michaels, n.d.) (Foundation, n.d.) (Conscience, n.d.) (Vox, n.d.)

In conclusion, I believe that AI at its current state is not completely reliable so can cause more harm than good however it has the potential to be a very key aspect of Cybersecurity , Disaster-relief and Self-Driving Cars in the near future however at the moment I think it can only be used partially within these fields as there are still major issues that need solving and for AI to be fully implemented it must have almost no flaw or else there will be a lot of ethical issues surrounding the consequences if there were to be a fault.

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