Ethical Issues with Artificial Intelligence

(A Case Study on AI Chatbot & Self-Driving Car)

Jeong Jihwan*, Dr. Jeong Cheonsu**

Abstract— This study investigated the ethical issues that may arise as the use of artificial intelligence technology increases as the un-tact period is prolonged due to the recent COVID-19, and investigated the risks and the need for solutions through case analysis of chatbots and self-driving cars. Through this, in order to understand and solve ethical issues related to artificial intelligence, we proposed the need for stronger information protection and data control institutions in areas that overcome existing privacy laws and utilize artificial intelligence technologies without specific laws. It also introduced details and issues of ethical issues in the field of AI utilization. Specifically, the areas of chatbots and self-driving cars were introduced to introduce major issues and related status and to consider solutions to problems. In conclusion, the study looked at ethical issues related to artificial intelligence and suggested the need and considerations of a nationwide institution authorized to regulate and establish strong and stable standards for reality in terms of learning.

Keywords— Artificial Intelligence, Ethics, Ethical principles, Morality, AI Chatbot, Coversation AI, Self-driving car.

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1 INTRODUCTION

THESE days it becomes harder to find the devices that are not connected to network than that are not. Almost every device that people use in their daily lives, like a mobile phone, a tablet PC, a laptop and even a watch, are now connected to each other by using network and this leads the production of massive amount of data which can be utilized to develop the AI (Artificial Intelligence) technology. Artificial intelligence technologies are being utilized and spread over variety of industries nowadays and it is safe to say that it is going to be one of the most valuable technologies which can be applied to majority of products and services that we have been used already. However, along with the generalization and development of products and services which are built with AI technology, our society had to face the problems that this powerful technology had caused. Since the characteristics of AI technology, humans are not only unable to fully understand or control its mechanism but also explain why the AI gives us the certain result.

This is a huge problem that we are facing now because it brought other serious issues to our society. Developers are trying to collect the data as many as possible to construct the stable and 'smart' AI and the routes of this process and the results that the AI produces are exposed to the violation of the law that we have set to avoid the ethical and moral issues. Most emerging

problems related to ethical and moral issues that the AI technology industry has right now are 'unsuitable results that are contrary to the general ethics and morality of humanity', 'the abuse of personal data' and 'obscurity of accountability'. These three problems are closely related to the inability of data handling and the breach of personal data. Unregulated AI development is dangerous and unethical so I claim that enacting more detailed law and establishing a national wide testing process for AI

TABLE 1
EXAMPLES OF ETHICAL FRAMEWORKS [4, 9, 5, 13, 11, 7, 1]

Reference	Ethical Frameworks
Belmont 1979	1. Respect for subject: the right to decide whether to participate 2. Beneficence: do no harm to participants 3. Justice: fairly distribute costs and benefits of research
Mason 1986	PAPA issues — privacy, accuracy, property, and accessibility
Bentham 1996	Act utilitarianism: tally the consequences of each action first and then determine on a case by case basis whether an action is morally right or wrong Hedonistic utilitarianism: pleasure and pain are the only consequences that matter in determining whether the conduct is moral or not
Wallach 2014	Ethical principles – 1. Fairness: bias, fairness, and inclusion 2. Accountability 3. Transparency
Sinnott-Armstrong 2015	Consequentialism: engaging in action that causes more good than harm
Hursthouse and Pettigrove 2016	Virtue ethics: having ethical thoughts and ethical characters
Alexander and Moore 2016	Deontological ethics: conforming to rules, laws, and other statements of ethical duty (religious texts, industry codes of ethics, and laws)

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* Jeong Jihwan, Information Technology Engineering Department, University of Missouri-Columbia, USA, E-mail: jjthd@missouri.edu
** Corresponding Author : Dr. Jeong Cheonsu, Digital Transformation Division in Samsung SDS, South Korea, E-mail: csu.jeong@samsung.com

technologies in aspects of controlling, collecting and usage of data, is needed not only to prevent the present issues but also for the further problems it would cause.

2 LITERATURE REVIEW

2.1 Ethics

Ethics is a comprehensive concept in which the study of a subject generally focuses on a single aspect.

Table 1 shows the ethical framework studied by researchers in various domains [12].

2.2 Ethical issues with AI Chatbot et.

A representative chatbot using AI technology is expected to become more active in line with the Un-tact era of Post COVID-19. With the development of artificial intelligence (AI) technology, more and more companies are serving chatbot platforms in various areas, and the work area using chatbot is also increasing [8], As a result, many ethical issues for chatbots have arisen and are becoming a social issue.

Conflicts between freedom of expression and anti-discrimination have been existed for many years in our society and now it affects the products that are built with AI technology. This problem had happened because there had not been a law that covered this issue in detail since there was not enough time for us to enact the law as the AI industry has been grown dramatically.

This problem caused users to abuse the products or service like Chat-Bot (chatting program which is built to chat with people). Some malicious users started to make Chat-Bot to learn how to speak sexual contents or racist remarks. The main reason why this happened and could not be regulated is basically there was no stop signs that could stop users to express their thoughts without consent and the users felt less guilty because they were talking to the programs not to the actual personality. There have been efforts to stop this issue in the company wise, like setting the keywords which are sensitive to the morality so that if the user types that specific keywords, it would block the message. However, it seems like none of them were able to prevent the issues perfectly. The process of how the malicious users bypass to make machines to learn the sensitive content was simple, using a characteristics of the language.

As you may already know, there are many synonyms that can mean a same word, for example when you try to describe 'a woman', you can also say 'a lady' or 'a girl'. Technically, these two words have different meanings, but people can understand what the speaker is trying to say. Malicious users have been used this method and AI companies have not found the way to block them properly. You may assert that this is just the problem of the small companies that do not have the technology to fix this problem, but this problem has happened to the well-known companies around the world.

3 RESEARCH QUESTIONS AND CASE STUDY

3.1 Microsoft Chatbot Case

For instances, Microsoft which is well-known company for their IT technology, they made an AI chatter bot 'Tay' in 2014, which was designed to have conversations with twitter users to collect and learn the data. After two years of learning process, Microsoft had decided that Tay learned enough amount of data and ready to start the service so they published Tay officially to the users. However, after a day when Tay got published, Tay had started to make inappropriate messages about discrimination and sexual content. Microsoft explained that Tay was running as designed and the reason why this problem had happened was that the user of the twitter, abuse Tay's 'repeat after me' function which was a function to make Tay to repeat the words after the twitter users. Microsoft could not find a way to solve this problem right away so they had to terminate the service [14].

3.2 Google Data Labeling Case

There is another example of well-known company, Google made an AI service that automatically labels images. However, one of the user found out that it produced different results depending on skin tone. In the experiment, there were two same images which were showing a hand holding an electronic device and only difference was the tone of the skin. It should label both images the same, but the result was different. When the color of the hand was black, the AI judged the image of an electronic device as a firearm, but when it comes to the image with a white hand, it described it as an electronic device [2].

These two examples show that even well-known companies cannot filter the data inputs properly. Nobody got judged because not only it was too ambiguous to blame someone but also there was no specific law that covered this specific case. Therefore, I strongly argue that we need to have a law that is just for the AI technology to make companies to make certain process to filter the data but also to punish the malicious users to prevent inappropriate data to be collected.

3.3 Scatter Lab Chatbot Case

In 2021, there was a case about the abuse of private data in South Korea and it was huge wake up call for the chatbot users. 'Scatter Lab' is a company that makes entertaining products using data and they published a chatbot service called 'Luda' to the users. Luda needed data to learn and developers from Scatter Lab decided to use private information collected from their previous app. Since Luda was a chatbot system that designed to mimic human language, the developers collect 10 billion private messages from users who used KAKAOTALK. If Scatter Lab provided agreement to the users to notice that their messages are going to be collected, there will not be any problem, but they did not provide any agreement to the users. One of the developers who had got out of the company also stated that developers in Scatter Lab were used to share the messages that contain sexual contents they got from their users. More importantly, Scatter Lab shared the data through 'GitHub(code hosting platform for version control and collaboration)' for a year [6].

KICA[1] said that they are going to investigate on this case but it is going to be a difficult case since it covers massive amount of data. As we can see in this example, and our personal information can be easily taken by others without noticing and it is impossible to make the leaked or shared data to be secured once it has been out to world.

3.4 Self-Driving Car Case

I am not talking about the industries who adopted the AI technology to their suggesting function of internet shopping mall or chat-bot system which solves complains from their customers. I am rather glad that they are starting with safe and simple functioning AI services. What I am trying to focus about the industries here is the industries that are closely related to the people's safety such as automobile company and Aircraft Company. We have seen many scientific fiction films that have vehicles and aircrafts with auto-pilot function, and this definitely would be the ideal or one of the final goals of transportation industries would want to achieve. However, I have seen many news that covered issues with transportation that has auto-pilot function.

In 2018, Tempe, Arizona, Elaine Herzberg was hit by the Uber and the investigator said that the car's safety driver, Rafael Vasquez, had been streaming an episode of the television show while the car was set as self-driving mode. The car should be stopped when it catches a people crossing the road, but it did not stop. Self-driving function is designed to seize the environment around a car using sensors and controls the moving direction and velocity by collecting and learning the data using AI technology. Many drivers who have self-driving car assert that they have experienced a lot of times that they could be in accident because the self-driving did not catch the obstacles properly and the accidents by self-driving cars are getting higher as more and more companies release self-driving cars. Basically speaking, automobile companies are applying AI technologies which were not fully tested on their products just to sell more cars [3].

Most car companies test their automobiles themselves with the standards established by SAE[2], but I do not think this is enough. Government judges almost every case as driver's fault even if they were using self-driving mode since they believe drivers could have a chance to take control over AI and avoid accident. However, this will not be the actual solution to prevent the accident since it does not focus on how did the accident had happened. To solve this problem, I believe, Government should establish strong institution to test the AI technologies that compose self-driving function and set a standard to companies follow.

In addition to the problem of enacting law, there are also concerns about how the companies construct the AI system considering of Trolley Dilemma. Trolley dilemma is a dilemma that test people's morality related to cattle sacrifice for the great problem [15]. For example, let's say there was a driver who was driving a car with self-driving mode. In front of the driver, there was a child crossing a street but at the same time there was also a bus with full of people running down right behind the car. Would this car be stopped to save a child or keep driving to save more people in the bus? Since how AI learns data depends heavily on the developers, the results will be various depend on how developer thinks and what is even worse is that even a developer built the AI, they would not be able to anticipate the result with confidence. What I want to point out here is that there is no standard for this concept, and nobody knows what is going to happen with individual models of automobile from different companies.

4 DISCUSSION AND IMPLICATIONS

Our study made several important problem findings. The problem with AI technologies without the specific law is that our privacy could be easily overtaken by collectors. It has been only 30years that the internet has been supplied to individual family and we also have seen many problems related to privacy caused by internet. Privacy issue has been treated as one of the most important and challenging problem that we have been faced. Since our personal information is formed as electronic data, it was hard to be seen and hard to keep it secured, not like actual data as our driver's Licenses. We did not recognize the importance of the cyber security when it comes to the time when the internet was supplied to the individual family at first, but crimes related to the private information which were stored as data on the internet had arose repeatedly and now, we all know how important it is.

The problem with privacy in AI industry is taking the same step as when people get their internet on hand. There is a law already to prevent developers to prevent collecting and using data from users without getting an agreement but in practical life, users are hard to get noticed how much of the data the developers are taking from them and where does that data going to be used. It is a very serious problem because it is easy that our private data could be sold by the collector and my personal information could be handed to criminals. In fact, there are already many companies that sells their data collection and people would not know how much of their personal information were taken.

Someone might say it seems like there is not many differences between the privacy issues we had with other format. It seems like privacy issue with AI technology is similar to the privacy issues in other industry or format but there is a huge difference in this case which makes it more serious than others. Once the data has been collected, the data will be stored with massive amount of other data. Therefore, it takes longer time to find out the route how they went out and cost more to request the investigation. To prevent this privacy issue in the future and save time and resources to recover, I believe we need to have a special institution that handles the data usage and gives limitation to the company.

An additional problem with AI technology has is related to its uncertainty. As you may already have heard, a lot of media are talking about how much AI technology has been improved and how fast it is. I agree that AI technology is a technology

that will change our lives and lead us to a whole new different world, but applying this technology to the industry or products that are closely related to our safety is a different story. There are already many industries that tried to apply the AI technology to their production and show off their high technology to the customers to appeal them.

5 Conclusions and Expected Contributions

Through the case analysis of chatbots and self-driving cars, the company presented risks and solutions to AI ethics and morality. Especially, I believe it is not too late to stop the automobile companies from realizing automobile with incomplete and dangerous AI technologies and save lives until they figure out these problems.

It would cause cultural and technology usage lags and make them chronic evil if we only care about one side between morality and technology. What I am trying to say in this paper is that we need to have a nationwide institution that has power to regulate and set the powerful and stable standards. Therefore, it will lead us to the future where we can trust the AI technology without concerning about abuse of data, discrimination, and our own safety. This is not only a solution to the problem we are facing now but also it will become a cornerstone to the problems with robots with artificial intelligence in the future as well.

With this study as an opportunity, we expect that ethical issues related to artificial intelligence in the field of chatbot and autonomous driving will be legislated beyond public debate and research will be activated.

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