B’AI Global Forum

全学自由ゼミエッセイ集

“Artificial Intelligence and Society”

概要

B’AIグローバル・フォーラムでは、東京大学2021年度Sセメスターに前期課程生を対象とした主題科目である全学自由ゼミ“Artificial Intelligence and Society”を開講しました。英語で行われたこの授業は、大学院情報学環の板津木綿子教授と矢口祐人教授が授業を進行し、各専門分野のゲストスピーカーを迎え「AIと社会を考える」をテーマにした講演を行いました。このエッセイ集は、この授業を履修した9名の教養学部1年・2年の学生が書いたエッセイを収録したものです。

B'AI Global Forum has organized a class "Artificial Intelligence and Society" for first semester students in the University of Tokyo's 2021 Summer semester. The class, conducted in English, was facilitated by Professors Yuko Itatsu and Yujin Yaguchi of Graduate School of Interdisciplinary Information Studies at the University of Tokyo, and featured guest speakers from various fields of expertise on the theme of "Artificial Intelligence and Society.” This essay collection contains essays written by nine first- and second-year students of the College of Arts and Sciences who took this class.

Summer 2021

目次

Artificial Intelligence and Legal Responsibility

Anju Hata

These days, Artificial Intelligences play a larger role in society and make our life convenient. However, there are also some problems, such as gender biased recruiting, racial biased image recognition, medical malpractice, and car accidents by autonomous driving vehicles. I agree that it's important to start some campaigns to raise people's awareness, but it will take a long time and its effectiveness is hard to evaluate. So, in case we cannot avoid accidents, the problem of responsibility should be discussed beforehand. When AI makes a mistake or causes some problems, who should take responsibility for them

At present, it is usually judged on the civil law concerning torts by a juridical person or individual, as long as AI is just a tool used and controlled by humans so far. Basically, Japanese civil law requires the ability to take responsibility, intention/negligence, and other requirements related to action and damage. Before verifying these requirements, we should think about the entity of AI, that AI has an intention to act or not.

Firstly, to define the entity of AI, how is AI different from humans in the first place? I'd like to express it in terms of consciousness and unconsciousness. It really depends on the type of AI, such as General/Narrow and Strong/Weak AI. If consciousness is defined as self-awareness or understanding of what they're doing and how they will affect the environment and society, AI doesn't have it. AI consistently depends on data and the algorithm given by humans, regardless of changing situations. When it comes to car accidents, for example, the actor causing the accident should have capacity for liability and

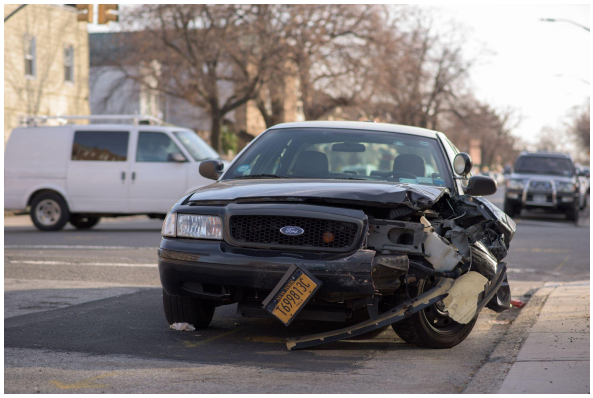


Image | Michael Jin

negligence. AI doesn’t fulfill these requirements and can’t be recognized as the tortfeasor. On the other hand, unconsciousness, which has no relation to the thought process, is also what AI doesn’t have and is unique to humans. In addition, AI is ubiquitous and has no presence, which makes it difficult to recognize AI as one specific and liable entity. Thus, it seems hard to directly accuse AI of responsibility.

Then, I’d like to enumerate possible responsible entities other than AI and consider how they are involved in this problem. There would be AI engineers, companies, and the users. Obviously, it is users who directly use AI when the trouble happens, so they can be said to be fully responsible for. On the other hand, from the viewpoint of users, they want to be compensated for their injury or an unpleasant feeling. However, it is not clear whether AI engineers or producers who install the technology are not to be blamed. Also, some users might be forced to be subjected to the technology by its installers, like in case of gender biased recruiting. In order to deal with such a complex situation, engineers and installers, as well as installers and users, usually conclude contracts of guarantee as producers and customers, which enable them to decide response beforehand and reduce the burden on each other.

Therefore, at least temporarily, the company is required to take responsibility, because only they can represent AI while other entities can't indeed.

Worries on Artificial Intelligence…

Eric Liu

In recent SF works, we see human-looking AI robots planning to eradicate us and trying to occupy the earth. However, in our daily lives, we laugh at the ridiculous mistakes made by Siri or Google Assistant. At the same time, we are wondering: How far should we worry about this technology?

Firstly, there is a worry about whether AI will beat humans and betray us. This is because some unbelievable things have been done by AI recently, like beating the top Go player Lee Sedol, or writing poems like a poet. As playing Go or writing literature are considered activities that require a lot of unique thinking as a human being, such as creativity, AI seems to have become too strong to control.

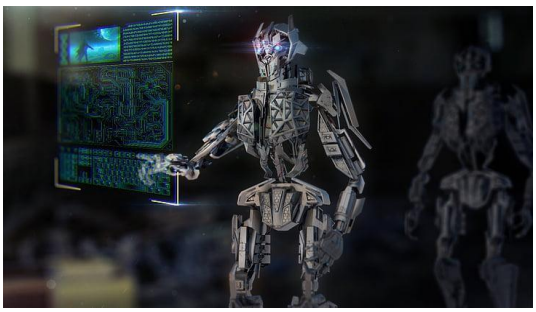


Image | PickPik

However, for this question, I'm sure most people think that AI would not have the ability to proactively think about ways to destroy humanity, at least for another few decades. In fact, technology companies did those things above to attract people's attention and to get investment. What technology companies did was just to directly transfer human's achievements in these areas into computable data. Such as, make human's Go games into numbers showing the position of the pieces, or represent the connection of words in an article with mathematical models. And then they use powerful computing systems with super efficient algorithms (AI, or deep learning) to find patterns buried in these data. As far as I know, no AI has yet been able to understand the thoughts and feelings of an article and create based on this empathy, like what humans are doing.

Just like in writing AI's "mind", the difference between "sad" and "happy" is only the difference in data structure of words.

Image | PickPik

In a word, I would like to state that AI is not yet an intelligent creature, and we should consider it as smart, faithful and powerful tools.

However, there is something we need to worry about as we are using this tool widely.

In fact, AI plays a far greater role than playing Go or writing literature in unseen information processing in the recent world. AI's accuracy and efficiency has made it a better choice than humans' computational skills in many situations. Almost every app in our smart devices, like Amazon shopping, Tiktok, news apps, and Google search engine, uses AI to process data to provide highly personalized service.

Even AI can do such a lot of things, the problem is, although AI seems to be working well, we don't know exactly how the whole data processing works. We give AI an algorithm, a big amount of data and enough operational resources, then leave them alone to conduct numerous machine studies. What features AI extracted and what kind of learning was done always remain unknown, as it is hard to manually check such a huge amount of data. AI is like a black-box, while providing us with the correct results we need most of the time, it silently accumulates human's errors in the big data. With the popularity of AI algorithms, we don't know how and when discrimination, bigotry and violence have been added to the database of AI.


Image | PickPik

One problem caused by this is the AI bias. Although we are becoming aware of the importance of eliminating inequalities and making efforts on it, judgments made by the AI seem to be undoing these efforts. Based on the existing data, AI is instructed to simply label each person and assess the individual by the current state of the group. For example, an AI hiring system developed by Amazon lowered the priority of the label "female" just because the number of

females is still a minority in technology fields. What's worse, even after technicians banned this logic, AI started to lower the priority of keywords more related to women such as "Graduated from womens university." As they could not know if there were other additional biased logic in more underlying operations that are difficult to be checked by humans, Amazon finally abandoned this AI HR project.

Image | PickPik

It's not just the bias, AI doesn't behave as well as we'd like from time to time. There were reports that chatbot on Twitter had learned to say aggressive bad words, or to support extremist ideas, such as Nazism or Militarism. Although AI is just imitating human's behavior on the internet, and doesn't even have any understanding of the ramifications, it could still become a big problem when AI starts to make more decisions in human's society.

Every time mankind invents and uses more powerful technology, it also brings greater danger. Just like the nuclear power could become endless energy sources as well as extremely dangerous weapons, powerful technology will amplify mistakes existing in human society, allowing them to bring about even worse results. Today's AI is no exception. We must carefully examine how AI works, and ensure that it is controllable as it integrates with human society.

Why We Study in the Era of AI

Haruka Sophia Morihara

When we talk about AI, some would want to raise such questions like “Why don’t we just use AI for tasks that humans have been doing? If AI can do various things better than we do, why do we even bother to acquire knowledge and skills?” These days, computers are much better at memorizing, calculating, and so many other things that we, humans, must train to do. AI can recognize faces as well as humans do for curated cases, and it can even create novels. There is no denying that sometimes we, especially students, wonder why we do what we do, study. In this essay, I would like to offer an answer to this question from my point of view.

Image | upklyak

Looking back on humans’ history, we can observe how humans are curious and how much humans have evolved thanks to this curiosity. The Wright Brothers wondered how birds can fly and because they were so much curious about how it feels to fly in the sky, they worked a tremendous amount and finally managed to invent the world-first airplane and fly. In the case of AI, too, humans wondered if robots could make a decision like humans do and started to try making the robots think.

These days, however, I personally think that many people have forgotten the curiosity given the pressure of having to make a career out of their lives. When students were asked this question “Why do you study?” one of the top answers from elementary students was “Because it makes me happy when I can solve a question” according to the survey conducted by Benessa in 2004.

On the other hand, other top answers were “Because I need to study in order to get a desired job,” and “Otherwise, I will become poor at studying.” Even from a young age, children study out of necessity for the future and fear of being left behind.

Studying is essentially fun and it is something which enriches our lives, giving us new perspectives. But many students don’t acquire the chance to appreciate the value of studying, even more when we have AI in our daily life. Instead of looking at AI as threatening and demotivating, we should utilize AI to help us learn the beauty of studying. One good example of this is a language learning app called “Duolingo.” It has over 500 million total users and around 40 million monthly active users, helping them learn foreign languages on a daily basis.

Studying and learning new things takes you to the wonder of the world. It can be hard to continue grasping unusual things, but once you look up, you are looking at a whole different world as you gain new perspectives. That is how I think of what studying is about. And along that journey, AI can be there to support us. Instead of stopping studying because of the existence of AI, why don’t we stay curious, continue studying and create a new way to perceive the world because that is what only humans can do. I hope this essay gives you a fresh perspective on your view of studying.

Gender Bias of AI and Connection with Our Society

Haruka Suzuki

Now, in the world, there are some problems about AI judging unequally. For example, in 2018, it was revealed that Amazon was using a hiring tool that was biased against women, and in 2016, ProPublica reported that a software called COMPAS, which predicted the possibility of a person reoffending, regarded black defendants at higher risk than they really do compared to their white counterparts. Some people may think AI is still imperfect and if we improve the technology, such biases will be eliminated and AI will become able to judge equally. However, it is humans who invent algorithms and program it, and the data AI uses reflect our society directly, so our society must become bias-free for AI to be bias-free. Although inequalities exist in many aspects such as gender, races, regions, and income, gender inequality is the most familiar to me. So, here, I would like to focus on the inequality of gender and think about the problem and its solution from a student's perspective.

Today, gender equality is emphasized and various measures are taken, but the notion of male dominance is deeply rooted, and you can see many aspects of gender inequality in your society. For example, in the University of Tokyo, the ratio of female students reached 20 % for the first time in 2021, but in Natural Sciences I, which I belong to, the ratio is less than 10%. I myself study surrounded by many male students. The members of my First-Year-Seminar class for Natural Sciences Students were all male except me—all of the students, teaching assistants, and professors were male! I try to express my opinions or share what I came up with, but I sometimes hesitate to talk to the members while they are getting lively. I think it's not only me who has had this kind of experience. In the present situation, if girls enroll in Natural Sciences at the University of Tokyo, they will find it hard to improve their skills, because there are a lot of

occasions where it is difficult for them to find people whom they can casually share their thoughts with or ask what they don't understand.

Why is this happening? I think our stereotype strongly relates to such situations. For example, researchers majoring science are male as you can see in manga (like "Pokémon", "MIGHTY ATOM" or "Detective Conan"), drama, and also in the real world—when you turn on the TV, specialists who comment on COVID-19 are mostly male. Also, the notion that boys are good at math and girls are good at languages spreads broadly among us. Furthermore, math, physics, or chemistry teachers in high school or junior high school are mostly male, so many students probably have the image of natural science as studies for males.

Then, what should we do? As for gender inequality in the scientific world, I think our stereotype strongly influences it, and it doesn't seem easy to eradicate the stereotype. However, it is surely possible to improve the present situation by paying attention to education on natural science for girls, getting parents to recognize that they must raise their children without imposing their stereotypes (like "Girls should play with dolls and boys should play with blocks." or "Science department isn't for girls.") on their children, and so on.

In addition, more women need to engage in the field of research where they develop information processing systems so that AI will become bias-free. I mean data may become bias-free if our society becomes bias-free, but if people who design and develop AI systems are all male, women's opinions or experiences won't be reflected. Actually, in science and engineering, a lot of problems have occurred due to lack of gender diversity in the developer side. For example, car crash simulation with pregnant women's dummies had not been carried out until Volvo did it in 2002—it is terrible that engineers have not considered the case of pregnant women until 2002. Like this, there exist defects or shortcomings in various systems because few women engage in developing technology, and this is true of AI development, too.

Image | Christina Morillo

In conclusion, I think we need to accomplish gender equality in our society and also increase the numbers of women who are involved in AI development to eliminate gender bias of AI. And, I want to have more confidence as one woman who specializes in the sciences at the University of Tokyo, and actively work on various school projects without my gender being an impediment. I think that is what I can do as an individual.

Possibility and Danger of AI in Education

Naoya Odaka

The development of Artificial Intelligence (AI) has changed our life so dramatically. Today, AI can translate very complex sentences into other languages or it can drive a car without our human help. Education is one of those categories which have been influenced by AI. Let us think about the possibility and danger of the introduction of AI into the field of education, especially junior high or high school.

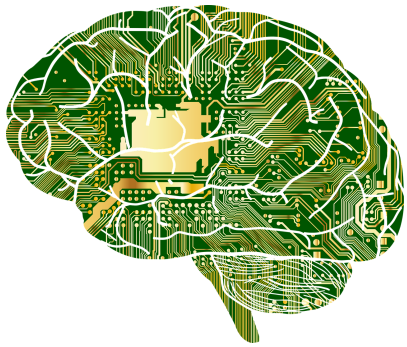


Image | Pixabay

First, let's start with the potentials. In the education field, AI can perhaps realize more individualized and suitable learning for each student. For example, it can offer the list of questions which the student made a mistake. And then, it also can offer a series of new questions which are similar to those kinds. In this process, students can intensively tackle their weak points. That work, finding students' poor points and giving them some similar questions, is not easy for human teachers. AI, however, can do this correctly in a short time and can contribute to students' learning. And actually, that system has already been introduced by Toshin-High-School, which is a major cram school for high school students in Japan.

Also, AI can judge which university/highschool (or other kinds of goals) might be better as a goal for that student. Based on a very large data set, for example, those who get a high score in a certain exam may tend to enter a more competitive school; AI can perhaps suggest which university/highschool he/she may be able to pass. Students can think about their future more objectively. This is also very difficult work for humans.

From the points above, it seems very helpful and beneficial to use AI actively in the field of education. But, there are some dangerous points with AI. The base of AI power is an enormous

amount of data. And through gathering and analyzing those data, AI will unconsciously create biased criteria. Amazon faced this problem with AI. Amazon used AI in deciding which applicants to employ. The AI, however, learned mistakenly that women are less suitable for engineering because there were much more male applicants than female ones in the past employment data. And Amazon was criticized very much. This is a very example in which AI automatically made a biased criterion.

And perhaps similar problems will occur in education. For example, in our society there is one issue about the ratio of women in the scientific field. Data show, women are less likely to enter scientific courses. From that tendency and data, AI may record "Women can't enter scientific departments," and may automatically avoid offering female students scientific courses. But, it is just a tendency and moreover that tendency is not only because of women's ability but of the social system. So, this means AI robs students of their possibilities in a scientific field to enter that course. This is clearly a very harmful result. The fact that AI is based on a lot of data gives AI a kind of authority. We may begin to believe AI is much smarter and more accurate than us. So the judgement of AI may seem correct and students will forget to suspect AI. In that situation, it is very dangerous when AI makes a mistake.

AI is both helpful and dangerous. Then, what should we consider in introducing AI into education? The point is the fact that what AI can understand is just a tendency and that's not an absolute standard. What we should do is to check whether that judgement includes any biases or not and to criticize AI's offering from a more realistic point of view without believing AI blindly. It's not easy, I know. It may be impossible to find out all the biases in AI. I think what's important is that what we're doing is just an allocation of a certain task. AI can judge from many statistical data. On the other hand, humans can judge from realistic perspectives. If there are few scientific courses in AI's offering to female students, for example, we should rethink whether that woman is really unable to enter a scientific department, assessing many factors besides her grades. Such as in this manner, we should criticize AI's judgement from an objective point of view.

The Limits of Machine Translation: Can Deepl Translate Lyrics?

Nasa Tsuchiya

Machine translation using AI technology has rapidly advanced, changing the world in ways unimaginable before. It has allowed individuals to communicate with people from countries abroad on both a mundane and business scale, changing the way we view language barriers forever. However, many critics point to its weaknesses, and stress the prevailing need for human translators. Although I have used Deepl, one of the most prominent machine translating software today, a fair number of times to help me with my writing, I also recognize the many unsolved shortcomings of machine translation, specifically in translating literary pieces such as poetry. In this essay, I will concentrate on analyzing Deepl in its ability to translate song lyrics by comparing the original lyrics to Deepl generated Japanese lyrics.

For the purposes of this essay, I have chosen to analyze the lyrics of the song Champagne Problems by Taylor Swift. Taylor Swift is a lyrical mastermind, with songs that tell stories bursting with imagery and emotion. Specifically, Champagne Problems tells a tale of a runaway lover, who declined a proposal leaving her counterpart heartbroken. Filled with intricate imagery and oblique expressions, this song is a very adequate piece to test the limits of machine translation. Moreover, if it has not been apparent yet, I am a devoted Taylor Swift fan. I would love to share my passion for her music with my Japanese friends but find it extremely difficult due to the complex nature of her lyrics amplified by the language barrier. I am hoping Deepl will

Image | Dmitry Zvolskiy

serve me well. Nevertheless, I am not optimistic. The original lyrics and translations are attached in the appendix. By comparing them side by side, I was able to notice many issues with the translation.

The first apparent deficiency was in translating the word “champagne problem.” Throughout the song, the word champagne problem is used multiple times. Deepl fails to translate the word in any consistent way, switching between “シャンパン・トラブル” [champagne-trouble] and “シャンパンの問題” [problems about champagne]. “Champagne problems” is a word that refers to problems that are generally trivial compared to more significant problems in the world, but nonetheless provide trouble to the recipient. They are also known as “first world problems.” The reason behind Deepl’s failure in translating this word could perhaps be explained by its usage being quite modern, and the word not yet being listed on dictionaries. This points to the bigger issue that an understanding of culture is necessary to truly understand literature, which is something machine translation fails to do.

Secondly, there were failures in the translation caused by Deepl’s inability to understand specific lines in the context of the whole song. One example would be the line, “You had a speech, you're speechless.” In the context of the song, it is apparent that the proposer had a speech, or wedding vows prepared but now was left speechless and in shock because his proposal was shot down. However, because Deepl was unable to contextualize this line, it could not understand the changing perspectives, and the translation does not make sense.

In the same way, Deepl’s failure to contextualize is also evident in its failure to translate lines that require interpretation to be understood. This is most evident in the line, “November flush and your flannel cure,” which, granted, is a difficult line for even human translators to translate. In this line, Deepl has simply seemed to have given up and does not provide a translation at all. The surface level interpretation of this line is, “the coldness of November has caused my cheeks to flush, and wearing your flannel makes me warm, curing my coldness.” This interpretation is only possible when understanding the song as contrasting the warmth of the memories between them and the coldness and isolation that followed their separation. “November flush and your flannel cure” is a beautiful line, concisely expressing not only the image of a lover gently caressing the speaker with their flannel on a cold day, but also how the lover is someone the

speaker feels safe around, and the two quietly spend time together enjoying each other's company. Deepl not being unable to apply necessary context to its translation is a fatal flaw in translating literature.

However, surprisingly, it has also come to my attention that Deepl has attempted to make contextualization. Although this may seem promising, it has made the translation harder to understand. This is most apparent in the use of pronouns. For example, in the last line, "You won't remember all my champagne problems," all the pronouns have been cut from the translation simply making it impossible to decipher the full meaning of this line. Something very intriguing was that when I inserted the above line on its own into Deepl, it produces this translation, "あなたは私のシャンパン問題を覚えていないでしょう" which has all of the pronouns included. Deepl has seemed to decide that omitting pronouns would be permissible if it is done in the context of a larger text. Another curious point revolving around pronouns is the way Deepl identifies gender. In the line "My picture in your wallet," "my" is translated into "僕" which is a generally male-oriented first person pronoun. However, when I only put in the single line into Deepl, "my" was translated into "私" which is generally female-oriented, or when used formally, gender neutral. I was unable to determine the exact mechanism behind Deepl's gender identification. However, this exhibits how Deepl changes the interpretation of lines depending on the context they are put in. Upon testing multiple different parts of the text at different times, the translation appears to be random. On the one hand, this shows hope for machine translation, for one day it may be able to understand literature in a more comprehensive way but on the other, this may be problematic if the text is interpreted with an inaccurate bias.

Comparing the two texts side by side, I was able to identify interesting ways in which machine translation functioned. Though Deepl is very convenient for translating short, day to day conversations, it is far from perfect. Reading through the translation, the lyrics have sadly lost their magic, originally conveyed through precise word choice that evoked emotion. It is impossible to expect anyone to appreciate the song based on the translation, exemplifying how the beauty of literature is not simply in the meaning it has, but the ways in which it is conveyed to the reader, and in the slight touches of nuance unique to each piece. These are things machines fail to comprehend today, and it is doubtful they will be able to do so anytime soon.

Citations

Swift Taylor. Evermore, Republic Records, 2021.

Appendix

Original Lyrics

[Verse 1]

You booked the night train for a reason
So you could sit there in this hurt
Bustling crowds or silent sleepers
You're not sure which is worse

[Chorus]

Because I dropped your hand while dancing
Left you out there standing
Crestfallen on the landing
Champagne problems
Your mom's ring in your pocket
My picture in your wallet
Your heart was glass, I dropped it
Champagne problems

[Verse 2]

You told your family for a reason, you couldn't keep it in
Your sister splashed out on the bottle
Now no one's celebrating

[Chorus]

Dom Pérignon, you brought it
No crowd of friends applauded
Your hometown skeptics called it champagne problems

You had a speech, you're speechless
Love slipped beyond your reaches
And I couldn't give a reason
Champagne problems

[Bridge]

Your Midas touch on the Chevy door
November flush and your flannel cure
"This dorm was once a madhouse"
I made a joke, "Well, it's made for me”
How evergreen, our group of friends don't think we'll say that word again
And soon they'll have the nerve to deck the halls that we once walked through
One for the money, two for the show
I never was ready so I watch you go
Sometimes you just don't know the answer ’til someone's on their knees and asks you
"She would've made such a lovely bride. What a shame she's fucked in the head," they said
But you'll find the real thing instead
She'll patch up your tapestry that I shred

[Chorus]

And hold your hand while dancing
Never leave you standing
Crestfallen on the landing
With champagne problems
Your mom's ring in your pocket
Her picture in your wallet
You won't remember all my champagne problems

[Outro]

You won't remember all my champagne problems

Deepl generated Japanese Lyrics

[Verse 1]

夜行列車を予約したのには理由がある
この痛みの中で座っていられるように

賑やかな人混みと静かな睡魔
どっちが悪いのかわからない

[Chorus]

踊りながら君の手を落としたから
あなたを立たせたまま
踊り場で倒れている
シャンパンの問題
あなたのポケットにはお母さんの指輪
君の財布には僕の写真
あなたの心はガラスだった、私はそれを落とした
シャンパン・トラブル

[Verse 2]

家族に話したのには理由があった 封印できなかったから
あなたの妹はボトルにお金をかけた
今は誰も祝ってくれない

[Chorus]

ドンペリニヨンを持ってきてくれた
友人たちの拍手もなく
郷里の懐疑的な人々は シャンパン問題と呼んだ
スピーチをしていたのに、言葉が出ない
愛はあなたの手の届かないところへ
理由をつけることができなかった
シャンパン・トラブル

[Bridge]

シボレーのドアにあなたのミダスタッチ
ノベンバー・フラッシュと君のフランネル・キュア
″この寮はかつて狂気の館だった″
僕は冗談を言った ″これは僕のために作られたものだ″
エバーグリーンな仲間たちは、その言葉を二度と口にしないと思います。
そしてすぐに、かつて私たちが歩いたホールを飾る度胸がつくでしょう
1つはお金のため、2つはショーのため
私は準備ができていなかったので、あなたが去るのを見ています
時には、誰かが膝をついて聞いてくるまで、答えがわからないこともある。

″彼女は素敵な花嫁になれたのに 頭がおかしくなってしまったのは残念だ」と言われた。
しかし、あなたは代わりに本物を見つけることができます
彼女は私が破いたあなたのタペストリーを繕ってくれるでしょう

[Chorus]

踊りながら手を握って
あなたを立たせたままにしない
踊り場で落ち込んでいるあなたを
シャンパンの問題で
ポケットにはママの指輪
財布には彼女の写真
シャンパンの問題は覚えてないだろうな

[Outro]

シャンパンの問題は覚えてないだろうな

Making Tech Ethical: What Can Universities Do?

Rina Kajitani

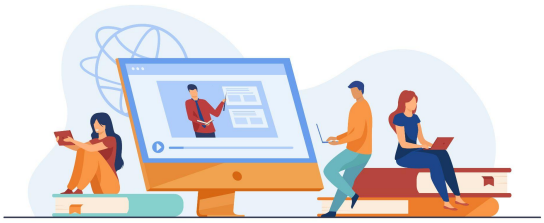


Image | pch.vector

The development of artificial intelligence has come to a point where we can no longer see it as an ingenious tool of the future, and must start looking at its risks. Recently, tech companies have been accused of creating products that can perpetuate biases related to categories like gender and race. For example, their facial recognition system, which had been used by police forces until recently, has received criticism for its poor accuracy in identifying people with darker skin tones. This inaccuracy can perpetuate racial profiling and other biases within the police.

Actors such as the police, the court, and companies can unknowingly be using technology that widens existing disparities mentioned above. Contrary to the rising voices for change within society, corporations tend to have different priorities. The board of directors would lean for bigger profit, and its engineers might overlook ethical guidelines to take the lead in new technology.

The question then is, how can we incentivise tech companies to listen to the voices of the community?

Universities can play a unique role in this issue in two ways. Firstly, they can encourage companies to disclose the inclusivity of their research, the potential biases in their data, and other risks. This includes universities conducting joint research with companies. Universities can insist on a check and balance system in their ethical execution in R&D, and publicize key information.

In addition, researchers and experts on the topic can actively call out social issues regarding AI through academia, media and the political sphere. Moreover, they can work on research that shows the economic benefits of ensuring diversity within a company, both in terms of profit and the amount of innovation.

Once tech companies become more open about the analytical data of their products, someone has to be able to analyze and interpret the disclosed data. This leads to the second role of universities, which is to educate their students on the risks of AI. Social disparities persist because they are hard to find. This is especially true in seemingly "objective" algorithms, accompanied by a myriad of coding and other tech jargon. Therefore, the aspiring engineers and researchers who are currently on campus should be equipped with both the technical knowledge and the ethical perspectives for AI development by the time they graduate. Not only should STEM students receive education on AI and social issues, but also all students regardless of their academic interests. We live in a world where technology and the functioning of society are inseparable. As long as one is a consumer of tech companies, they should always be aware of the social inequalities technology can generate.

Overall, the key is communication between different actors, both in direct and indirect means. Companies can take a closer look at the intersectionality of their consumers and the ethical perspectives they are missing in their current research. On the other hand, university faculty and the students should make the effort to learn about technology, and be able to critically analyze them. As a university student myself, I hope to make the most of my learning environment and keep thinking about AI and ethics.

AI Can Only Be Successful with the Inspiration of Society

Sheldon Feiyu Zhang

Technologies are often glorified to be the sole reason why civilization can progress. In human history, we do see a lot of innovations that change our ways of living in the micro aspect and change the structure of the society in the macro aspect. Take the spinning jenny as an example. The spinning jenny made textiles and clothes available to all of us with cheap prices, on the other hand, spinning jenny also opened up the new production form which we later called factories. Therefore, technologies and societies unavoidably intertwine and affect each other.

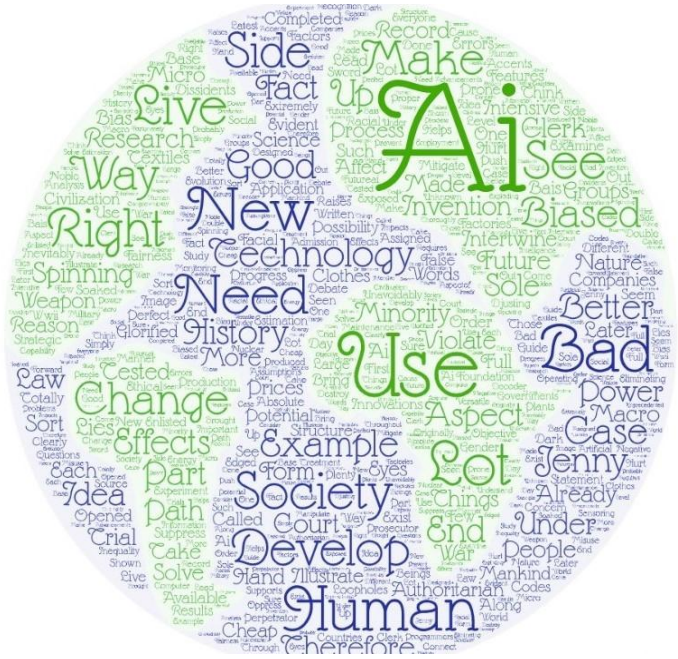
Inevitably, good or bad features are assigned to technological changes. In other words, technologies can have side effects. In the case of AI, we already see some of the extremely bad cases developing under our eyes, authoritarian governments use AI as a weapon to suppress the dissidents and the minorities, AIs are used as strategic weapons that can power a war, and some companies and people are using the loopholes in the law to violate our rights using AI. Therefore, it is evident that we need to examine the changes in society along with the development of the future, make our estimation of the future of society, and do our part to mitigate the side effects of technology.

I used to think that AIs can be a perfect prosecutor that can solve a lot of things from a court clerk to a researcher that can make a trial/experiment totally objective. The foundation of such assumptions lies in the fact that humans are prone to errors, therefore eliminating the human factors will bring a sort of ‘absolute fairness’ to everyone. This statement is false because AIs are originally designed by human developers. In the examples I have enlisted, court clerk AIs can be biased in recording different accents, research AIs can record the results in a biased order. In fact, when the AI development is completed, it has already been soaked with the will of its

developers. The base codes are written by human programmers. Through the adjusting, testing, operating, and maintenance process, every part of it is exposed to human bias.

The idea that inequality can be produced from the development of AI is one of the most important ethical questions that is under intensive debate. Large companies develop biased facial recognition. AIs for admission and employment seem to consider gender and racial aspects in a negative, biased manner. Image analysis is used to oppress the minority groups in authoritarian countries. Those examples clearly illustrate that AI has the full potential to lead us to a bad end of human evolution, where future AI is used to hurt people (like AI's use in military), violating human rights (like AI's use in monitoring, sensoring, and bais treatment for minority groups) more than it helps or supports human beings and our lives. The possibility of a bad application of technology raises my concern about how humans use technologies.

The possibility of bad endings for Artificial Intelligence illustrates that AI is a double-edged sword and we need to develop a right path for its development. Fortunately, history has shown us the right path. Throughout history, there exist plenty of examples of technological advancements that have d mankind; technologies that can potentially destroy mankind are also not few. Humans are good at making use of a technology if it is simply needed. Humans develop nuclear power plants because we need a new energy source, the computer for a decoder of WWII because we need a better way to process information. Society and humanity science have the noble capability to guide us to the proper way of development. AIs are the latest invention and probably the most versatile invention we have ever seen. The nature of AI requires us to connect humanity and natural science to an unprecedented level to better manipulate AI.



Graph | Sheldon Feiyu Zhang from wordart.com

We live in a world of exploding ideas, every day, new inventions come out and new things are first tested. The good news is, the dark aspect of the side effects of AI is not completely unknown, more research will be done on AI and society to better understand AI's intertwinement with society and prevent misuse of AI that might cause social problems. What we need to do is to not only push the technology forward but also make sure we study intensively, thoroughly, comprehensively to the applications, impacts, and changes brought by the technology.

How to Deal with AI Replacing Our Jobs

Yuki Hata

AI is already helping humans make various choices on a daily basis, and they are likely to take on more jobs in the future. Our job is a big part of life, but how should we deal with it being replaced by AI?

Image | Kindel Media

There are three main types of work. The first one is monotonous work. Machines are already responsible for jobs in which quantity is more important than quality such as factory work, and humankind is not likely to beat machines in this genre anymore. The second is a complicated work that can be approximated by numerical variables. Recently, it has become possible to simulate complicated systems such as those dealing with biological cells or molecules by AI, so it is likely that they will be replaced in the future. Jobs that require high expertise and ones that evaluate people have ethical issues, especially those whose values are still changing. Datas of gender and race had been biased in the past,and therefore, the results are also biased. However, it is likely that they will eventually be replaced in the long term. The third is a job that cannot be quantified. It is thought that the personal desire to do something, such as finding the purpose of work, will ultimately be considered by the person himself/herself. The "what should be" in public is made up of a stack of personal desires for "what to do", so you may be able to imagine what society thinks, but as an individual, finding out “what you want to do” is not something that can be replaced by AI. AI can give suggestions to us humans, but it is the human who makes the final decision, and it is ourselves that makes the decision to "leave the decision to AI."

So how should we deal with our jobs being replaced by AI? I personally think that if you don't want to be replaced by a machine, it's important to become irreplaceable, and humans shouldn’t do the monotonous work. A large amount of work leads to labor problems, and if you have time for that type of work, you should devote it to other work. Machines aren't perfect either, so it's imperative to have the ability to deal with trouble by using those tools. It is possible to carry out tasks that machines cannot deal with, by constructing logic based on a specific idea and making judgments.