TOWARDS A BETTER SOCIETY AND A SUSTAINABLE WORLD

INFORMATION LAW AND DATA ETHICS COURSE PROJECT REPORT

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Contents

Abstract

Our world is ringing the alarm bells and we do not work enough to silence them. If we do not take serious precautions, we may not have a world to live in, in a few hundreds or thousands of years, as renowned scientist Stephan Hawking once said (Rincon, 2018). What you will read in this paper might seem to have jumped out of a dystopic novel or a TV show. However, the situation is serious, and we had better take it seriously. Here, I recommend exploiting technology to attain a better world. What I mean by "better" is based on two main elements: A just order (fair society) and sustainable world.

We all come across hypes these days, some of which are technology-based, such as AI, Blockchain, IoT, and some are world-involving ones such as global warming, climate change, sustainability, carbon footprint. I hope we can make use of the former group to improve the latter. For the problems I mention here, there are things that governments and companies can do, and things we, as individuals, can do. And it might be the time for us to take the bull by the horns and think of the possibility of abandoning some of our rights, for the sake of humanity and our planet.

Keywords: AI, IoT, justice, democracy, sustainability, privacy, personal rights

INTRODUCTION

HISTORY OF THE WORLD

- Life began 3.7 billion years ago (National Museum of Natural History, n.d)
- Eukaryotic cells emerged about 2.7 billion years ago (NMNH, n.d)
- First tools (beginning of technology) were invented about 3.3 million years ago (Wikipedia, n.d)
- Humans have been around for about 300.000 years (Wikipedia, n.d)
- Industrial Revolution happened 250-300 years ago (Wikipedia, n.d)
- Although pollution of the earth started 4000 years ago, its amount has roared since Industrial Revolution (Barras, 2017)

SOME FIGURES & FACTS REGARDING RESOURCES (Water and Land)

- Only 3% of the world's water is fresh water (World Wildlife Foundation, n.d)
- By 2025, two-thirds of the world's population may face water shortages. And ecosystems around the world will suffer even more (WWF, n.d)
- Agriculture uses 70% of the world's accessible freshwater (WWF, n.d)
- Four billion people — almost two thirds of the world's population — experience severe water scarcity for at least one month each year. (Unicef, n.d)
- Over two billion people live in countries where water supply is inadequate (Unicef, n.d)
- Half of the world's population could be living in areas facing water scarcity by as early as 2025 (Unicef, n.d)
- Some 700 million people could be displaced by intense water scarcity by 2030 (Unicef, n.d)
- By 2040, 1 in 4 children worldwide will be living in areas of extremely high-water stress (Unicef, n.d)
- Globally agricultural land area is approximately five billion hectares, or 38 percent of the global land surface. About one-third of this is used as cropland, while the remaining two-thirds consist of meadows and pastures for grazing livestock (Food and Agricultural Organization of the United Nations, 2020)

SOME FIGURES & FACTS REGARDING SUSTAINABILITY

- Water consumption for livestock is much more than human's consumption, which causes a sustainability problem and should be taken as sustainability issue as well as resource issue (Heinke, Lannerstad, Gerten, Havlík, Herrero, Notenbaert, Hoff and Müller, 2020)
- Plastic disappears in 400 years on average (WWF, 2021)
- Our carbon footprint is increasing dramatically (IEA, 2022)
- By 2050, the Earth is expected to be approximately 2°C hotter (Arora, 2018)
- The International Energy Agency estimates that net-zero emissions might require investments of almost $5 trillion each year by 2030, and $4.5 trillion per year by 2050 (Sternfels, Francis, Madgavkar, and Smit, 2021)
- Global temperatures rose about 1.8°F (1°C) from 1901 to 2020. Average thickness of 30 well-studied glaciers has decreased more than 60 feet since 1980. Sea level rise has accelerated from 1.7 mm/year throughout most of the twentieth century to 3.2 mm/year since 1993. The area covered by sea ice in the Arctic at the end of summer has shrunk by about 40% since 1979. The amount of carbon dioxide in the atmosphere has risen by 25% since 1958, and by about 40% since the Industrial Revolution (Patel, 2022)

COVID-19 ERA

We all have seen that nature came to itself in the Covid-19 lockdown period (Schneider, Masselot, Vicedo, et al., 2022). There is another aspect of Corona. Some works show, Land-use change is the No. 1 cause of emergent disease events that involve a virus spreading from animal to human. Tearing down trees does not eliminate the presence of viruses in nature; rather, it encourages the spread of disease. (Conservation, n.d.)

Of course, our planet does not have consciousness, but we must read carefully the clues she left behind.

Fig. 1: Earth System interactions linked to the COVID-19 socioeconomic disruption.

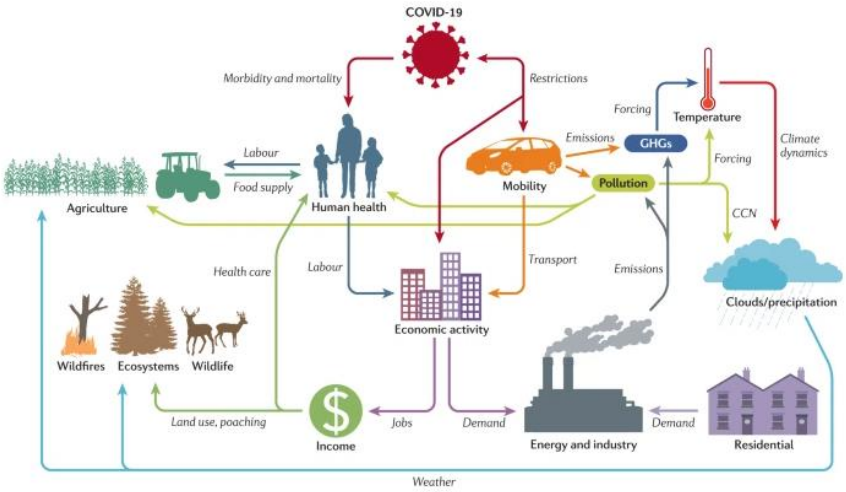

Figure 1-Taken from https://www.nature.com/articles/s43017-020-0079-1

TECHNOLOGY

AI

I split AI into two categories. There are not-so-intelligent-looking AI technologies like loan application modelling, churn prediction, fraud prediction etc. On the other side, there is object detection, face recognition, NLP, speech to text, text to speech etc., in which we can see sparkles of real intelligence. They all use the same principle at the background: Get some data, split it into train and test sets. Train your data on the first with ML and DL algorithms, test it on the second, evaluate and deploy your model.

There is another classification for AI:

- **Narrow AI:** This is the AI we currently exploit. It is dedicated to only a specific task, like predicting churns, playing chess.
- **General AI:** This is the human equivalent of AI. It can do any task with the same efficiency as humans.
- **Super AI:** This is a superior level of AI. It can outdo humans in any task. It is fast and talented.

With this paper, I make suggestions, most of which require at least General AI. However, some of them can be implemented with rule-based systems supervised by humans.

As a side note, the renowned futurist and scientist Michio Kaku, in his famous book "Physics of Future", predicts that Expert Systems will prevail by 2030, including robo-doctors, robo-assistants(much more developed than Siri)(Kaku, 2018, p. 99-102) and in the mid-21st century, emotional robots will emerge(p. 108), and at the last decades of the century, he claims the AI will gain consciousness(p.124). Consciousness part is important and it shouldn't be confused with being human, as in some parts of the paper I allege that our activities will be surveilled by non-human entity, which is Super AI, so we don't need to worry, as it wouldn't use the information about us against us or try to make profit with it.

You may wonder if we will ever attain to a point where we will invent Super AI. Kaku says the participants of ASIMOS Conference, held in 2009, made predictions varying from 20 to 1000 years. Since the range is so broad, we cannot statistically trust it. But we can trust that someday we will create a Super AI.

IOT

The Internet of things (IoT) describes physical objects (or groups of such objects) with sensors, processing ability, software, and other technologies that connect and exchange data with other devices and systems over the Internet or other communications networks (Wikipedia, n.d.). There is also Social Internet of things: Social Internet of things (SIoT) is a new kind of IoT that focuses the importance of social interaction and relationship between IoT devices. SIoT is a pattern of how cross-domain IoT devices enabling application to application communication and collaboration without human intervention in order to serve their owners with autonomous services, and this only can be realized when gained low-level architecture support from both IoT software and hardware engineering. (Wikipedia, n.d.).

JUSTICE, DEMOCRACY, AND SOCIETY

Today's justice system is based on traditional systems. Proof and evidence are major elements in claims. Therefore, system is based on measurable, or rather easy to measure, things. But as in many areas, technology may come for help and justice systems, too, could apply to new technologies for the situations where measurement is difficult. Like everything, technology evolves too and with the advent of a higher technology one can be ready for a superior state.

For example, James Cameron is said to have waited for his famous movie Avatar for more than a decade just because he did not have necessary technology to shoot the film. Another example is from AI world. AI society went into a long winter period after some successes in 70s and 80s, due to the lack of necessary hardware (Wikipedia, n.d), but now with the more advanced and powerful hardware we can execute very complex Deep Learning models. Just like these, our justice system can measure things it has not been able to, so far.

We can monitor and process much more data now. For example, why should not we use IoT devices in a car in order to decide who was guilty in a car accident. This example is a kind of usage of personal data, with or without your consent, but may not sound so antithetical to you, and rather you may like it, but in the next section, my suggestions to sustain a better world will be much more controversial.

As for democracy, it has been there for a few of hundred years, maybe thousands (since ancient Athens). Does everyone really think it works properly, reasonably and just as expected? Let us assume that it is about to be decided whether a nuclear power station should be built in your city. Who should vote for this? Everyone living in your city or those who have investigated the topic in length and breadth? As Socrates states in Plato's famous book "Republic", isn't it the time to give the voting right to only educated people? But let us open this up. There is no absolute education, especially in such a world everything is bound to specialization. Therefore, if the problem in question is about nuclear power stations, only those whose field is this and/or who read and watch these kinds of contents should have the right to vote. The former would have much higher voting weight than the latter. But the rest of the people should not have a word on this. On some other topics, eligible people should vote again. As Socrates states, "Would you let a person command a ship who knows nothing of sailing?"
And again, we are able to monitor this. So why shouldn't we use it for a better democracy?

WHAT CAN WE DO?

In this part, I take the risk of being tagged insane or more mildly "neo Big Brother", owing to my suggestions. Let it be so. But some should take the risk for a better world. As I stated in the

abstract part, some ideas you will read now may sound familiar to you, perhaps remind you of George Orwell's famous 1984 or renowned TV series Black Mirror's 3rd season 1st episode(Nosedive), but fear not. I am not imagining such a dystopic world. Still, some may find it unrealistic. Of course, I would not imagine such a world in normal circumstances, but realize or not, the situation of the world is not normal, and some should come up with extraordinary ideas in such abnormal times.

So, coming to the main topic, with all technologies mentioned above, why don't we take steps towards an AI-monitoring world? Of course, I am not talking about Skynet, either. Let me make myself clear.

In the impressive movie "The Day World Stood Still", a human-like alien comes to our world and tries to save it from humans, since we humans don't take care of the world good enough. Nobody expects such a thing to happen in real life but instead of that alien, we ourselves can take some firm steps for a better world, though not as hard as that alien's.

First, I must tell that most of the suggestions I offer here cannot be implemented in near future, as I stated earlier, we need at least General AI. But this is not a showstopper, we could start with small steps.

Secondly, there are some other steps that can be taken, including non-individual improvements, like prohibiting (or limiting) factories from emitting pollutive disposal, or in general, governments/states passing more environment-conscious laws towards companies. But in this paper, we will only focus on individuals and laws made for directly individuals.

Let us get to the suggestions:

- We will talk a lot about points. These points could be split into different categories. One could be environmentalism point, other could be your voting point about some specific issues.

- Shops/stores and banks must cooperate and relay the data that they acquire to the central AI, governed by the United Nations and also to the local AI governed by the states. For this, all the items bought in a shop should be trackable regardless of the payment type, i.e. cash or credit card or any other type. This way, individuals get some positive or negative points depending on their content in the basket. Basket is only a generalization here. Of course, I am not implying only basket items, indeed not limiting myself with the things that is subject to buying. All the activities and expenditures, including where you go, by what you go, what you do etc. could be monitored.
- Let us open the shopping part a bit more. What you buy will correspond to a carbon footprint and this may be calculated real time and give you some warnings, like "Careful, you are about to exceed your carbon footprint this month". And at the end of the month, if you exceed the limit, you will get extra negative points.
- Let us continue with shopping. And this is about 'just order'. Have you ever wondered the money spent for the cancer treatment of the people who smoke 2-3 packages a day, or recovery of those who are addicted to alcohol or sugar. This is not fair and we should not pay for someone who don't take care of themselves. We all pay for their treatment, indirectly by the social state. With the help of technology, we can handle this problem, too. For example, with the negative points they get, their taxation could be higher. This way, people will tend to be more careful about their health. This will also diminish the health expenditures and enable those resources to be spent on more valuable areas, like preventing global problems I mention throughout the paper.
- Those who go to shopping with non-plastic bags should have more points. This distinction could also be done between plastic bottle users and non-plastic bottle users.
- We can promote secondhand shopping and as can be guessed secondhanders could get more points.
- Let us take general activities this time. If one has sun-bathe all day, especially during the top noon time, they have higher risks of developing a skin cancer, as doctors say (ClevelandClinic, n.d). So why should we pay for their cancer treatment if they resist listening to doctors. This can be monitored by CCTVs or other IoT devices.

- CCTVs could be used to watch what we do as available as possible, but only by AI not by humans. For example, if one throws their thrash on the street instead of putting it in the bin, it will get a negative point.
- With IoT devices, we could be continuously listened, again only on condition that AI makes the processing. Some companies did this in the past, and still may have been doing, but with your consent (sometimes with default consent). This way, they recommend you some products, which you have been talking about. In our case, no consent will be required, as it will be the law. This way, for example, if you talk about climate change, carbon footprint with your children at home, you will get extra points. Not to mention, child abuse plans, drug dealing, and other evil things could be tracked and prevented.
- If you are a researcher on climate change, or any other sustainability topic, you will get extra environmentalism points as well as you will have more right on voting about this topic.
- As Vegans/Vegetarians contribute much less carbon footprint than non-vegans, they should have more environmentalism points.(Henriques, Gorvett, 2022)
- In Covid-19 period, we saw that some people did not go to the hospital, even though they showed symptoms, because of the fear of catching the virus, and they actually got the virus and spread it to the society. However, with IoT devices, or let us think much more simply, during their searches on the Internet, the central AI can detect how likely this person is sick and send an emergency team to the house without waiting for him to come to the hospital. As stated in the book “Competing in the Age of AI”, Novartis has already developed a similar system (Iansiti and Lakhani,2020). Why don't our governments do?
- Those who make green travel choices will have more points than others.
- We can even think extra points for those who are hubs/authorities in terms of graph theory. If you think carefully, the impact of some celebrities’ exemplary actions would be much higher than any ordinary person.
- If you consume too much water, you will get many negative points.
- The more you move, walk, do sports, the more you get points as you reduce the cost on health system

- Books you read, papers, documentaries, shows you watch, clubs you attend etc. may all have a point correspondence.
- That'd be great when AI tells us how much carbon footprint we contributed to world in our any action, even it warns us. I am sure some of us would heed the warning. And what I suggest here, if one does not care the warnings, at least their friends, their close society should be informed. Maybe this will be effective on them. AI can do this via rule-based systems or ML-based anomaly detection algorithms.

More examples can be given. We can now talk about what we will do with these points. These must be discussed elaborately. Here are a few suggestions:

- Those with little points may have to pay fines. (But this may lead to a poor-rich problem, so the rich may not care these points. For them, other options may be executed)
- Compulsory public duties like cleaning environment, collecting rubbish on the shores etc
- Forbidding those people to register some events (concerts, matches etc)
- Even imprisonment might be another option (after a continual excess and despite warnings)
- All these points could be (or not) shared by other people in order for us to behave well. This should be discussed carefully.

All the things I mentioned here may come to you as breaching of personal rights and data privacy. It is indeed. The question should be: **Could we abandon some of our personal rights and data privacy for the sake of just society, real democracy and sustainable world?** Now, I want to give China example, which you may not find a suitable example due to its undemocratic stand, but this is the only real one example I know and it works somehow. They implemented Social Credit Score system, which functions approximately as defined in this paper, but there are some differences of course (Kobie, 2019).
We can develop a better rating system than China's, for the well-being of our planet, just as we were able to reduce the vaccine studies, which normally take at least 4 years, to 1 year during the Covid-19 process.

DATA ETHICS

In today's world, we already exploit a good deal of personal data, like face images for face recognition algorithms, or some demographic and financial data for loan application models. But these examples are mainly for the good of the people themselves or for the good of company. In this paper, I propose the usage of even more personal data, but this time for public good, indeed global good.

In the discussion paper "The Ethical Use of Personal Data to Build AI Technologies: A Case Study on Remote Biometric Identity Verification", Neal Cohen, discusses remote biometric identity verification as an AI technology, the new privacy challenges of using personal data to build such technologies; and propose ethical solutions to using personal data(Cohen, 2020). He proposes quite a reasonable framework. However, the AI involving in his paper, in addition to many other works, differs from my implication of AI involving in a fundamental level. In his paper, personal data is used to train the AI, whereas in my paper personal data is first used by humans, with a limited access, and in the future by the AI itself, and in fact there is no or very few AI models' training and all the process will go on rule-based systems.

In my paper, the AI is the SuperAI, it is the ultimate model itself and it will have been trained by all general information available in the world, and not a single personal data would be needed. Despite being an algorithm, it will take decisions like a human, indeed like an inferior officer, but like billions of officer and much faster than them. And it will take decisions relying on rule-based systems using personal data. What makes it special, it is not a human, so we should not worry about data privacy.

Undoubtedly, the classification of data, the situations where the data will be available to which users, should be clarified by law. For example, shopping data should be stored as masked. There are tools such as DDM(Dynamic Data Masking) for this view. They should be converted to other metrics such as carbon footprint point, water consumption point and aggregated on an individual basis. We come across a similar masking case in the banks regarding salary data and deposit accounts of the personnel. While the salary and deposit data for each personnel is masked on the database, the balance in the deposit accounts to which the salaries of these personnel are linked is added to the total deposit amount of the branches they reside in. While a limited number of personnel have access to customer-level figures, a much larger set can access the total data.

These limited-access personnel need it for control purposes such as SIT, UAT. Similarly, in our proposal, a limited number of people will be authorized to shopping data for only data tests. However, the level of confidentiality such as the books read and the movies watched may be somewhat lower. Since people can only get 0 or positive points from these, they would prefer to grant permission to them, but in some cases where they don't want to be tracked, they would be able to limit or close the access to data, knowing that they wouldn't get any points.
On the other hand, with the advent of SuperAI, we will no longer be faced with the concept of using this data for abuse, so it may not be a problem if it has the access to all data. But this foresight should be tested with various simulations, and these tests should be continued in real life. Especially when SuperAI gains consciousness, the issue should definitely be followed closely.
Going back to Cohen's article, our recommendations are basically the same. Whether the AI model is developed or used in a traditional rule-based way, it must be ensured that this data is not used for any other purpose. For example, will human images obtained for biometric verification purposes be used by the police to identify activists and protesters, just like happened in Hong Kong in 2019? (Mozur, 2019) Therefore, it will be necessary to regulate the use of this data in accordance with its purpose.

According to Cohen, Governments are also beginning to develop ethical frameworks for the application of AI. Yet, these laws and ethical frameworks tend to focus on the use of digital technologies. While they are often written broadly enough to cover the use of personal data to build AI technologies, it is not yet well understood how these laws and frameworks should be interpreted and applied when building AI technologies.

To sum up, the bottom line here, is to prevent the malicious use of data while using it, and to take the necessary measures. It is therefore critical to continuously examine how the technology is used and whether such use should be permitted.

CONCLUSION

Children need orientation and education about the world. But it seems not only children do need these, but also do we adults. And what is good is, the non-human entity will do for us. Therefore,

as opposed to 1984 novel, not a real individual or individuals will know about our personal life. It will just do the warnings, and if these warnings are not abode by, second step will kick in and fines and duties will come to the scene. So, if we heed the warnings, there will not be any privacy problem for us. And surely, the data AI has(shopping data, contents of talking at home, etc.) should definitely not be examined by humans, and the heaviest penalties will have to be applied for those who try to sneak, so that people can have some confidence in the system.

It may still sound ridiculous to breach the privacy and personal rights while the world is doing the opposite, that is, regulating laws regarding more privacy. Considering the problems our world is facing, I think some of the over-elevated rights could be reviewed. Moreover, the violation of these rights will be made by algorithms, not individuals. In fact, user data is still processed by algorithms today. However, in the system proposed in this paper, user data is dug more profoundly. While this may sound scary at first, I think it is okay for a non-human entity to process this data purely to save the planet and create a just order. What we need to do is to ensure that only algorithms have the information.

We know that a positive/negative action may not yield immediate results. It can take years to get the desired result, as in the case of the olive tree or the bamboo tree. Likewise, negative effects may occur after years in smokers or those who take long periods of sunbathing. We must be patient enough to see the effects of the system proposed here.

SHORT TERM RECOMMENDATIONS

- Laws can be made that personal rights and privacy issues are not more important than the health of the world.
- Efforts to attain General AI should be continued at full speed, and governments should encourage institutions working on these issues. Until these systems emerge, preliminary steps should be taken by considering the appropriate regulations, with the work that can be done via humans.
- Governments should pave the way for the companies, such as Novartis and Moderna, that are established on the “Artificial Intelligence Factory” system and incentives should be provided (Iansiti et al, 2020)

- Our genome and health data, too, could be accessed by the AI so it can make the warnings before it is too late, which will also save extra burden on the health system.
- Companies such as Notco, Beyondmeat, that reduce the carbon footprint should be encouraged.
- Even the guesses for Super AI's emerge range from tens to thousands years, we have a strong ability for simulating things. So, we should start to prepare for regulations, what or who will be responsible for the acts of AI.

POSSIBLE REACTIONS

At first, people would harshly object to these regulations. As stated in Serol Teber's "Davranışlarımızın Kökeni(Root of our behaviors)" book, it has been observed that the conservative members of the (monkey) colony, who did not learn the function of washing and eating the potatoes(developed for the first time) opposed it, took a stand against this new invention and attacked the monkeys who adopted these actions(Teber, 2009, p.128). This behavioral pattern is in our genes. Therefore, we can expect such reactions. However, they will see the benefits of the system soon, if only they give enough time.

LAST WORDS

If we do not want our great great grandchildren to open their eyes under a red Martian sky one day, states/governments should think of giving a chance to what I suggest here. As we all know, Elon Musk has already begun to work on Mars option. They may even start talking about going far solar systems within or beyond our galaxy, just in the provocative movie Interstellar. Of course, we can and should look for other planets, but should we really give up our own so easily. Are our privacy more important than our planet's health? Think again, think hard!

Do not go gentle into that good night,
Old age should burn and rave at close of day,
Rage, rage against the dying of the light (from Interstellar).

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