

Nôthraine

*Recondition The Human Condition.
Submission to the Human Rights and Technology Project.*

Index

03	Overview
04	Products
05	Submission
06	Human Rights and Technology
08	Reinventing Regulation and Oversight for New Technologies
10	Artificial Intelligence, Big Data and decisions that affect Human Rights
13	Accessible Technology for People with a Disability
10	Philosophy

Overview

Northraine is a machine learning production house that delivers solutions to improve how people make decisions. We are a B-Corp, have the purpose to 'recondition the human condition' and donate 20% of our work to pro-bono social causes in human rights, community start-ups and at-need ventures.

Although our work is by nature complex and by definition new, we have three distinct families of products that we produce and deliver to clients across all industries.

Products



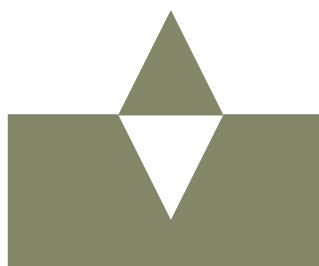
Analyse



Design



Concept



Research



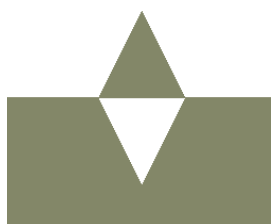
Review



Audit

Submission

This submission is a response to the Australian Human Rights Commission's Human Rights and Technology Issues Paper.



Research

By drawing on Northraine's experience and unique perspective in machine learning, technology and design, the questions outlined in the AHRC's paper will be answered.

Human Rights and Technology

1. What types of technology raise particular human rights concerns? Which human rights are particularly implicated?

The expanse of opportunities to improve the human condition through technology is vast. Within machine learning, opportunities range from health care – where we can predict and prevent disease, to disaster relief where assistance can be given to those in distress who may not be able to receive assistance otherwise, through to providing personalised education to large populations who may not be able to access a typical classroom. Although, like many opportunities, there are risks that this technology could disadvantage or infringe on certain human rights.

Issues with data, discrimination.

Machine Learning and Deep Learning require one essential resource: data. What if this data is recorded in a way that discriminates against a minority based on ethnicity, gender, sexuality or socioeconomic status? An algorithm that is built on data which is recorded by an already biased source is bound to continue discriminating – unless taught otherwise. Discriminatory decision-making by humans is prevalent throughout history, which is paving the way for discriminatory machine learning.

Transparency

The last few years have seen huge growth in computing power, allowing neural networks and deep learning algorithms to be deployed and utilised in minutes and hours, as opposed to weeks and months. The capability of this technology is huge, where large datasets can be processed as millions of computational units are stacked into dozens of layers, then come up with predictions and decisions. The opacity of these algorithms is challenging as it is not possible to pinpoint how a neural network comes up with a specific output, leaving a blurred line between accountability and reason.

Privacy

Products and services which use Machine Learning to personalise and tailor content, engagement and offerings for their customers often rely on intensive data collected on them. It is essential that this right to privacy is protected and data is recorded and used with consent.

Human Rights and Technology

2. Noting that particular groups within the Australian community can experience new technology differently, what are the key issues regarding new technologies for these groups of people (such as children and young people; older people; women and girls; LGBTI people; people of culturally and linguistically diverse backgrounds; Aboriginal and Torres Strait Islander peoples)?

From a Machine Learning perspective, particular groups within the Australian community are presented with unique opportunities and challenges regarding this new technology. Whether its LGBTI youth feeling more connected through social networks providing relevant content and connections, or through machine learning based translation services assisting minorities from non-English speaking backgrounds, the opportunities are endless.

Employment

There is a strong rhetoric and fear around AI taking our jobs and rendering low-skilled workers unemployed. The contrary is possible and happening right now. Courses are popping up across the world, focussing on teaching data scientists, analysts and programmers to use machine learning to gain meaningful employment. Outstanding Australian organisations such as Code Like A Girl and Girl Geek Academy are making a profound impact on assisting women and girls break into an industry which has traditionally been male dominated. We would like to see more opportunities created for marginalised groups in Australia around education and skill creation.

Interpretation

Within Machine Learning, we are seeing unprecedented growth of terminology, research and methodology which is almost another language in itself. It's crucial we look at how non-English speaking minorities in Australia can understand and benefit from this growth. The opportunities to translate languages through voice and text are immense. At Northraine, we have worked on projects specifically focussing on this – working with VITS (Victorian Interpreting and Translation Services Provider) to automate translation services.

A Life of Data

Recording data isn't new, in fact market researchers and analysts have been recording data in a variety of forms for decades now. What is new is the amount and specificity of data being recorded. Children born today have the potential to live a life that is entirely recorded – consumer behaviour, successes, mistakes and a myriad of interactions can be used to inform machine learning algorithms, predictions and decisions. It is important to consider the impacts on this younger generation and at which stage of this cycle they give consent.

Reinventing regulation and oversight for new technologies

3. How should Australian law protect human rights in the development, use and application of new technologies? In particular:

Australian law needs to protect human rights in the development, use and application of new technologies – it is important that this protection is carefully and thoughtfully implemented as if it is enforced without consideration of innovation and progression, Australia risks not meeting its potential as a global player.

a) What gaps, if any, are there in this area of Australian law?

So far, the gap between the speed of development of new technology and the speed of regulation have been wide. The recording of data of Australians, until recently, has been an issue of little concern. Legislation has not kept up with this issue as it is not a popular one.

b) What can we learn about the need for regulating new technologies, and the options for doing so, from international human rights law and the experiences of other countries?

The recent scandal at Cambridge Analytica has caused immense concern around human rights laws, particularly around privacy. If we can learn anything from this, it is to diligently regulate the rights of both consumers and companies when dealing with data, predictive analytics and machine learning to ensure no Australians are put at risk and we protect Australian companies from disrepute.

c) What principles should guide regulation in this area?

Regulation needs to prioritise the human rights of Australians in a way that supports all members of our society, including those who come from marginalised backgrounds. This regulation should be developed in a way that supports these human rights and also promotes innovation, progression and doesn't lose sight of long-term initiatives to improve the human experience.

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4. In addition to legislation, how should the Australian Government, the private sector and others protect and promote human rights in the development of new technology?

Understanding. The Australian government needs to work with the private sector and researchers to understand the opportunities, implications and threats involved in new technology. Without this understanding, neither legislation or promotion of human rights will be applicable or effective. After this, outside of legislation, efforts to promote and encourage companies to follow Human Rights law and for consumers to expect these companies to follow Human Rights Law should be pursued.

Artificial Intelligence, Big Data and Decisions that affect Human Rights

5. How well are human rights protected and promoted in AI-informed decision making? In particular, what are some practical examples of how AI-informed decision making can protect or threaten human rights?

Human Rights are only protected or promoted when the algorithm that is making these decisions is programmed in a way that accounts for these human rights. Without accounting for these decisions, huge mistakes can be made around discrimination, privacy infringement and more.

Studies have shown that Google's algorithm was more likely to display advertisements for highly paid jobs to males over females. There have been other cases where software used to inform decisions about healthcare and disability benefits actually excluded those who were entitled to these benefits – this is a huge backpedal on Human Rights progression and without careful intervention we risk seeing cases like this pop up more and more in Healthcare, Law, Insurance and more.

Examples of how AI can improve Human Rights are very close to home for us. At Northrine, we have a mission to recondition the human condition. Throughout this, we have worked on several projects, some pro-bono and some commercial, to do exactly this. We have used AI and machine learning to assist a website which connects carers with disabled/elderly patients provide more meaningful connections, assisted organisations such as **Human Rights Watch** and **Amnesty International** create personalised and meaningful campaigns to assist with a variety of causes, we have used deep learning and neural networks to detect a fall in the homes of elderly people and used machine learning to inform nutritional decisions to ensure a healthier life, just to name a few. Innovation and opportunities are many for AI informed decision making to improve the lives of Australians.

Artificial Intelligence, Big Data and Decisions that affect Human Rights

6. How should Australian law protect human rights in respect of AI-informed decision making? In Particular:

a) What should be the overarching objectives in regulation in this area?

The overarching objectives in regulation in this area should include upholding Human Rights of all Australians and ensuring Australian businesses can compete and thrive both locally and globally. Australian law needs to enforce disclosure and transparency around algorithms, the decisions made based on these algorithms and ensure diversity and bias is ethical and encourages human rights.

b) What principles should be applied to achieve these objectives?

To achieve these objectives, a methodology of inclusiveness and openness needs to be applied. Australian businesses, educators and government bodies need to communicate and be transparent where possible. This transparency needs to keep the end consumer as a priority, along with transparency, this information must be disseminated in an informative and understandable way.

c) Are there any gaps in how Australian law deals with this area? If so, what are they?

The main gaps in Australian law are as follows:

- Currently, Australian companies are not required to disclose what models they have built, which decisions they make and what data they are built off.
- Australian companies aren't required to disclose error rates in algorithmic decisions.
- Australian companies are not required to release statistics on diversity and bias in the models they build or confirmation that the statistics are verified.

d) What can we learn from how other countries are seeking to protect human rights in this area?

There are several initiatives around the world which are contributing to the promotion of Human Rights around the world. Namely, the Toronto Declaration, which calls for safeguards to prevent Machine Learning from contributing to discriminatory practices and in the EU the European Court of Human Rights sets clear boundaries for the respect of private life, liberty and security.

Artificial Intelligence, Big Data and Decisions that affect Human Rights

7. In addition to legislation, how should Australia protect human rights in AI-informed decision making:

a) An organisation that takes a central role in promoting responsible innovation in AI-informed decision making?

We believe an ethical AI board, which encompasses members of the private sector, public sector and education/research could promote responsible innovation in AI-informed decision making. This body would be responsible for reviewing organisations, algorithms and business practices based around these algorithms based on their ethical nature, adherence to human rights and the law.

b) Self-regulatory or co-regulatory approaches?

The organisation should be self-regulatory to a degree, depending on the size of the decision and the number of people affected.

c) A 'regulation by design' approach?

A regulation by design approach would be effective.

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Accessible Technology for People with a Disability

8. What opportunities and challenges currently exist for people with disability accessing technology?

In respect to machine learning, opportunities for people with a disability are endless. Opportunities for them to access technology need to be encouraged and facilitated. Particular challenges can be around understanding and education of the opportunities that come with this technology. For example, the utilisation of IoT technology, voice-assistants and text-to-speech have huge impacts on accessibility, but without an understanding of these benefits and an ability to acquire these products (financially and physically), they remain no more than interesting technology.

One opportunity that can greatly assist people with disability and health challenges is using machine learning to predict future health events and outcomes of different treatments.

9. What should be the Australian Government's strategy in promoting accessible technology for people with disability? In particular:

a) What, if any, changes to Australian law are needed to ensure new technology is accessible?

The required changes to law would need to ensure no discrimination against people living with a disability, and encourage the education, dissemination and distribution of new technology to all.

b) What, if any, policy and other changes are needed in Australia to promote accessibility for new technology?

Incentives and encouragement of the development/distribution for disabled Australians, including investing in voice-to-text, text-to-voice and integrative technology to solve pain points for disabled Australians.

10. How can the private sector be encouraged or incentivised to develop and use accessible and inclusive technology, for example, through the use of universal design?

Incentives and grants for investing in and distributing technology which is inclusive and accessible is a great start, including the use of universal design. Educating disabled people and their families on how to use this technology should be incentivised if it solves pain points in their lives.

Philosophy

Open algorithm design

Design as little as possible

Implementation over performance

The environment will change

Explain an element, explain the whole

Transparency over complexity