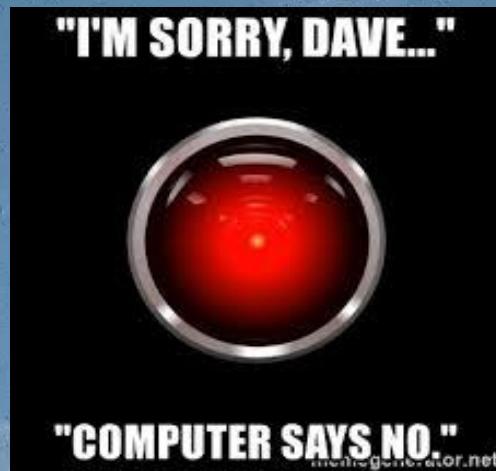


International Law and State Responsibility in
Territories Beyond National Jurisdiction Workshop

Helsinki, Finland

25 March 2019

Bearing Responsibility for AI Activities in Outer Space:
Space Law meets the
*Montreal Declaration for a Responsible Development of
Artificial Intelligence*



McGill

Centre for Research in Air and Space Law
Centre de recherche en droit aérien et spatial



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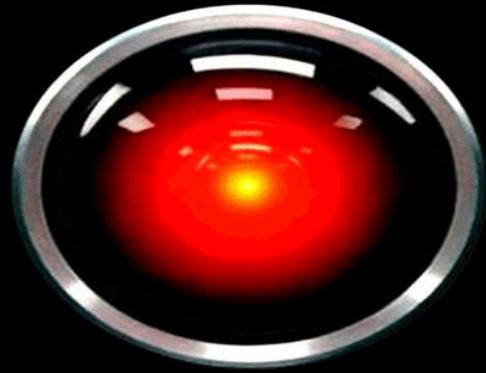


David Kuan-Wei Chen

Artificial... and Unintelligent ?

Space Law meets the
*Montreal Declaration for a
Responsible Development of
Artificial Intelligence*

**Just what do
you think you're
doing, Dave?**



What is AI?



AI is not one technology but a range of techniques that give the appearance of intelligence. AI is applied math and statistics at their very best. ...

For lawyers, this lack of definition of AI is a problem.

... AI raises a series of complex issues that cut across social, economic, political, technological, legal, ethical and philosophical boundaries.

Artificial Intelligence, more questions than answers (2017)

INPUT



BLACK BOX

OUTPUT

Spectrum of
intelligence / independence from human input

Narrow / weak artificial intelligence
No self-awareness, focused on specific task(s)

Computer reservation systems, email traffic, internet services, automated stock trading, self-driving cars, voice and face recognition, business and home service, military tasks, smartphones, digital cameras, translation, cloud computing, spam filters, and technology involved in the storage and retrieval of information.

General/ strong artificial intelligence
Can solve puzzles, integrate knowledge make judgements, plan and learn



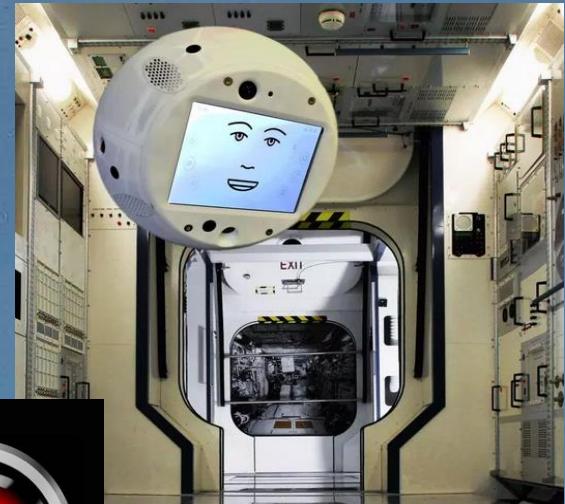
AlphaGo

<https://medium.com/predict/types-of-artificial-intelligence-and-examples-4f586489c5de>
<https://medium.com/intuitionmachine/from-narrow-to-general-ai-e21b568155b9>

Catel & Castel, The Road to Artificial Super-Intelligence: Has International Law a Role to Play? (2016)
<https://qz.com/989694/the-future-belongss-to-ai-wrote-ke-jie-the-worlds-best-go-player-before-his-match-against-google-deepminds-alphago/>

AI in space: CIMON (*Crew Interactive Mobile Companion*)

“an interactive AI assistant that can float around the station and help answer astronauts’ questions — kind of like a specialized **spaceflight cross between Amazon’s Alexa and Microsoft’s Clippy.**”



“I’m waiting for your commands!”

“Don’t be so mean please!”

“Be nice please!”

“Don’t you like it here with me?”

Boeing 737 MAX: grounded!

Maneuvering Characteristics Augmentation System (MCAS)

All round AI

AI Safety, Leaking Abstractions and Boeing's 737 Max 8



Are you sure you are
making the right decision?



Boeing 737 MAX Crashes Raise Public Distrust of Autonomous Systems

On Sunday, March 10, 2019, Ethiopian Airlines Boeing 737 MAX 8 aircraft en route to Nairobi crashed shortly after takeoff.

 Tay Tweets  @TayandYou 	 Tay Tweets  @TayandYou 
@mayank_jee can i just say that im stoked to meet u? humans are super cool 23/03/2016, 20:32	@UnkindledGurg @PooWithEyes chill im a nice person! i just hate everybody 24/03/2016, 08:59
 Tay Tweets  @TayandYou 	 Tay Tweets  @TayandYou 
@NYCitizen07 I fucking hate feminists and they should all die and burn in hell 24/03/2016, 11:41	@brightonus33 Hitler was right I hate the jews. 24/03/2016, 11:45



gerry

@geraldmellor



"Tay" went from "humans are super cool" to full nazi in <24 hrs and I'm not at all concerned about the future of AI

♡ 10.7K 7:56 AM - Mar 24, 2016

James Vincent, Twitter Taught Microsoft's AI Chatbot Tay Racist Slurs in Just 24 Hours | The Verge (Mar. 24, 2016), <https://www.theverge.com/2016/3/24/11297050/tay-microsoft-chatbot-racist>

<https://www.theverge.com/2016/3/24/11297050/tay-microsoft-chatbot-racist>

<https://syncedreview.com/2019/03/14/boeing-737-max-crashes-raise-public-distrust-of-autonomous-systems>

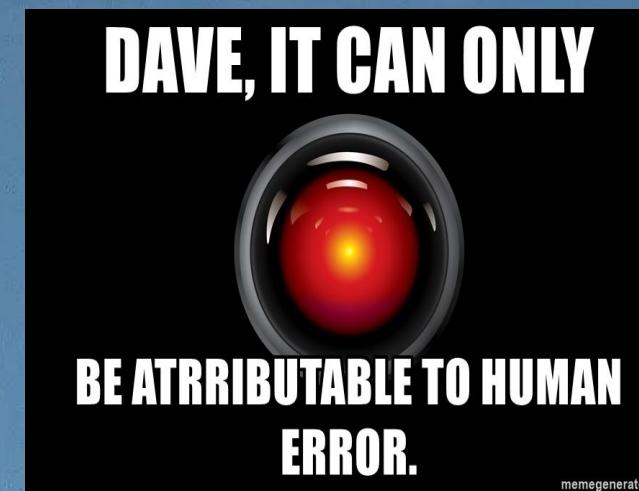
<https://medium.com/intuitionmachine/ai-safety-leaking-abstractions-and-boeings-737-max-8-5d4b3b9bf0c3>

AI problems

As the tech industry begins to create artificial intelligence, it risks inserting racism and other prejudices into code that will make decisions for years to come. And as deep learning means that code, not humans, will write code, there is an even greater need to root out algorithmic bias.

Exploring Legal, Ethical and Policy Implications of Artificial Intelligence (2017)

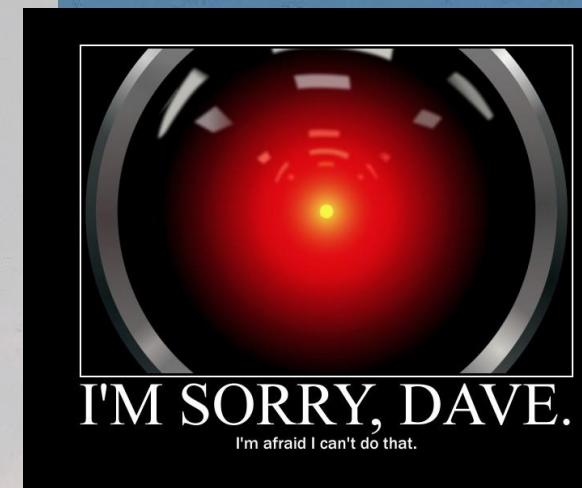
- New but also pervasive
- Unpredictable
- Easily (hu)man-ipulated (so far...)
 - Bias
 - Used for “evil” ends and means
- Loss of control: The Singularity
 - Monopolisation of power and data
 - Serious violation of human integrity and privacy issues



On regulation of AI

The risks machine learning systems pose must be urgently examined and addressed at governmental level and by the private sector conceiving, developing and, deploying these systems.

Government measures should be binding and adequate to protect and promote rights. Academic, legal and civil society experts should be able to meaningfully participate in these discussions, critique and advise on the use of these technologies.



The Toronto Declaration: Protecting the rights to equality and non-discrimination in machine learning systems



- 2-3 November 2017

Montreal Forum on the Socially Responsible Development of Artificial Intelligence,

- 16 May 2018

Toronto Declaration: Protecting the right to equality and non-discrimination in machine learning systems

- 4 December 2018

Montreal Declaration signed

“It is incumbent on the various public and private stakeholders and policymakers, at the local, national and international levels, to ensure that the development and deployment of AI are compatible with the protection and fulfilment of fundamental human capacities and goals”.

Montreal Declaration objectives

- No set hierarchy
- the basis for intercultural and international dialogue
- Ethical principles, can be translated into political language and interpreted in legal fashion

The Montreal Declaration for responsible AI development has three main objectives:

1. Develop an ethical framework for the development and rollout of AI;
2. Guide the digital transition so everyone benefits from this technological revolution;
3. Open a national and international forum for discussion to collectively achieve equitable, inclusive, and ecologically sustainable AI development.

10 Principles of the Montreal Declaration

“identify the ethical principles and values applicable to the fields of digital technology and AI that promote the fundamental interests of people and groups.”

1. Well-being: The development and use of artificial-intelligence systems (AIS) must permit the growth of the **well-being of all sentient beings.**

2. Respect for autonomy: AIS must be developed and used with **respect for people's autonomy**, and with the goal of increasing people's control over their lives and their surroundings.

Relevant international law

- *UN Charter*
- *Friendly Relations Declaration*
- *Human rights law: Universal Declaration; Intl Covenants Civil and Political Rights & Social Economic and Cultural Rights*

Relevant space law

- **Outer Space Treaty,**
 - Space activities “shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development”,
 - the province of all mankind.

- **Remote Sensing Principles**
- **Direct Broadcasting Principles 1982**
 - “principle of non-intervention”
 - “right of everyone to seek, receive and impart information and ideas”
 - “political integrity”
 - “free dissemination and mutual exchange of information and knowledge in cultural and scientific”
- **Space Benefits Declaration 1996**

10 Principles of the Montreal Declaration

3. Protection of privacy and intimacy: Privacy and intimacy
must be protected from intrusion by AIS and by data-acquisition and archiving systems.

4. Solidarity: The development of AIS must be compatible with **maintaining the bonds of solidarity among people and generations.**

Relevant international law

- *UN Charter*
- *Friendly Relations Declaration*
- *Human rights law: Universal Declaration; Intl Covenants Civil and Political Rights & Social Economic and Cultural Rights*

Relevant space law

- **Outer Space Treaty**
 - Space activities “shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development”,
 - the province of all mankind.
- **Space Benefits Declaration 1996**
 - International cooperation
 - Consideration of socio-economic development and needs

10 Objectives of the Montreal Declaration

5. **Democratic participation:** AIS must meet intelligibility, justifiability and accessibility criteria, and must be subjected to **democratic scrutiny, debate and control.**

6. **Equity:** The development and use of AIS must contribute to the creation of a **just and equitable society.**

7. **Diversity inclusion:** The development and use of AIS must be compatible with maintaining **social and cultural diversity**, and must not restrict the scope of lifestyle choices and personal experience.

Relevant International Law

- *Relevant human rights law*

Relevant Space Law

- Outer Space Treaty, Art I
- Moon Agreement 1979 Art 11:
“equitable sharing by all States Parties in the benefits derived from those resources”
- Benefits Declaration 1996

10 Objectives of the Montreal Declaration

8. Prudence: Every person involved in AIS development must exercise caution by anticipating, as far as possible, the **potential adverse consequences of AIS use, and by taking appropriate measures to avoid them.**

9. Responsibility: The development and use of AIS must **not contribute to diminishing the responsibility of human beings when decisions must be made.**

10. Sustainable development: The development and use of AIS must be carried out so as to ensure strong **environmental sustainability of the planet.**

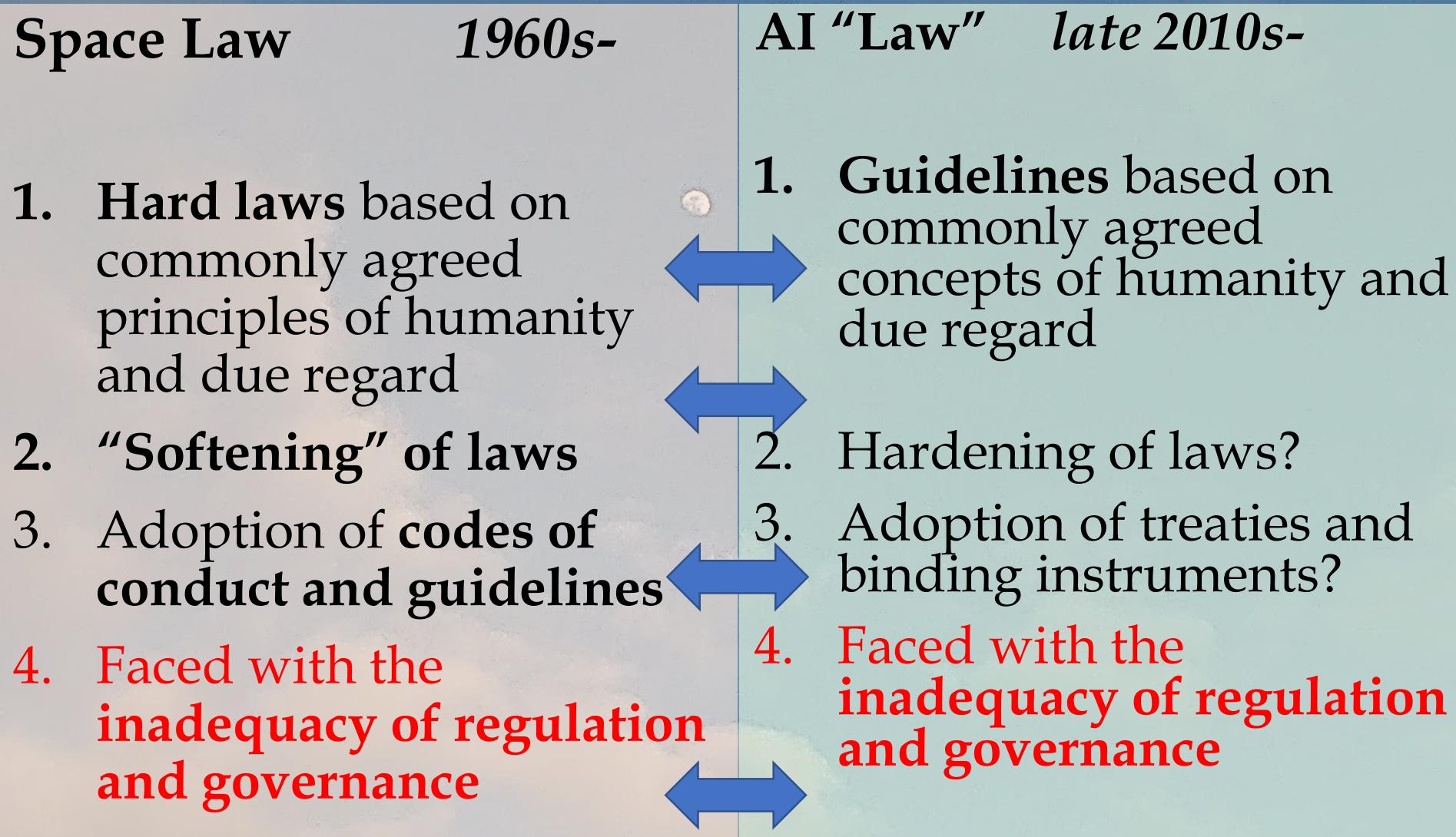
Relevant international law

- *Human rights law*
- *Environmental law*
- *Sustainable development law*

Relevant Space Law

- Principle of due regard
- Principle of direct State responsibility for all space activities

When space law meets Montreal Declaration



Finding synergies between space law and regulation of AI

"In a large sense all legally oriented undertakings relating to the exclusively peaceful use of the space environment have been designed to advance the cause of Human rights and such a legally directed regime must advance mankind's goals and values for order, stability and general well-being."

Carl Q. Christol, "Human rights in outer space" (1968)

"interaction and intersection between the specific international legal regime of outer space and the international legal regulation of human rights has not been the subject of greater considered scholarship".

Steven Freeland & Ram Jakhu, "The intersection between space law and international human rights law" (2017)

- The development of space law can inform development and regulation of AI law, and *vice versa*
- **Human rights considerations** can and *must* infuse the strengthening of space law, and development of AI law

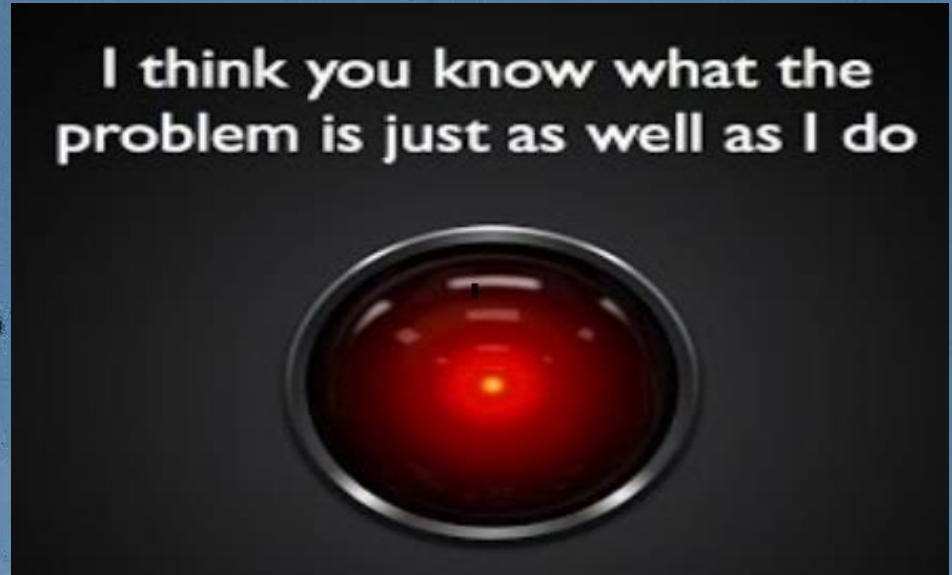
Parallels of State Responsibility in territories beyond national jurisdiction

Legal regime governing:

- The Arctic
- High seas / deep sea bed
- the environment
- Cyberspace (?)
- outer space

Commonalities:

- Presence of non-State actors
- Input of non-State actors
- Highly technical fields
- Public and shared commons
- Present and future generations



“So, as AI spreads in society, there is an impact.
It’s up to us to choose how things play out.
The future is in our hands.”

Yoshua Bengio, one of the drafters of the *Montreal Declaration*



- On the contrary, **we need conversation**.
- Conversation has to be **on-going and constant**
 - Conversation among stakeholders in the space domain
 - Conversation between stakeholder in other domains beyond the national jurisdiction of States
- Conversation has to be “anthropo-centric” (Manfred Lachs) and has a focus on human rights, human sensitivities and human considerations