



The Touch of Technologies:  
Ethics of AI and the Digital  
in Healthcare Practices

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John Dossetor Health Ethics Seminar November 10, 2022

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What is AI anyway?  
Our data is our identity: Technoethics in healthcare  
Our relationships with technologies: human-AI hybrids

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## Artificial intelligence

Machines that can learn, reason, and act for themselves. They can make decisions when faced with new situations.

Part of the fourth industrial revolution: scale, scope and complexity unlike others

Philosophically: AI research purpose is to understand the principles of intelligence, what it is and how it works – well enough to create (or become) beings of greater intelligence

(Dr. Rich Sutton, Amii AI week Spring 2022)

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## Artificial intelligence

**Machine learning** – part of AI, most common

- Computational techniques that use data to create models that make predictions about future data
- 3 types:
  - Supervised learning
  - Unsupervised learning
  - Reinforcement learning

**Deep Learning** – a subset of machine learning

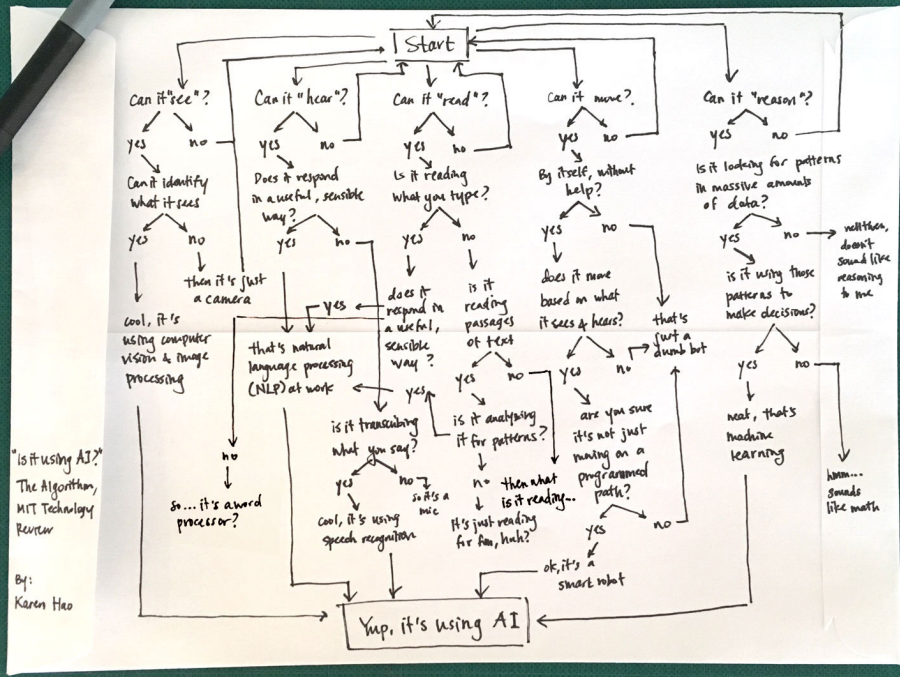
- focused on algorithms inspired by the structure and function of the brain: artificial neural networks

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# What is AI, anyway?

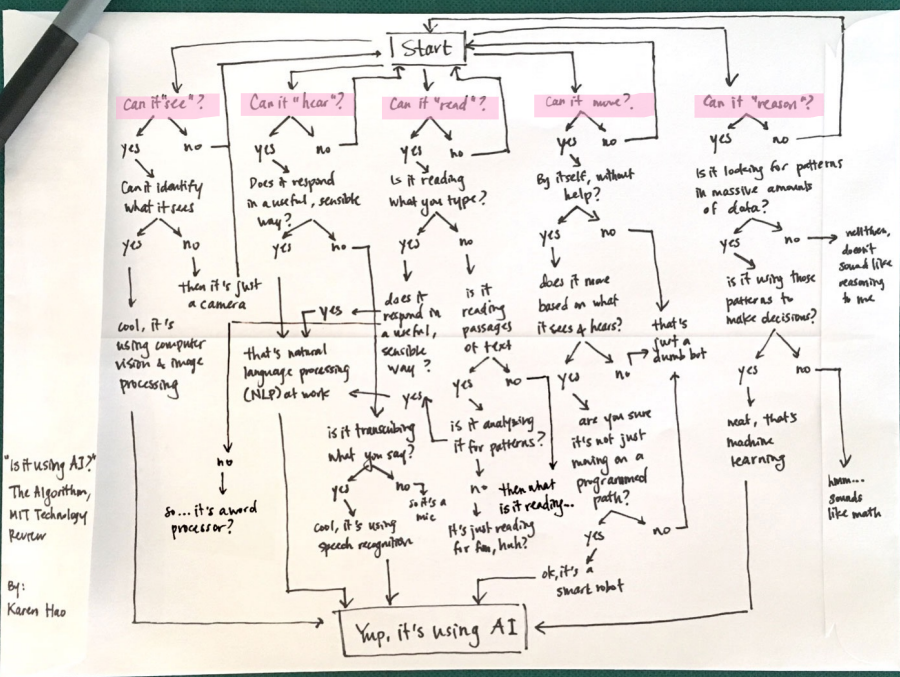


"Is it using AI?"  
The Algorithm,  
MIT Technology  
Review  
By:  
Karen Hao

<https://www.technologyreview.com/2018/11/10/139137/is-this-ai-we-drew-you-a-flowchart-to-work-it-out/>

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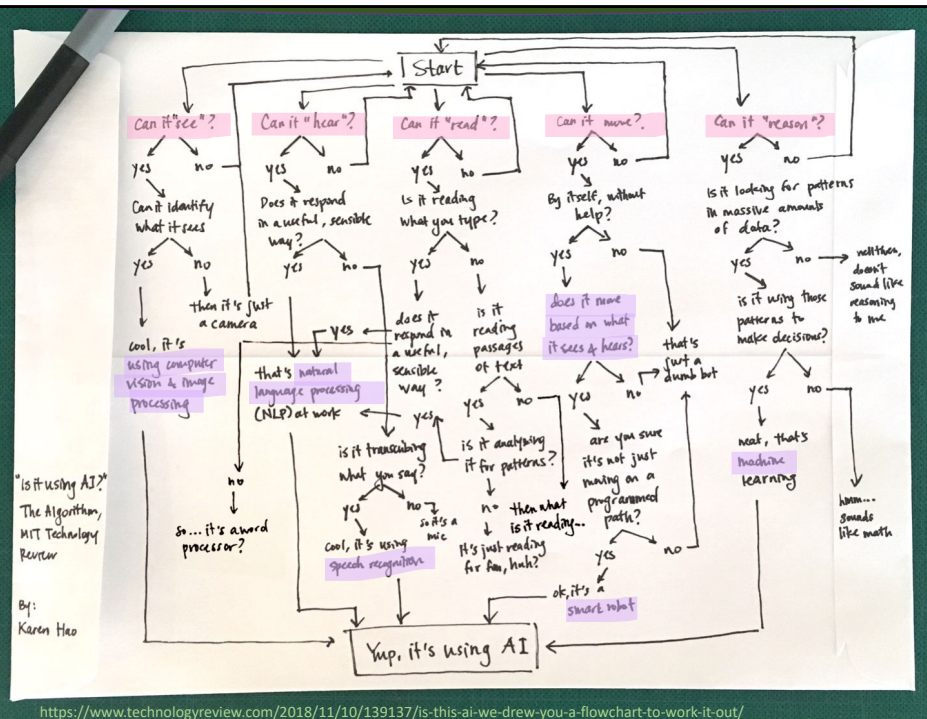


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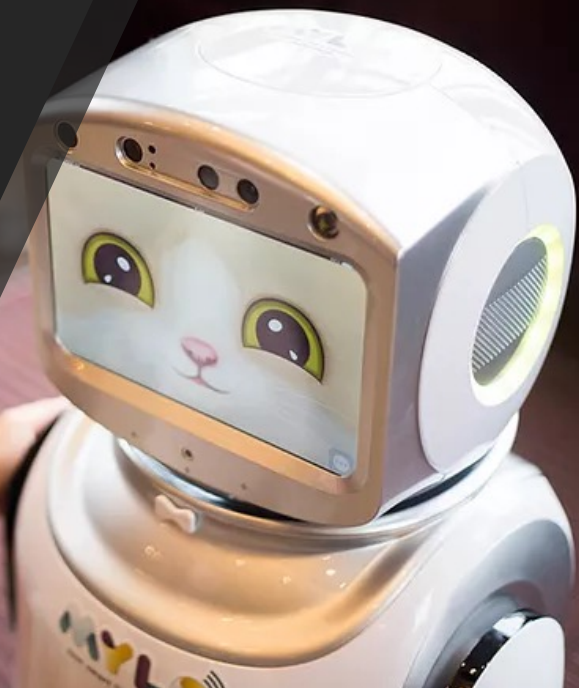


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## (a few) Examples of AI in Healthcare

- Wearables – tracking patient progress
- Bionic eyes, prosthetic limbs
- Electronic health records
- AI diagnostic imaging
- “smart” IV pumps
- “smart” beds
- Remote patient monitoring
- Digital therapeutics
- Care companions – Mylo
- more and more ...

[www.heymylo.ie](http://www.heymylo.ie)



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## Care Robots – Mylo and Grace



<https://www.cbc.ca/news/canada/montreal/grace-humanoid-robot-montreal-seniors-study-1.6623292>

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Photo: by Yvonne Lau on Unsplash

### Considering the ethics of artificial intelligence in Healthcare:

- Privacy & Confidentiality – right to privacy
- Transparency and Accountability – how are decisions made and who is following up?
- Equity and bias: can AI limit bias?
- Access – similar rural and remote issues; access through education
- Autonomy – informed consent to collect data?

Are these exceptional issues? That is, are they new or unique to AI?

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Photo: by Muvang Lau on Unsplash

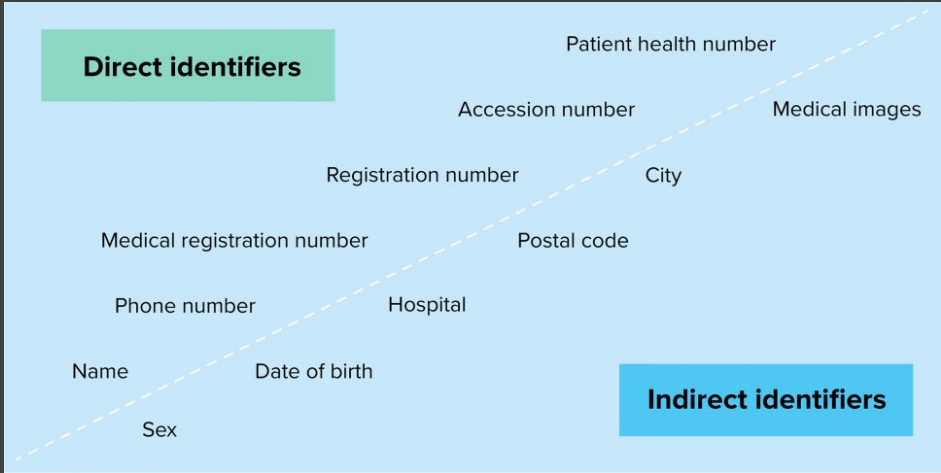
### What might be different about AI ethics?

- The speed of the advancement of the technologies
- Privacy: "Our data is our Identity"
  - DICOM files
- Autonomy via informed Consent – add to bias of data
- Transparency may be impossible (so we have to decide the risk)
- Responsibility – human bias is magnified
- Equity

AI (and other) technologies mediate our experience of the world

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### What about the data?



**Direct identifiers**

Patient health number  
 Accession number  
 Medical images  
 Registration number  
 City  
 Medical registration number  
 Postal code  
 Phone number  
 Hospital  
 Name  
 Date of birth  
 Sex

**Indirect identifiers**

Figure 2. Concept of direct versus indirect identifiers. The unique combination of multiple indirect identifiers can have the potential of directly identifying an individual.

Parker, W. et al., 2021a, p. 17.

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Our data is our identity ...

Parker, W. et al., 2021b, p. 29

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Another issue of ethics:  
how technologies  
shape behaviour

The low bridges of  
Robert Moses


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## How can we approach the technoethics of AI?



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- Technology and the Virtues - Shannon Vallor, 2016
- “We need more than better technologies; we need better humans.”
- Technomoral self
- Indigenous approaches
- Making Kin with the Machines - Jason Edward Lewis, 2018
- De-centralizes humans and equalizes other actors in the world

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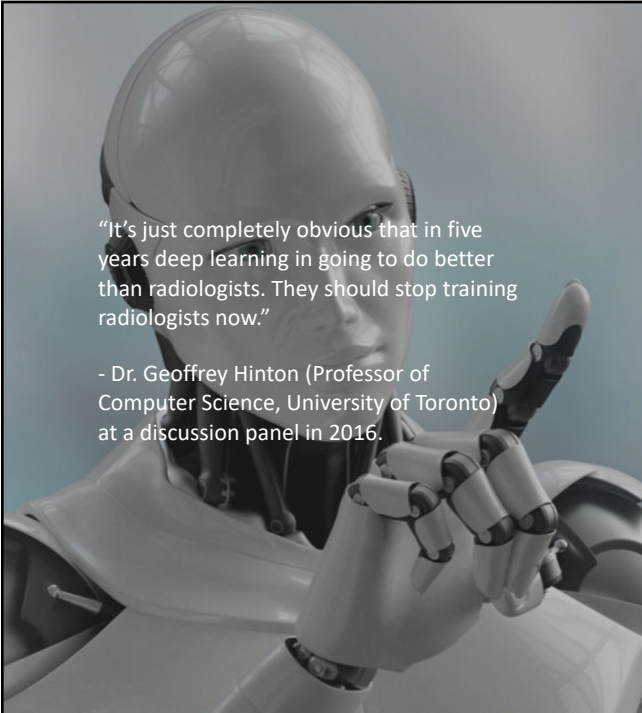


## Implications for Healthcare Practices

- **Awareness** – AI technologies are already constitutive of our being in the world
- **Involved** -Educators and Health Care Providers need to be involved, consulted, etc. in design and use of AI technologies
- **Informed** – How do we value technologies? e.g. informed consent? Privacy? **Purpose?**
- **Skeptical** - Will this AI do what it is intended to do?
- **Curious** - What else is this AI doing? What are all the effects? (not just the marketed, intended ones)
- **Relational** - Resist ‘totalizing’ the technology (posthuman, relational)
- **Oversight** – what are mechanisms of accountability? Are they robust?

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“It’s just completely obvious that in five years deep learning is going to do better than radiologists. They should stop training radiologists now.”

- Dr. Geoffrey Hinton (Professor of Computer Science, University of Toronto) at a discussion panel in 2016.

## Questions for us all: How ought we frame AI?

- Perhaps instead of replacement of humans – augments, extends, assists
- To what extent can we talk about AI technologies as good or bad independent of the user of it? That is, do technologies in and of themselves bear morality?
- How do technologies constitute our humanity, our consciousness?

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