Ethics and Algorithms:
Lessons from Public Health Ethics

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Applied Ethics, Data & Engineering Ethics

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Fairness in Algorithmic Decision Making

Eleanor Gilmore-Szott

Bioethics, Philosophy of Medicine

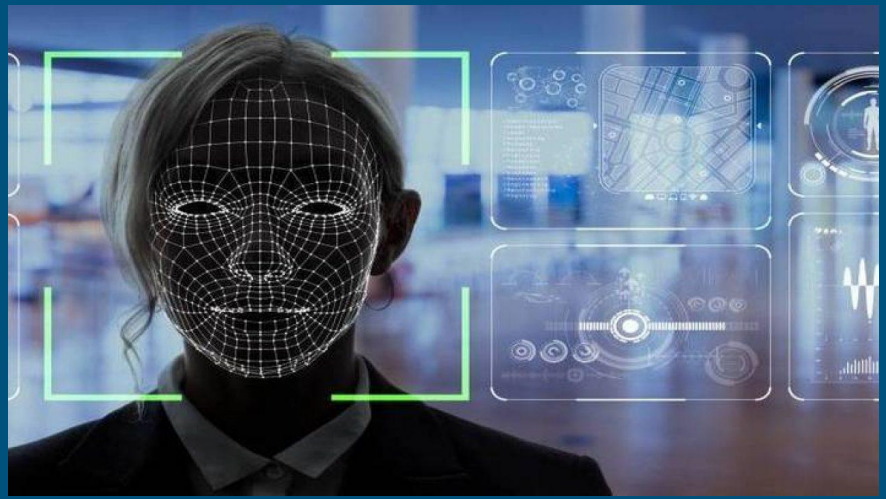
Goal

To use the lessons from public health ethics to help avoid the ethical abuses coming to the fore in machine learning

Roadmap

I. Public Harm from Algorithms
II. Parallels with Public Health
III. Applying Childress et al. (2002)
IV. Lessons Learned

Harms from Machine Learning



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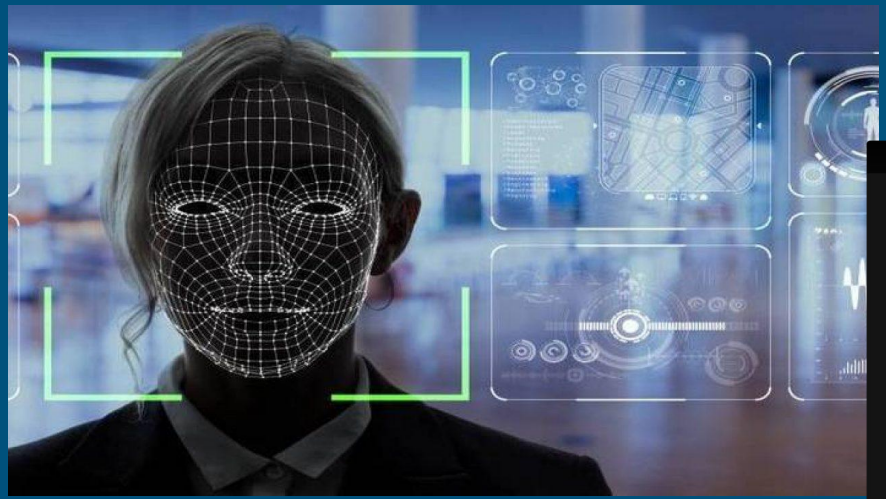

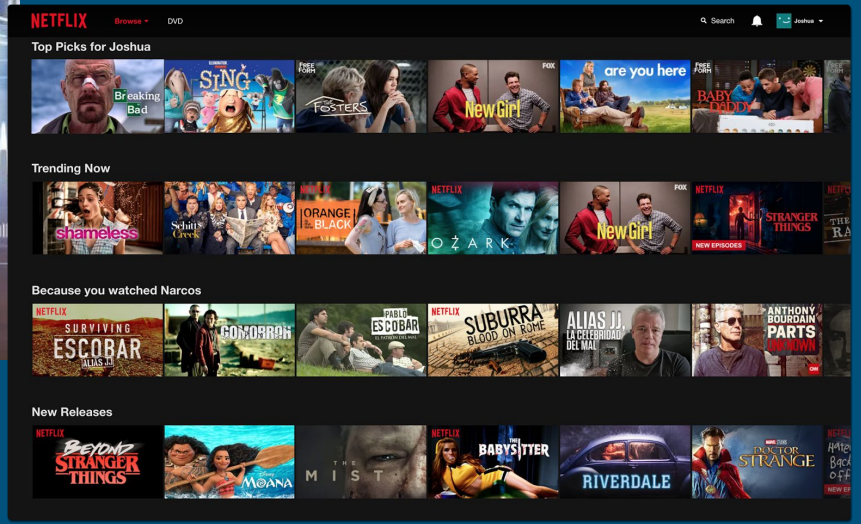

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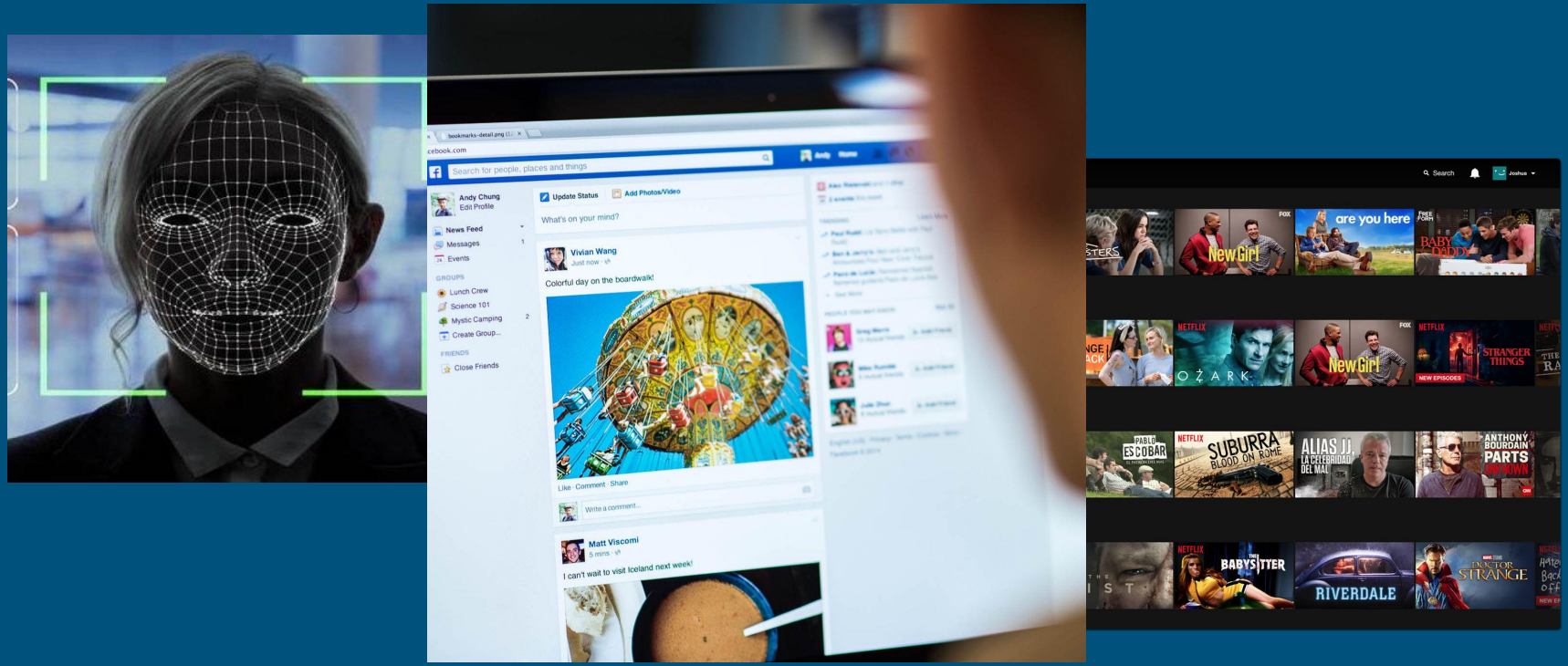

The Public Aspect

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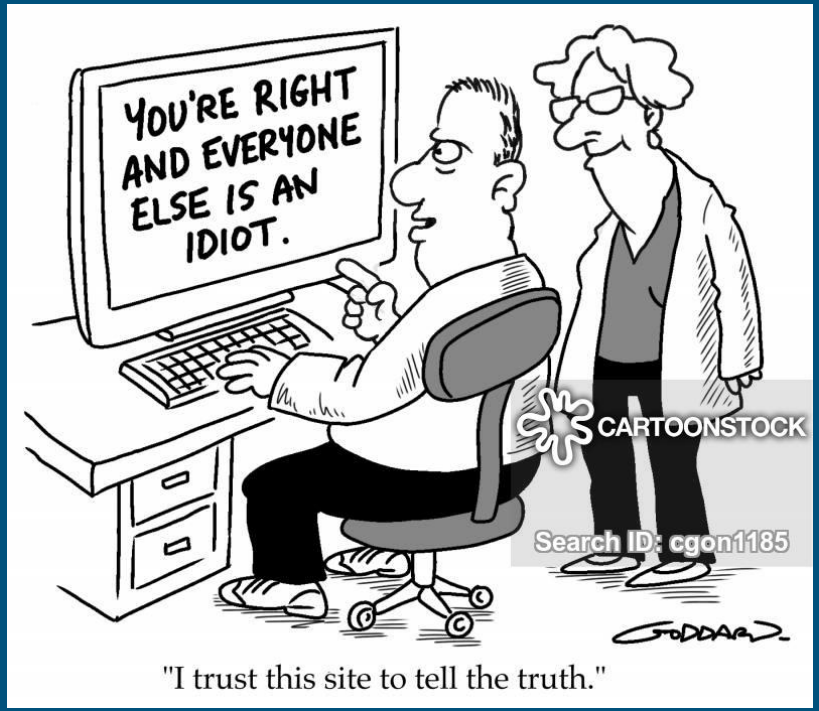

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Drawing on Public Health

Public Health

- Public/collective good
- Outcome-oriented
- Preventative action
- Governmental support

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Drawing on Public Health

Public Health

- Public/collective good
- Outcome-oriented
- Preventative action
- Governmental support

Machine Learning

- Public/collective affected
- Outcome-oriented
- Preventative action needed
- Government or supervisory role needed

Childress et al. (2002)

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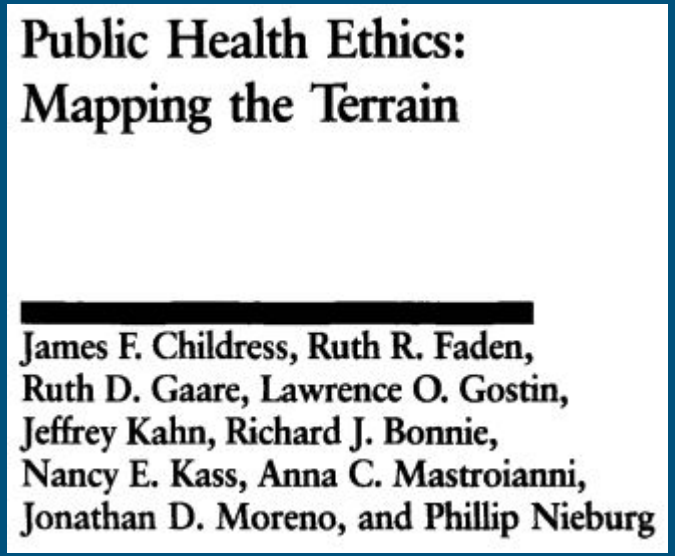

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Childress et al. (2002)

Justificatory Conditions for public health actions that cause moral violations:

- *Effectiveness* - probability of protecting public health
- *Proportionality* - benefits outweigh the harms
- *Necessity* - no other viable option
- *Least Infringement* - minimize infringement on moral considerations
- *Public Justification* - explanation and justification for violation provided to those affected

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Applying the Framework

Justificatory Conditions for ML actions that cause moral violations:

- *Effectiveness* - probability of algorithm working
- *Proportionality* - benefits to public outweigh the harms
- *Necessity* - no other viable option; task must be done
- *Least Infringement* - minimize infringement on rights
- *Public Justification* - developers ought to justify their algorithmic design

Applications in Data Science

I. Public Harm from Algorithms
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- *Effectiveness* - evaluation process designed to measure success of algorithm regarding the goal at outset
- *Proportionality* - when violations are minimized, harms decrease while maintaining public benefit
- *Necessity* - protecting the public; use the least invasive course of action required to achieve that goal
- *Least Infringement* - public wifi; consent for private wifi use; minimize data access
- *Public Justification* - public awareness campaign

amazon

Amazon's doorbell camera Ring is working with police – and controlling what they say

Ring shapes communications of police agencies it works with. Critics fear it's building up a for-profit private surveillance network

Kari Paul

Fri 30 Aug 2019

Amazon's helping police build a surveillance network with Ring doorbells

Its popular Ring smart doorbells mean more cameras on more doorsteps, where surveillance footage used to be rare.

Alfred Ng June 5, 2019

Here's How Amazon's Ring Doorbell Police Partnership Affects You

Jay McGregor Senior Contributor

Consumer Tech

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