CS 5/692: Research Ethics for CS & EE

4/4/2017: Intro & Course Logistics

Plan for today:

1. Overview of course
2. What's special about machine learning?
3. Responsible conduct of research
4. History of human subjects research
5. Key ethical principles
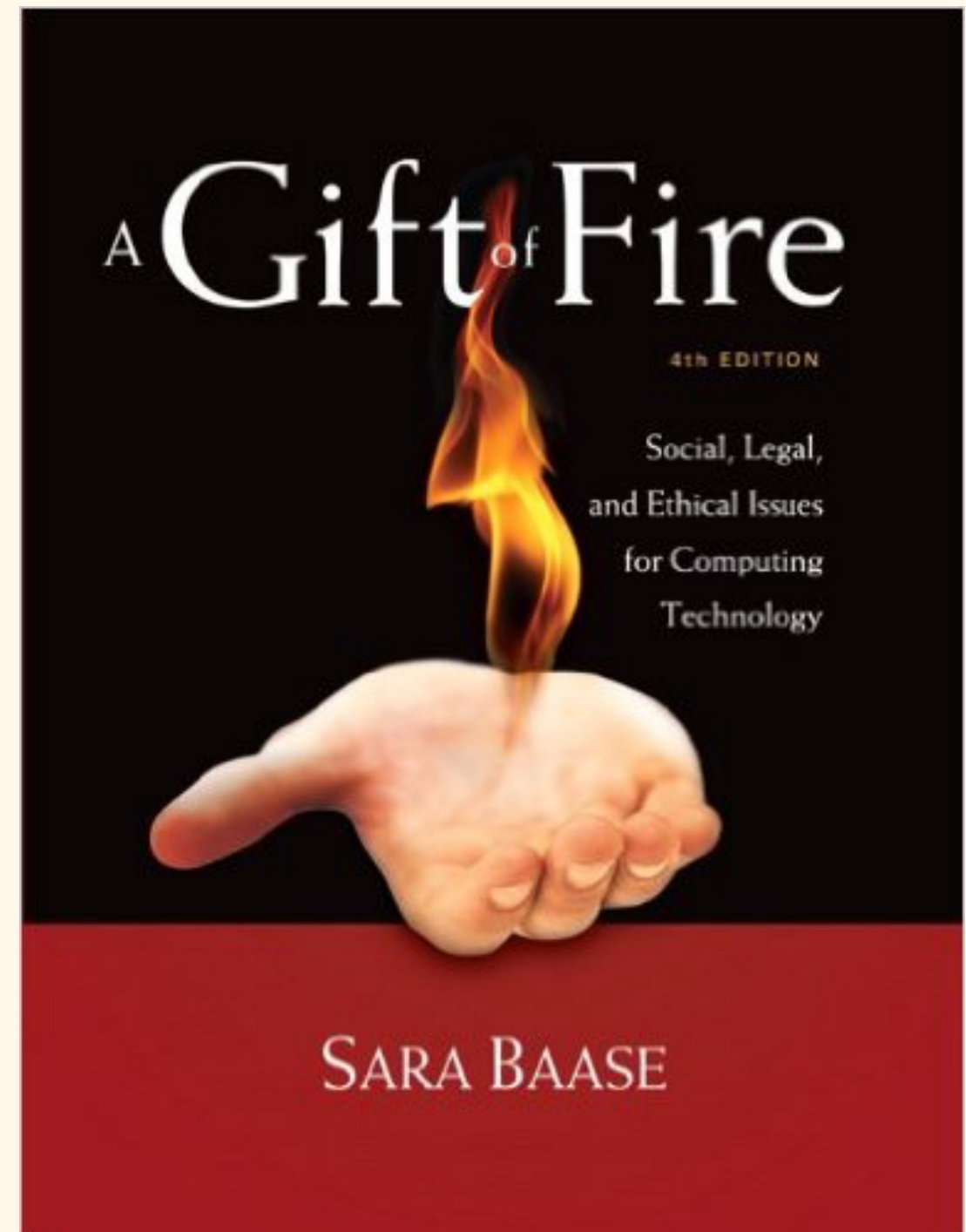6. Models of ethical reasoning
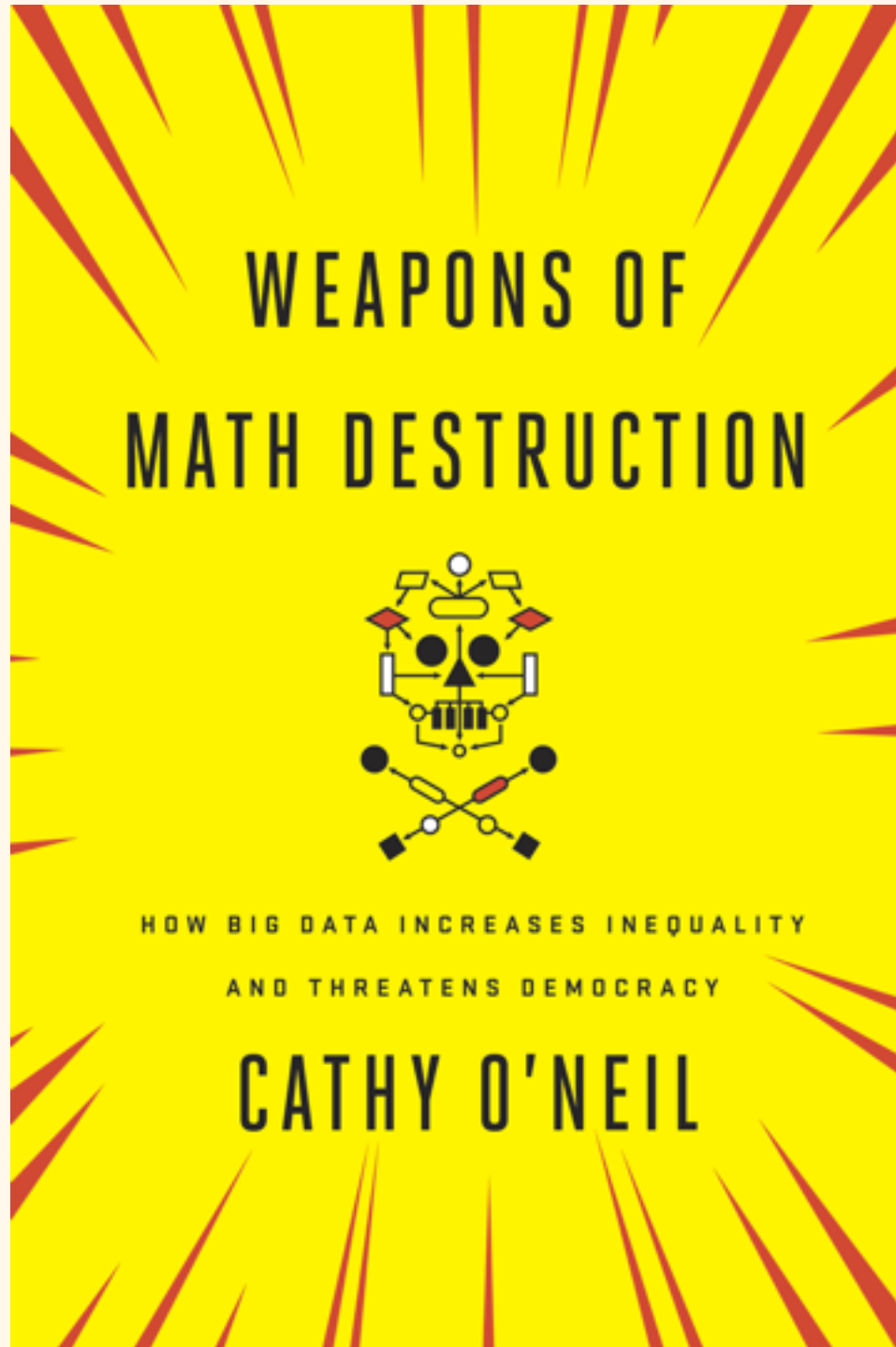
Course overview:

Website/Syllabus:

http://cslu.ohsu.edu/~bedricks/courses/cs692/

Readings!

Discussions!

Writing assignments!

Grading!

Textbooks:

What's ethically special about machine learning?

… compared to:

… "traditional" research ethics?

… "traditional" engineering/computer ethics?

What's ethically special about machine learning?

1. Application areas

2. Scale

3. Sources of data

"Instead of relying on algorithms, which we can be accused of manipulating for our benefit, we have turned to machine learning, an ingenious way of disclaiming responsibility for anything. **Machine learning is like money laundering for bias.** It's a clean, mathematical apparatus that gives the status quo the aura of logical inevitability. The numbers don't lie."

- Maciej Cegłowski

Note: Besides the privacy issues, this case had problems with other RCR areas including review standards, methodologies, etc.

Responsible Conduct of Research (RCR)

History of human subjects in research

Foundational principles of research ethics:

Respect for autonomy

Non-Maleficence

Beneficence

Justice

Beauchamp T, Childress J. *Principles of Biomedical Ethics, 7th Edition*. New York: Oxford University Press, 2013.

Respect for Autonomy:

Sometimes also phrased as "respect for persons"...

Key idea: individuals have the right to make informed and voluntary decisions about their participation & involvement.

Important corollary: researchers have a duty to protect individuals who are unable to fully exercise that right.

Non-Maleficence:

First, do no harm.

Research must be designed in such a way as to not harm subjects…

… or, if harm is necessary, it must be carefully controlled, minimized, and disclosed to the subject.

Investigators have a duty to actively consider possible harms, and ask "what could go wrong?"

Beneficence:

The goal of the research should be to benefit the participant in some way (inc. indirect benefit).

1. Do no evil/harm

2. Prevent evil/harm

3. Remove evil/harm

4. Practice good

Moral/ethical systems define beneficence in different ways…

Justice:

The benefits and burdens of research should be distributed fairly and equitably.

E.g.: specific populations should not bear disproportionate costs (i.e., subjects should not all be from one group)

The New York Times

Syphilis Victims in U.S. Study Went Untreated for 40 Years

By JEAN HELLER
The Associated Press

WASHINGTON, July 25—For 40 years the United States Public Health Service has conducted a study in which human beings with syphilis, who were induced to serve as guinea pigs, have gone without medical treatment for the disease and a few have died of its late effects, even though an effective therapy was eventually discovered.

The study was conducted to determine from autopsies what the disease does to the human body.

Officials of the health service who initiated the experiment have long since retired. Current officials, who say they have serious doubts about the morality of the study, also say that it is too late to treat the syphilis in any surviving participants.

Doctors in the service say they are now rendering whatever other medical services they can give to the survivors while the study of the disease's effects continues.

Dr. Merlin K. DuVal, Assistant Secretary of Health, Education and Welfare for Health and Scientific Affairs, expressed shock on learning of the study. He said that he was making an immediate investigation.

The experiment, called the Tuskegee Study, began in 1932 with about 600 black men,

Researchers bear responsibility for disseminating results equitably, etc.
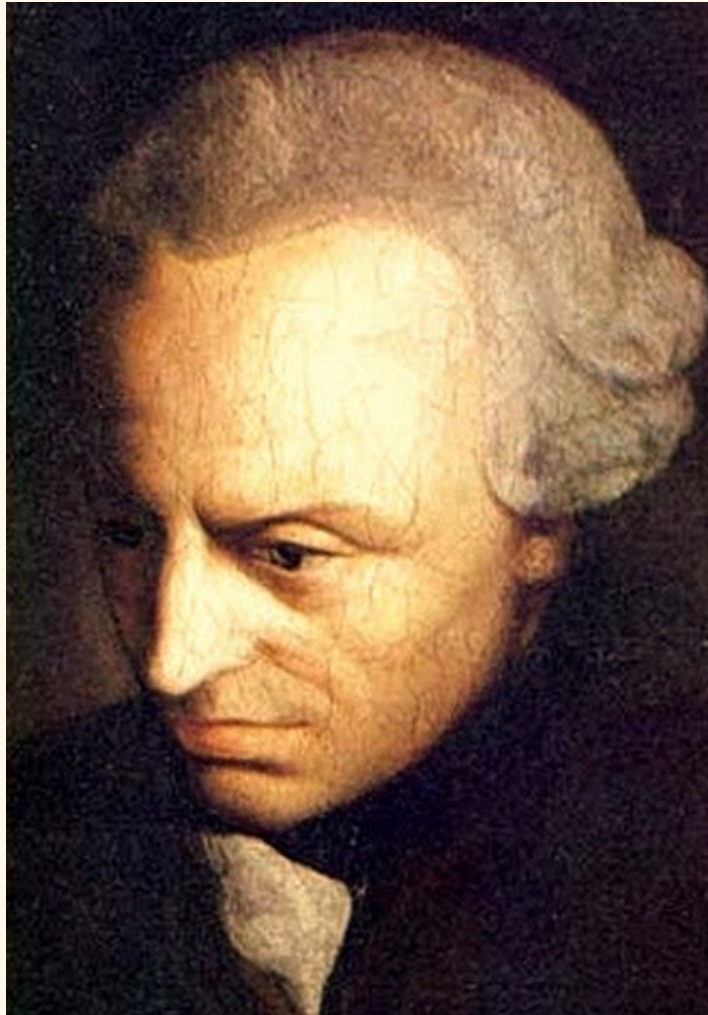
Models of ethical reasoning:
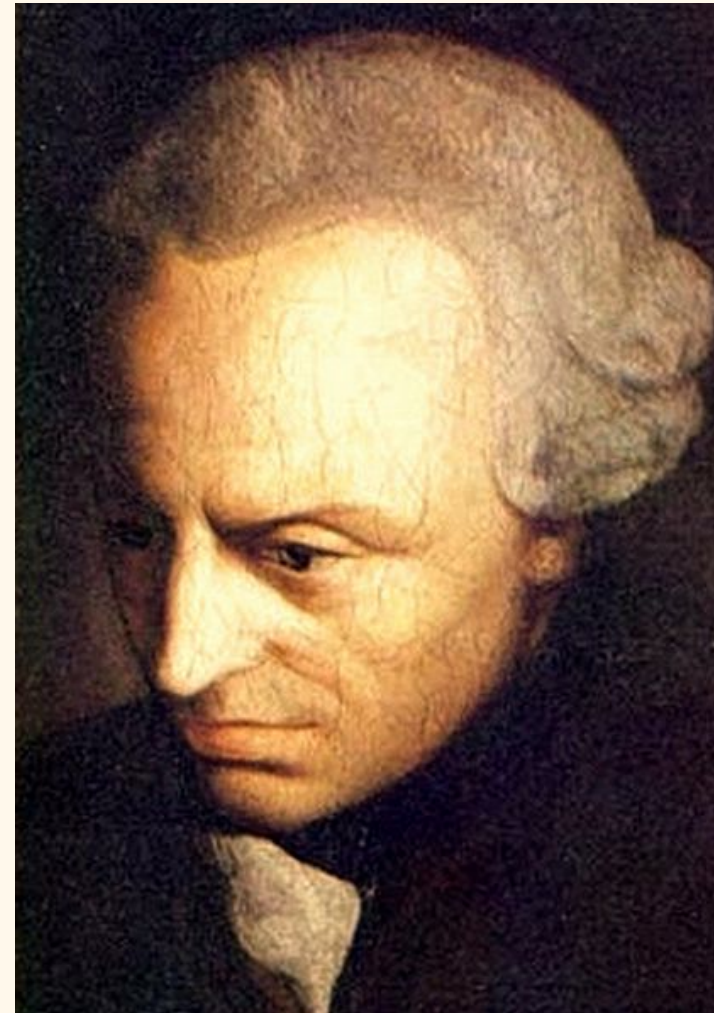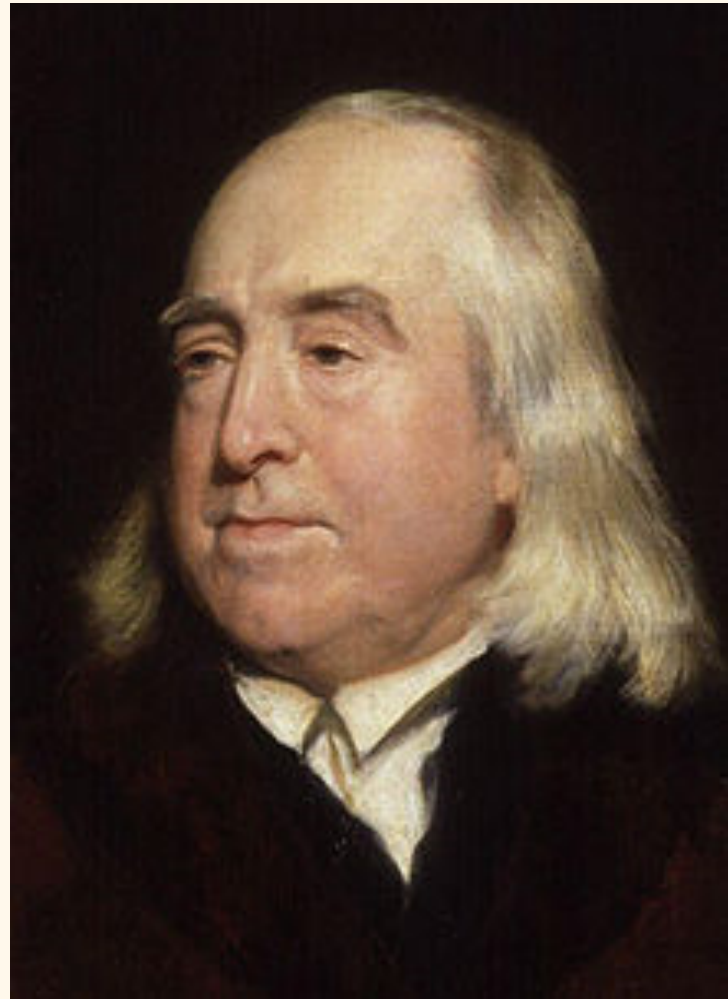
Consequentialism:

"Nature has placed mankind under the governance of two sovereign masters, pain and pleasure. It is for them alone to point out what we ought to do, as well as to determine what we shall do."

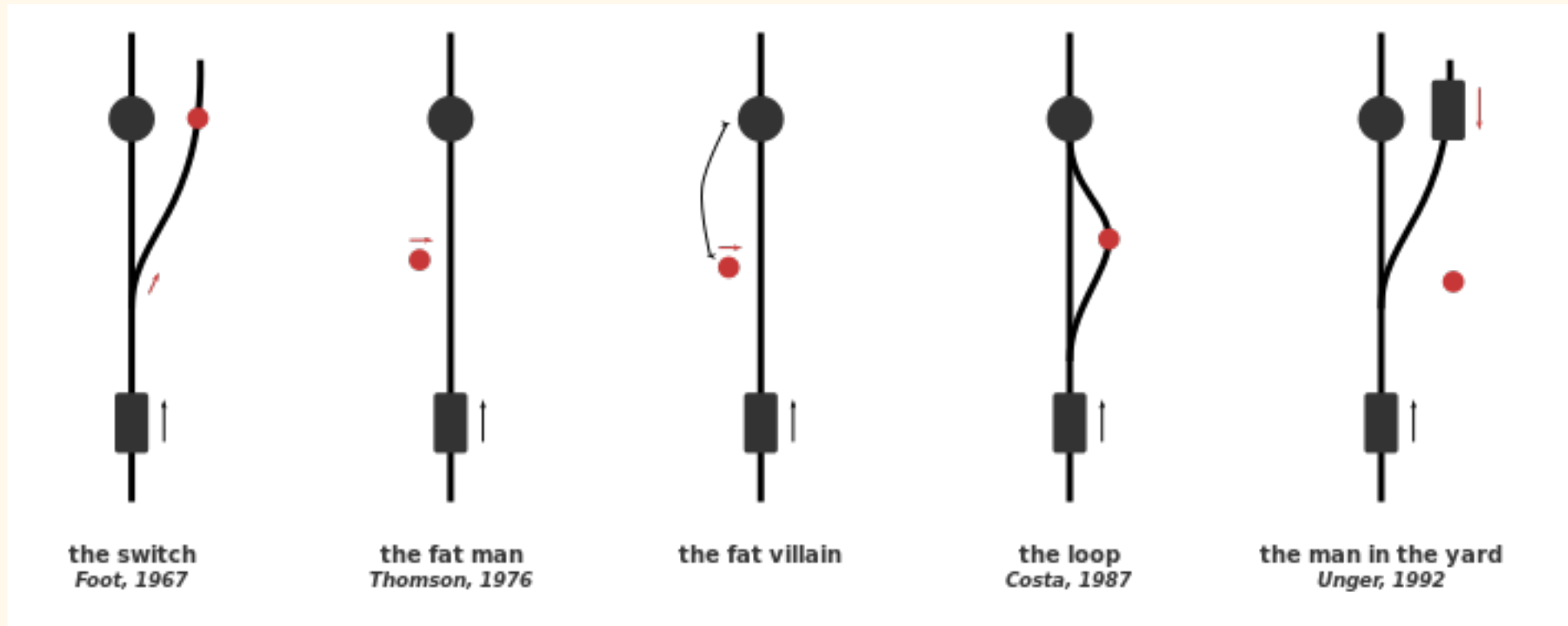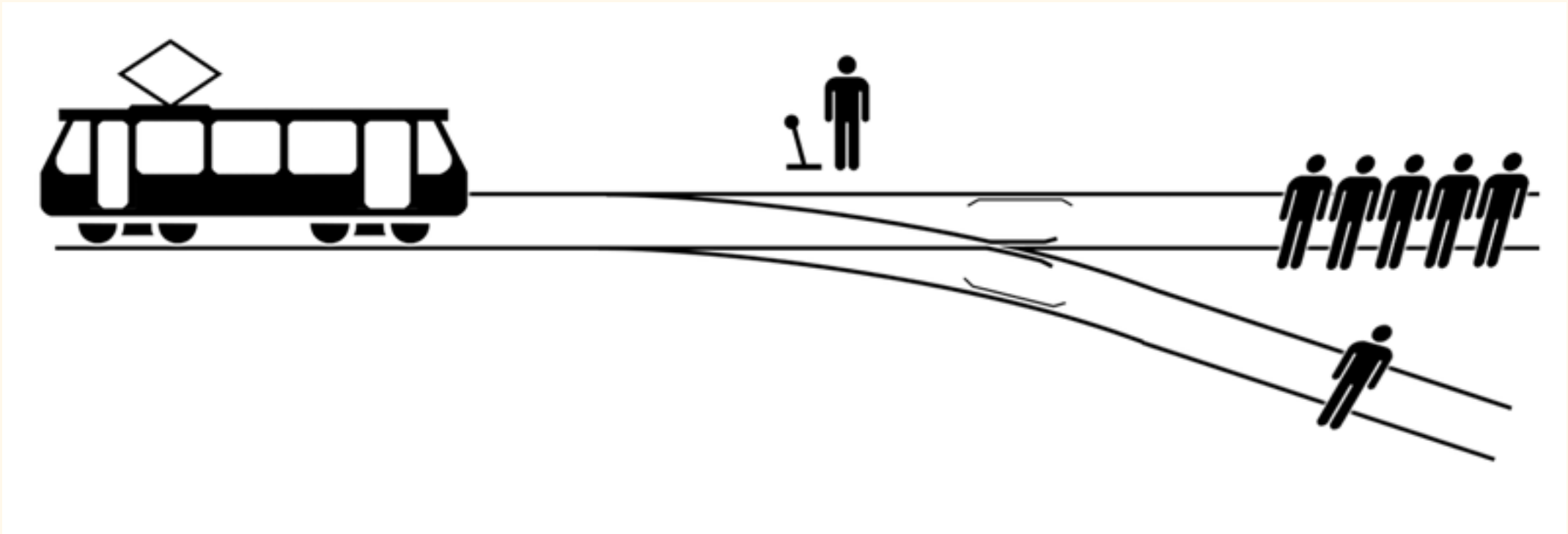Jeremy Bentham , *Principles of Morals & Legislation*

Deontology:

"Act only according to that maxim whereby you can at the same time will that it should become a universal law without contradiction."

Immanuel Kant, *Grounding for the Metaphysics of Morals*

Trite illustration:

the switch	the fat man	the fat villain	the loop	the man in the yard
Foot, 1967	Thomson, 1976		Costa, 1987	Unger, 1992

So far, no ethicists are impressed with the Monty Hall Trolley Problem.

Assignment:

1. Pick one of the basic principles (autonomy, etc.)

2. Reflect (in writing) about how it might come into conflict with a machine learning / NLP/ AI research question