Data Ethics: Choices and Values

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We use data to inform our decisions

- Evidence-based
- Impartial
- Reliable
This class was awesome. A beginner like me that has never done anything further than facebook on a computer, Professor [Name] was very clear and easy to listen to. I very much enjoyed the lectures and how easy it was to learn from such a great teacher. Thank you for all that you do.
What can we learn from a data set?

• Patterns
• Correlations
• Distributions
• ...

• Choices
• Values
• Assumptions
• Biases
What can we learn from a data set?

How to interrogate a data set to find ethically relevant elements?
VALUES IN DESIGN

PROBLEM FORMULATION

LANGUAGE

BIAS AND REPRESENTATION

FAIRNESS
Values in Design
Values in Design

- Design decisions encode values.
- They are expressive of what we care about.
- They reveal our assumptions about the world, the people who will be interacting with our design, and benefiting from it.
Values in Design

- **Explicit values**: Values that designers intend their products to embody

- **Collateral values**: Values that crop up as side effects of design decisions and the way users interact with them
Explicit Values

Contact-tracing

Health
Safety
Efficiency
Public interest
Collateral Values

• Security?
  • Where is information stored?
  • Encryption?

• Privacy?
  • Who has access to information?
  • Geolocation or blue-tooth?
  • What information is accessible to health authorities/ the public?

• Autonomy?
  • Informed consent?
Explicit Values

Bike-sharing app

Mobility
Health
Sustainability
Inclusion
Collateral Values

Bike-sharing

Who is the default user?
Problem Formulation
Problem Formulation Statements

• Formulating a problem means treating the desired solution as good or worthy of being done.

• Why should we care about solving this problem?

• Who can agree that this is a problem worth solving?

• Who would benefit from its solution?
Problem Formulation

“Homeless people are sleeping here and we want them to stop”
Problem Formulation

“Some people in our community don’t have a place to sleep and we think they should”
Problem Formulation

Who is included in each problem formulation?
Who can agree it’s a problem?
Problem Formulation Statements

- What is the problem to be solved?
- Is Professor X a good teacher?
  - Do students think she is a good teacher?
  - Do most students think she is a good teacher?
Choice of Data

• What kind of data should inform our decisions?
• Where will it come from?
• Is it a reflection of what we want to measure?
Language
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Descriptive vs. Normative Language

**Descriptive language**
- Statements of fact
- What people did
- What happened

**Normative language**
- “Lectures are 90-minutes long”
- “Assignments take more than two hours to finish”
- “Sections are mandatory”
Attendance: Not Mandatory

Textbook Required
Descriptive vs. Normative Language

Normative language:

- Evaluative statements
- Express the speaker’s opinions/reactions
- How they think things should be

- “right”
- “wrong”
- “good”
- “bad”
- “should”
- “should not”
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Descriptive vs. Normative Language

Normative language:
• Evaluative statements
• Express the speaker’s opinions/reactions
• How things should be

Descriptive language:
• Statements of fact
• What people did
• What happened
Attendance: A  
Difficulty: 1.0  
Textbook: Yes  
Online Class: Yes

This class was very clear to me that I don't need to do anything further than facebook on a computer. I've found the lectures to be very clear and informative. I have very much enjoyed the lectures and how you run your class. I learn from self studying courses. I think you for all that you do.
Thick Normative Terms

Descriptive AND normative:

• Thick normative terms express morally or aesthetically “loaded” descriptions

• Cowardly
• Cautious
• Polite
• Rude
• Chill
• Kind
• Caring
• Smart
• Knowledgeable
• Professional
Descriptive or Normative?

Does the program you are writing contain descriptive claims?

Do it contain normative claims or values?

How about thick normative terms?
What is Bias?

Statistical bias is the difference between measured results and "true" value.

- This is the "neutral" or statistical meaning of the word bias. You will see it often in discussions of patterns in data.
Discriminatory Bias in Data

Biased measurement or classification
+
Use of that bias that compounds existing injustice
=
*Discriminatory or Unfair Bias*
Discrimination

- **Direct discrimination**: discrimination resulting from a negative attitude toward the social group (e.g. animus or indifference).

- **Indirect discrimination**: discrimination that does not result from such an attitude, but from rules and procedures constructed in a way that favors one group over another.
Discrimination

"The rules and norms of society consistently produce disproportionately disadvantaged outcomes for the members of a certain group [and] the outcomes are unjust to the members of the disadvantaged group”

(Stanford Encyclopedia of Philosophy)
A decision procedure unjustly discriminates against social group $x$ if and only if:

- There is a social group $y$ such that the procedure treats the members of $x$ less favorably than the members of $y$;
- Part of the explanation for the difference in treatment is their membership in $x$ and $y$, respectively; and
- The difference in treatment is not morally justified on independent grounds.
Representation in Survey Data
Representational Harms

A person is harmed when her identity is diminished in public representations of her social groups.

Who is represented in this data?  
Who can see themselves in it?
Allocation of goods
Distributional or Allocative Harm
Allocative Harms

A person is harmed when opportunities, resources, benefits, and protections that would otherwise be allocated to them are unfairly withheld.
Fairness
Distribution of goods should be based on morally relevant characteristics, not on morally arbitrary ones.
Formal Equality of Opportunity

“Positions and posts that confer superior advantages should be open to all applicants. Applications are assessed on their merits, and the applicant deemed most qualified according to appropriate criteria is offered the position.”

(Stanford Encyclopedia of Philosophy)
Formal Equality of Opportunity:

Everyone has same opportunity to develop skills needed for the job, apply for the job, and get promoted.
Substantive Equality of Opportunity

Takes into account systemic inequalities to ensure everyone in a community has access to the same opportunities and outcomes. Acknowledging that inequalities exist and works to eliminate them.
Substantive Equality of Opportunity

Because there are pervasive disadvantages, we should adjust our rules and procedures to eliminate (or mitigate) their effects on people’s ability to access social goods.
Parity

Because we are equal, we should adjust rules and procedures to ensure that outcomes reflect that.
Parity

Everyone is equally likely to be a good teacher, so we should expect to end up with numbers of good teachers (and high rankings) proportionate to population.
Two Sets of Questions to Ask

Values in Data Set
• What conception of fairness is encoded in the data set, if any?
• Does it lead to discrimination?

Values in data-based decisions
• Given existing biases in the data set, would it be fair to rely on them for our decisions?
• Would decisions based on the data set lead to discrimination?
I have data about people! Now What?

Check for Statistical Bias
What correlations and patterns exist in my dataset?
In what ways do they fail to accurately represent the world?

Check for Discriminatory Bias
In what ways do the biases compound existing injustice?

Decide how to use the data given the bias
- Given the bias, for what social purposes would it be appropriate to use this data?
- How should we communicate information about possible biases?
Thank you!