



JOHNS HOPKINS

WHITING SCHOOL
of ENGINEERING

Origins and Data

8/31/23

Discussion Groups

- Make sure that each person in your group is talking. If someone is talking less, find a way to draw them in. This is one of the most important parts of your role as facilitator: do your best to have everyone talk (very roughly) the same amount.
- Try not to respond to every comment that everyone makes at your table; instead if no one is talking ask the table what they think about what has just been said. But if it feels like the right time to summarize responses, maybe do so without taking a stand one way or another.
- If you need an icebreaker, you might ask a question for which there is no single correct answer and go around the table with it. (Example: "On a scale of 1 to 10, how successful do you think the paper is at solving the problem they pose" or "If you were going to do a project following up on this paper, which part of the paper might be most rewarding to look into?")
- Try to be careful about giving credit for ideas

What falls under IRB jurisdiction?

- Operate under federal (U.S. government) requirements
 - Don't cover non-U.S. institutions
- Institutions receiving federal support
 - Companies that don't receive federal grants may have internal review processes but are not mandated to have IRBs
- "Human subject research"
 - Biospecimens
 - Identifiable private information

<https://homewodirb.jhu.edu/>

https://www.hopkinsmedicine.org/institutional_review_board/

Brief History of Facial Recognition Research

- 1960s: Woody Bledsoe, Helen Chan Wolf, and Charles Bisson try to get computers to recognize faces
- 1993-1996: DARPA FERET project
 - “to develop automatic face recognition capabilities that could be employed to assist security, intelligence, and law enforcement personnel in the performance of their duties”
- 1996-2006: FERET dataset simulates research interest, but models are not very good
- 2007-2013: Mainstream development for unconstrained settings
 - Hunt for “in the wild data sets”
- 2014-present: Deep learning leads to more accurate models and commercialization

<https://www.nist.gov/programs-projects/face-recognition-technology-feret>

Raji, Inioluwa Deborah, and Genevieve Fried. "About face: A survey of facial recognition evaluation." AAAI 2020 Workshop on AI Evaluation (2021).

How is facial recognition technology used?

Ad from a face image processing company

“We live in a dangerous world, where harm doers and criminals easily mingle with the general population; the vast majority of them are unknown to the authorities...Public Safety agencies, city police department, smart city service providers and other law enforcement entities are increasingly strive for Predictive Screening solutions, that can monitor, prevent, and forecast criminal events and public disorder without direct investigation or innocent people interrogations.

“What if it was possible to know whether an individual is a potential pedophile, an aggressive person, or a criminal?”

How is facial recognition technology used?

- Emotion expression and intensity
- Sexual orientation
- Political orientation
- Personality traits

A large body of work in psychology and anthropology has provided evidence that “there is no relationship between how we look and how trustworthy or intelligent we actually are”, though opposing research exists

Severin Engelmann, Chiara Ullstein, Orestis Papakyriakopoulos, and Jens Grossklags. 2022. What People Think AI Should Infer From Faces. (FAcCT '22) <https://doi.org/10.1145/3531146.3533080>

Where is facial recognition technology not used?

2018:

- Intense criticism of facial recognition research as surveillance tech (petitions, letter to Jeff Bezos)
- Gender Shades Project

2020:

- Amazon places 1-year moratorium on use of its face-processing software by police agencies (which they extended at least one more year)
- Microsoft stops selling facial-recognition software to police
- IBM halts work on face recognition because it's used for racial profiling

<https://www.technologyreview.com/2020/06/12/1003482/amazon-stopped-selling-police-face-recognition-fight/>

<https://www.washingtonpost.com/technology/2020/06/11/microsoft-facial-recognition/>

<https://www.technologyreview.com/2020/06/09/1002947/ibm-says-it-is-no-longer-working-on-face-recognition-because-its-used-for-racial-profiling/>

Readings (Where does the data come from?)

1. [Buolamwini, Joy, and Timnit Gebru. "Gender shades: Intersectional accuracy disparities in commercial gender classification." FAccT. PMLR, 2018](#)
2. ["Facial recognition's 'dirty little secret': Millions of online photos scraped without consent", NBC article](#)
3. ["Training the Next Generation of Indigenous Data Scientists", NYT article](#) [available via JHU login [here](#)]

Fill out course goals form by Wednesday 9/5!

Some questions

- Data privacy and collective action
 - What are principles around using social media / internet data in research?
 - What power do individuals, collective lawsuits, and media have in protecting their data? In influencing research and product directions?
- Corporate responsibility:
 - What is the role of research divisions in companies? What is their relation to commercial products?
 - What is the corporate responsibility for how their products are used?
- Facial recognition
 - What has happened to facial recognition research? Where do you see facial recognition technology used today?
 - Are some uses of facial recognition more benign than others? Where do you draw the line?