

ML and Society

Mar 17, 2022

2nd discussion summary due right after break

note @38

3 views

Autolab accepting Second Progress summary

Autolab is now accepting the **second** progress summary for all groups that is due **Mon (March 28) at 5pm** (note that this is **right** after the spring break is done). Note that each group will meet with me in class on Tue, March 29 in the following order:

1. Human Acceptance
2. Teaching tools
3. Algorithmic Auditing
4. Multiple notions of fairness

Your groups have been set up on Autolab. However, **please double-check the following:**

- Make sure you can see your group. To do so, follow these steps
 - Go to CSE 440/441/540 > Second Progress Summary (under Project)
 - Go to Options > Group options
 - Check to make sure your and your partners' emails are in there.
 - **DO NOT**
 - Click on invite another student to the group or the leave group buttons
- Please submit a dummy PDF well in advance of the deadline and check with ALL your group-mates to make sure they see your submitted PDF in their account.
 - I will grade the last PDF submitted by any of the group members.
 - I recommend that you designate one person in your group as the official submitter but whatever works for your group is fine with me.

project autolab

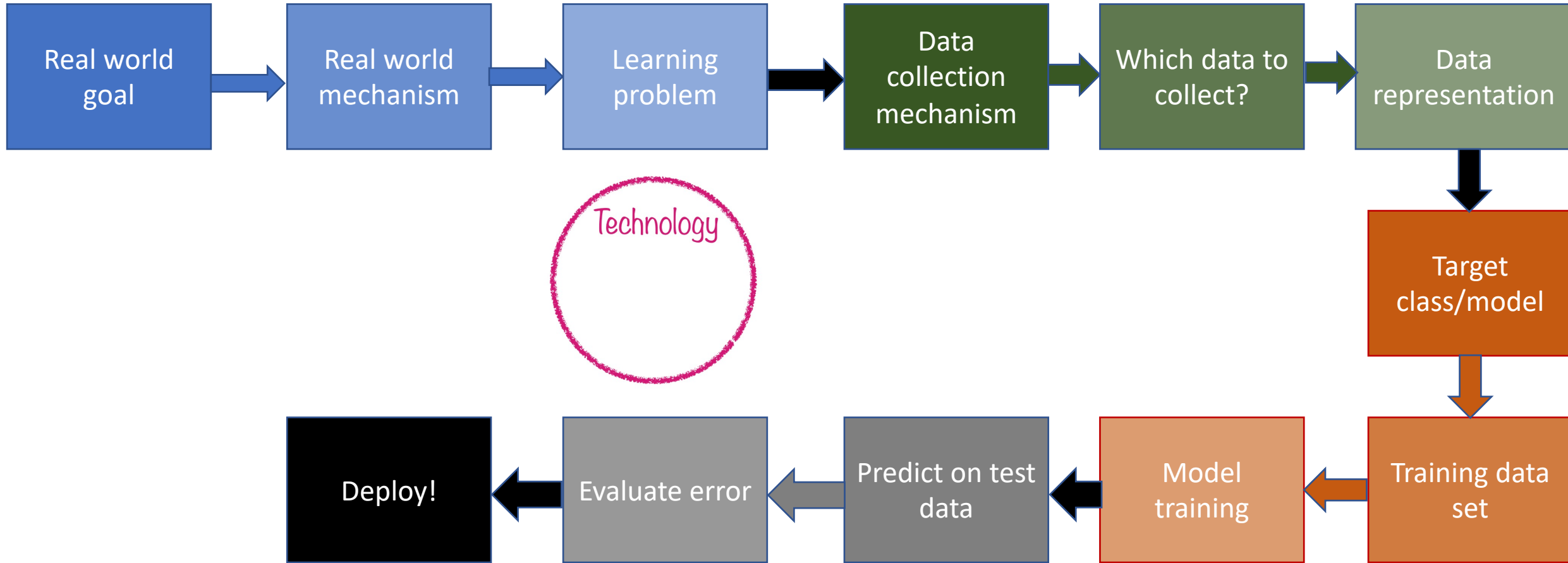
Overview of your answers

Why (were there racial disparities in the algorithm's recommendation)?

A: Because the **algorithm** developers chose a proxy variable that had racial bias.



In this course think beyond proxy variable



But still on proxy variables

note @42

stop following 6 views

Comment from Dr. Boulden

Thanks for the interesting discussion today! Dr. Boulden made a pertinent comment to me by email, which I'm sharing with her permission:

The "Glad you Asked" video we use talks about how, in the one health care example, folks were substituting "healthcare dollars spent" for "overall health" in their machine learning and therein lied the problem: actual health, as Ruha Benjamin points out, is harder and trickier to measure than (whereas using healthcare costs is pretty easily available and simple, from a data collection standpoint) but taking the time to actually understand health (rather than using dollars spent as a convenient stand-in) will yield more equitable results longterm. Similarly, the SAT does not actually measure how smart you are, it's really just an indicator of how good (or prepared you are) at taking an SAT. The issue is when we take a data point and assume it means more than it means: such as equating healthcare dollars spent with overall healthiness, or an SAT score with intelligence. These are false equivalencies! Back to the conversation today: the student kept talking about "viewership" as a marker of "women's interest" in sports. Viewership is only an indication of viewership! Actually understanding women's interest in sports would be a trickier and messier datapoint to collect, but it would be much more helpful in guiding any decisions or research in that arena (rather than using current viewership). I think the students may have fallen into the same trap as outlined in the Glad you Asked video: looking at an easily available data point (viewership) and trying to extrapolate that data point as something else (women's interest).

ip

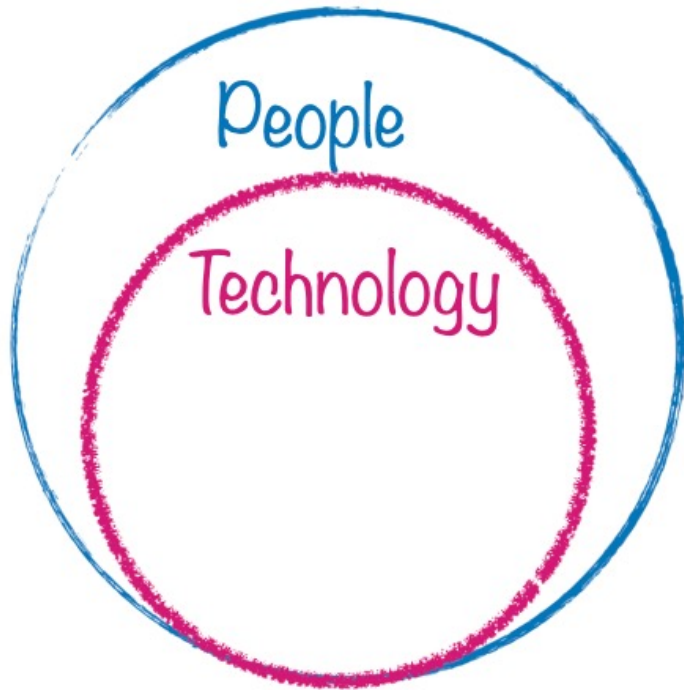
edit

good note | 0

Updated 1 day ago by Atri Rudra

Why was the underlying proxy variable racially biased?

A: Because the **people** who made the underlying decisions did so in a racially biased way



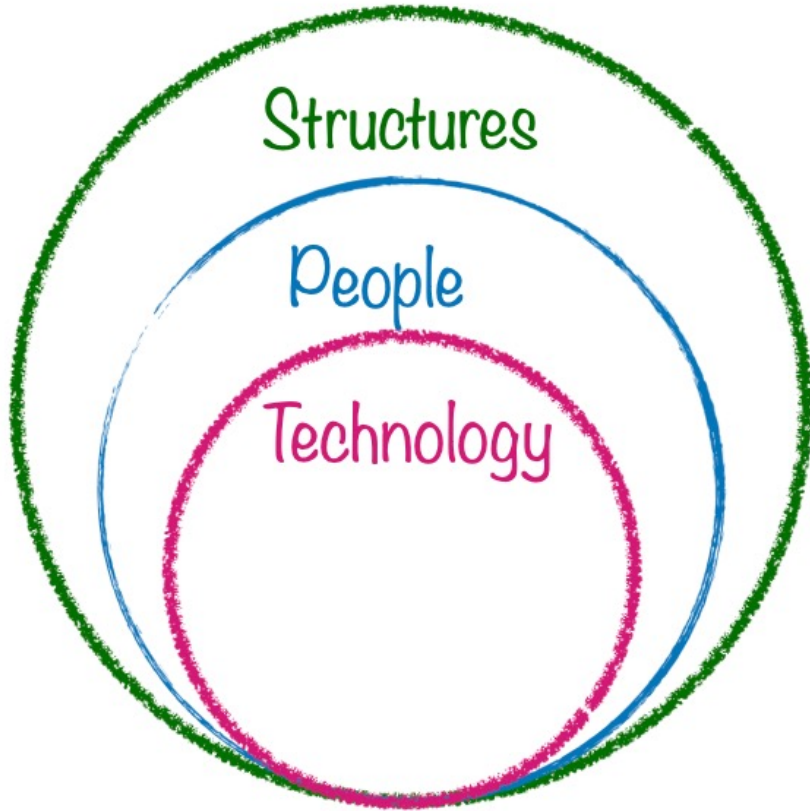
It is a widely known fact that there exists racial inequality within the health care system. Specifically, black people are often barred from health services due to its expensive cost, which artificially lowers the cost of care for black patients. Since the algorithm uses cost as the proxy variable, it creates this illusion that black patients do not need as much medical care.

I understand the underlying decisions that people made as a reference to the doctors and nurses whose decisions about their patients were used as the input data to compute the algorithm. Since their decisions were racially biased, the same translates into the algorithm.

Clearly there is vested self interest and a conflict of interest when united healthcare designs an algorithm that predicts cost.

This quote from the news story covering the original publication highlights the long history of racially disparate healthcare. This is further exacerbated by inequality in access created by the lower socioeconomic status and opportunities afforded to people of color as a result of structural racism. While the original creators of the algorithm may not have had racist intentions, their failure to consider historical context led to deeply racist outcomes.

Why did these people make racially biased decisions?



A: Because racial biases and discrimination are built into our **society** at a structural level

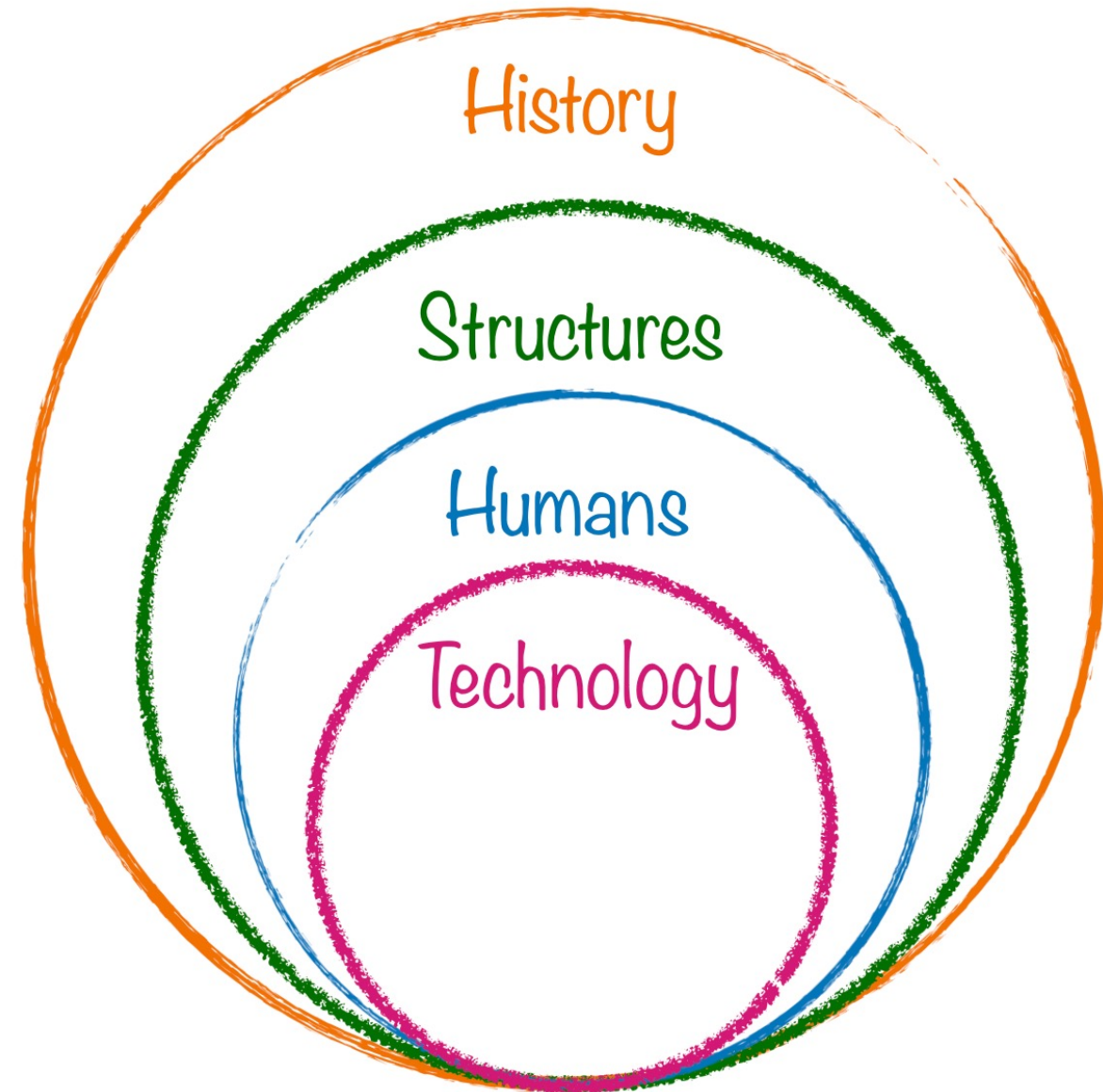
Starting from birth, till getting a job and beyond that, a white person is given more priority than a same aged black person with same qualifications. Why? Because it is built into our society at a structural level.

Due to income inequality, black families cannot afford health insurance. This goes to show how the fundamental institutions are racially biased, and it perpetuates across other institutions, even if it is through indirect means.

This textbook case is an excellent example of how racism is structural, rather than an individual failure. Individual doctors and nurses may not be personally bigoted, but inequality is deeply engrained in the entire practice of medicine. Only awareness of that knowledge and active efforts to change it can be considered anti-racist, interpersonal equality on an individual level does nothing to change this status quo.

Why are racial bias and discrimination built into our society at a structural level?

A: Because American society has been **historically** unequal and discriminatory, and structural racism is reproduced over time



Time by time we see that blacks were neglected, given a lower stature enslaved by whites, forced to live in redlining areas, purposefully were denied the rights to social security or citizenship or were not allowed to own a property. These structural inequality and structural racism made the young white children believe that blacks were always inferior and were treated like an animal. These reasons say that due to bad historical decisions made by American society built racial discrimination into the society at a structural level.

These movements were largely target at Black Americans, and created this system of distrust against the medical system for the Black folks. This trickled down to modern society where many Black people are wary of the medical system, and would refrain from seeking medical help, such as with the COVID vaccine.

This brief quote is one of many examples from the Vox video of how the medical establishment is largely built on a foundation of discrimination and racism. Many medical discoveries and advancements were made at the expense of enslaved people, and conversely medicine was used to rationalize slavery. This deep intertwining of racism and healthcare still greatly effects modern day outcomes across racial lines, and is necessary context to build more equitable algorithms in healthcare

Because at that time segregation existed and the prices for the neighborhood varied depending how populated they were with black people or white people. That's why HOLC was created to grade the neighborhood when there was segregation existed and white people paid more to live in a better neighborhood for the better future and the redlining created and black people started to suffer in the different way that they never imagined.

Comments from your mentors

Passphrase for today: **Anima Anandkumar**



ANIMASHREE ANANDKUMAR

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AAIA, IEEE, Microsoft and Sloan Fellow
Computing + Mathematical Sciences
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CONTACT

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BIO

Anima Anandkumar holds dual positions in academia and industry. She is a Bren professor at Caltech [CMS](#) department and a director of machine learning research at [NVIDIA](#). At NVIDIA, she is leading the research group that develops next-generation AI algorithms. At Caltech, she is the co-director of Dolcit and co-leads the [AI4science](#) initiative, along with Yisong Yue.

She has spearheaded the development of tensor algorithms, first proposed in her [seminal paper](#). They are central to effectively processing multidimensional and multimodal data, and for achieving massive parallelism in large-scale AI applications.

Prof. Anandkumar is the recipient of a named chair, the highest honor the university bestows on individual faculty, and is supported by the Bren foundation. She is recipient of several awards such as the Alfred. P. Sloan Fellowship, NSF Career Award, Faculty fellowships from Microsoft, Google and Adobe, Young Investigator Awards from the Army research office and Air Force office of sponsored research, and Women in AI by Venturebeat. She has been featured in documentaries and articles by PBS, wired magazine, MIT Technology review, yourstory, and Forbes.

Anima received her B.Tech in Electrical Engineering from IIT Madras in 2004 and her PhD from Cornell University in 2009. She was a postdoctoral researcher at MIT from 2009 to 2010, visiting researcher at Microsoft Research New England in 2012 and 2014, assistant professor at U.C. Irvine between 2010 and 2016, associate professor at U.C. Irvine between 2016 and 2017, and principal scientist at Amazon Web Services between 2016 and 2018.

[Full Bio](#) [Full CV](#)

Few comments

WHY worksheet

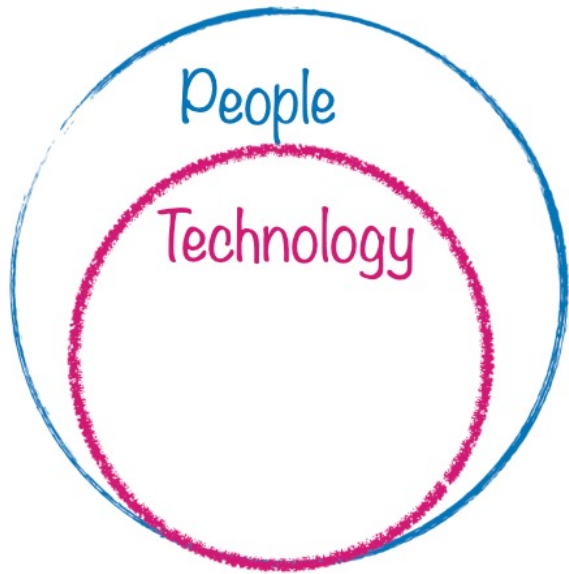
Please take a screen shot of this confirmation page and submit to Autolab!

[Submit another response](#)

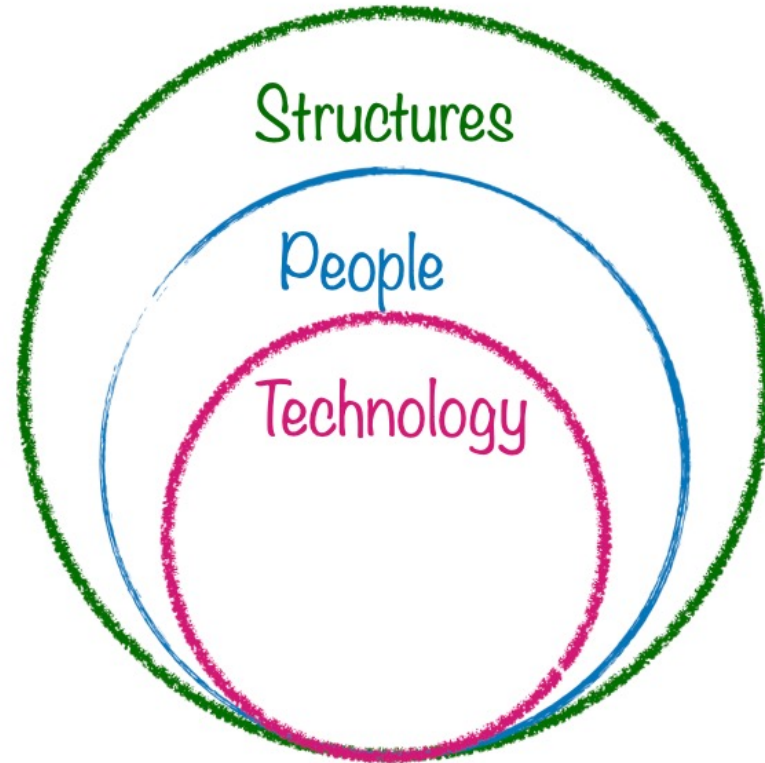
This content is neither created nor endorsed by Google. [Report Abuse](#) - [Terms of Service](#) - [Privacy Policy](#).

Google Forms

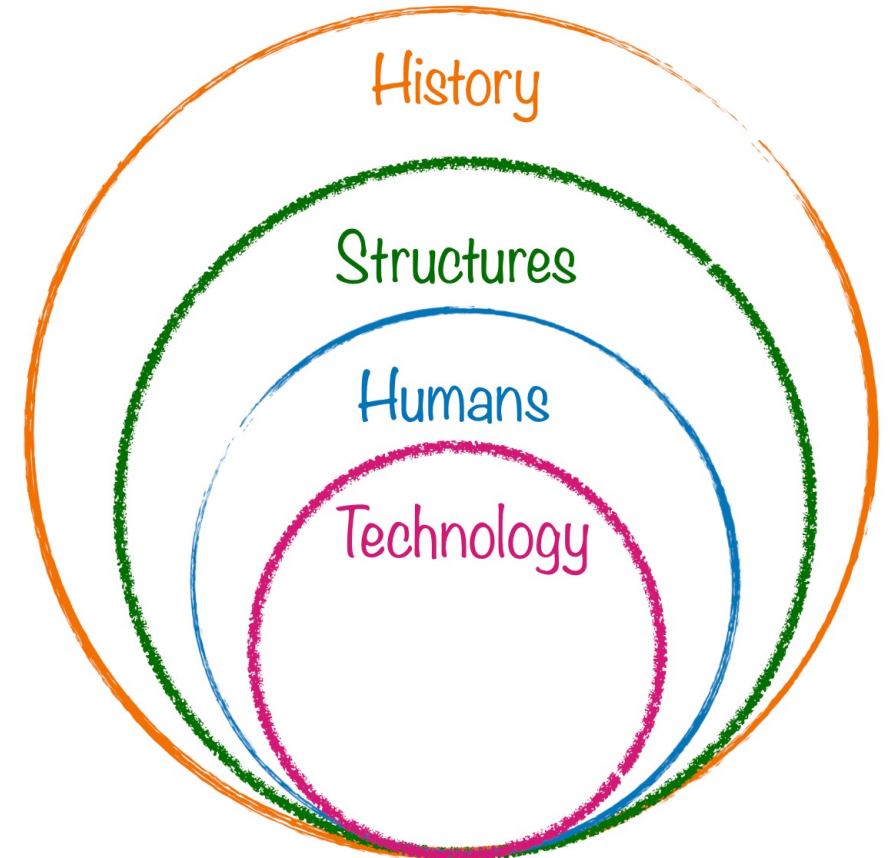
People vs. Structure vs. History



How do individuals contribute to racist outcomes?



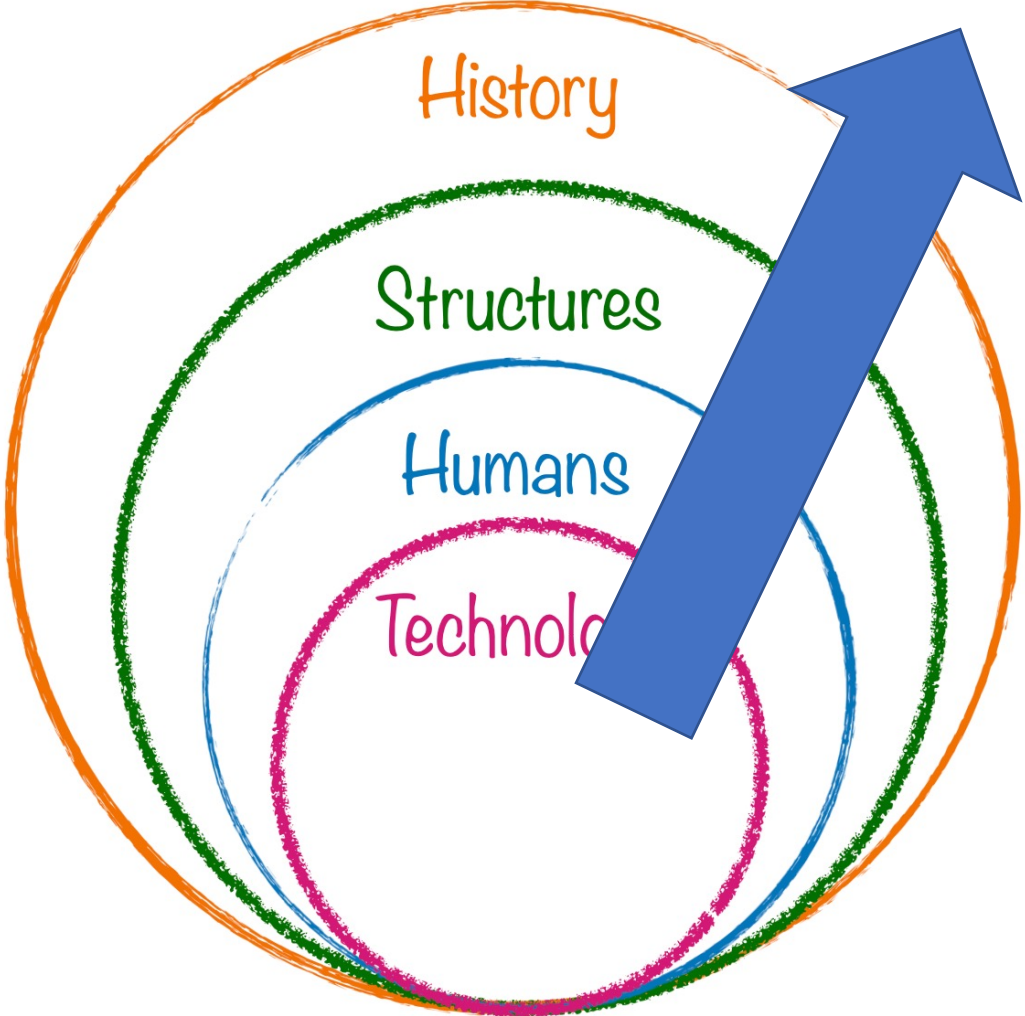
What are the *current* structures in society that lead to racist outcomes?



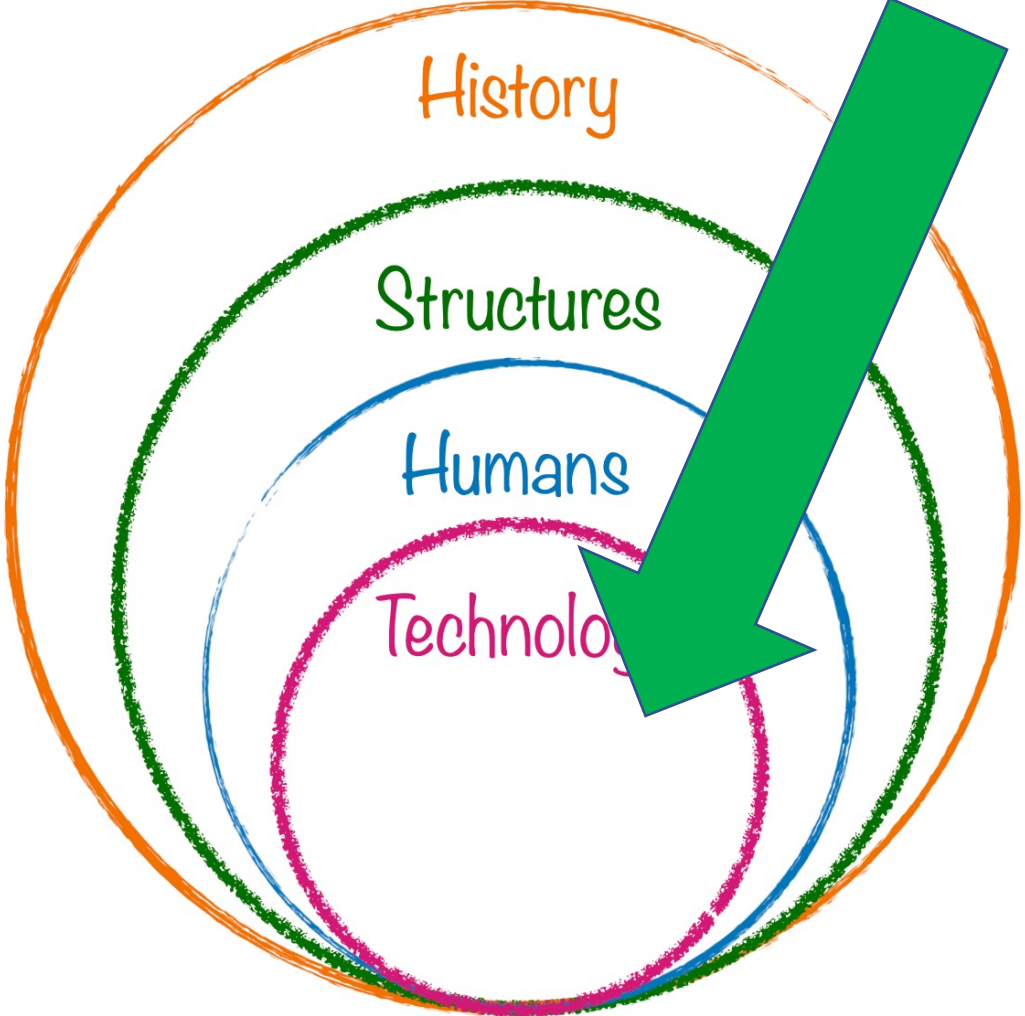
How does history *explain* the *current* racist structures in place?

Let's discuss!

The WHY worksheet



The HOW worksheet



HOW worksheet is out

note @43

stop following

7 views

HOW worksheets are now out

Following up on @35 and @36, the HOW worksheet is now out:

<http://www-student.cse.buffalo.edu/~atri/ml-and-soc/spr22/ip/how.html>

Note that this is due last week of class. I'm putting this out now so that y'all know what is expected but y'all probably be in a better place to fill in this worksheet after we go over the stuff between now and May.

ip

edit

good note | 0

Updated 1 day ago by Atri Rudra