



Why we should all care about data bias



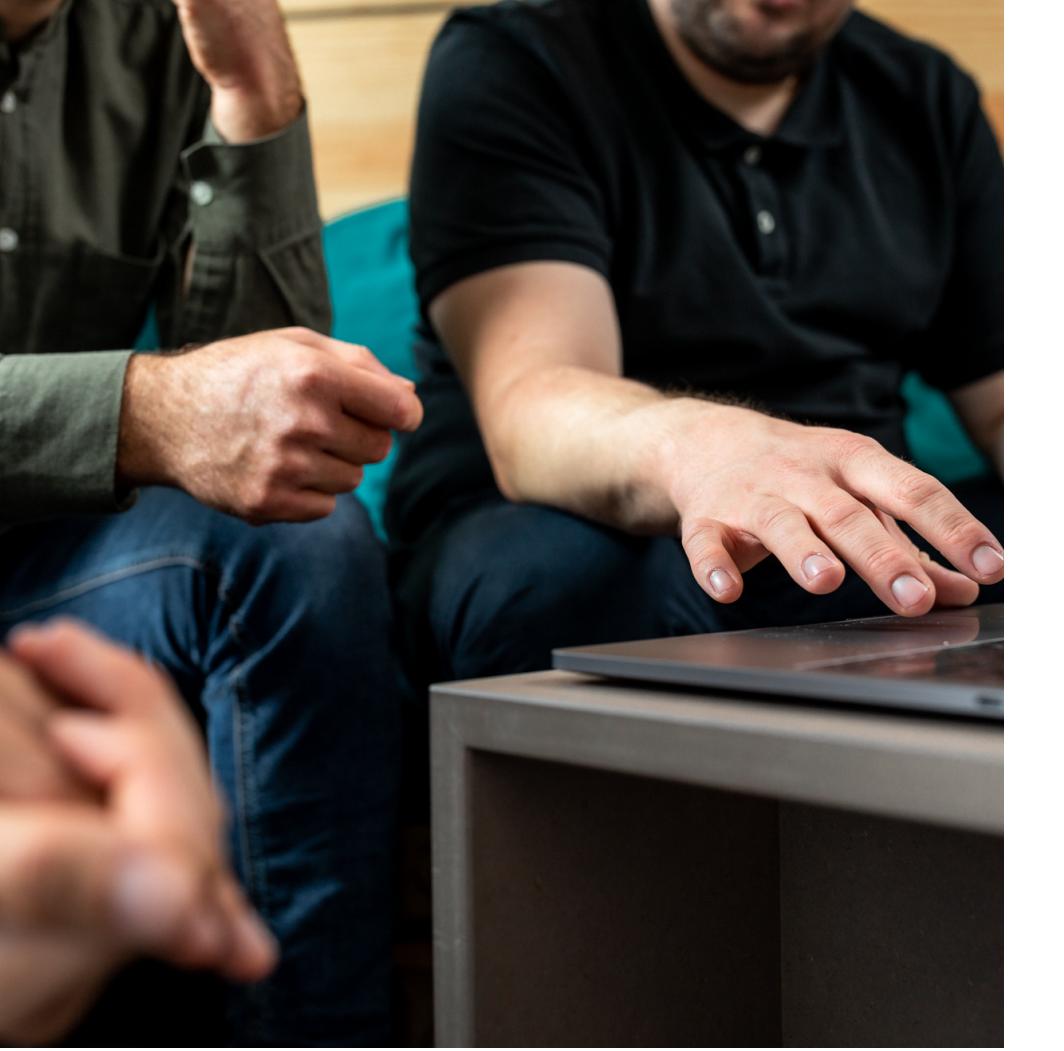
WHY WE SHOULD ALL CARE ABOUT DATA BIAS

1. Who am I?
2. What's a data gap and data bias?
3. What's going wrong?
4. Why should you care?
5. What can we all do about it?

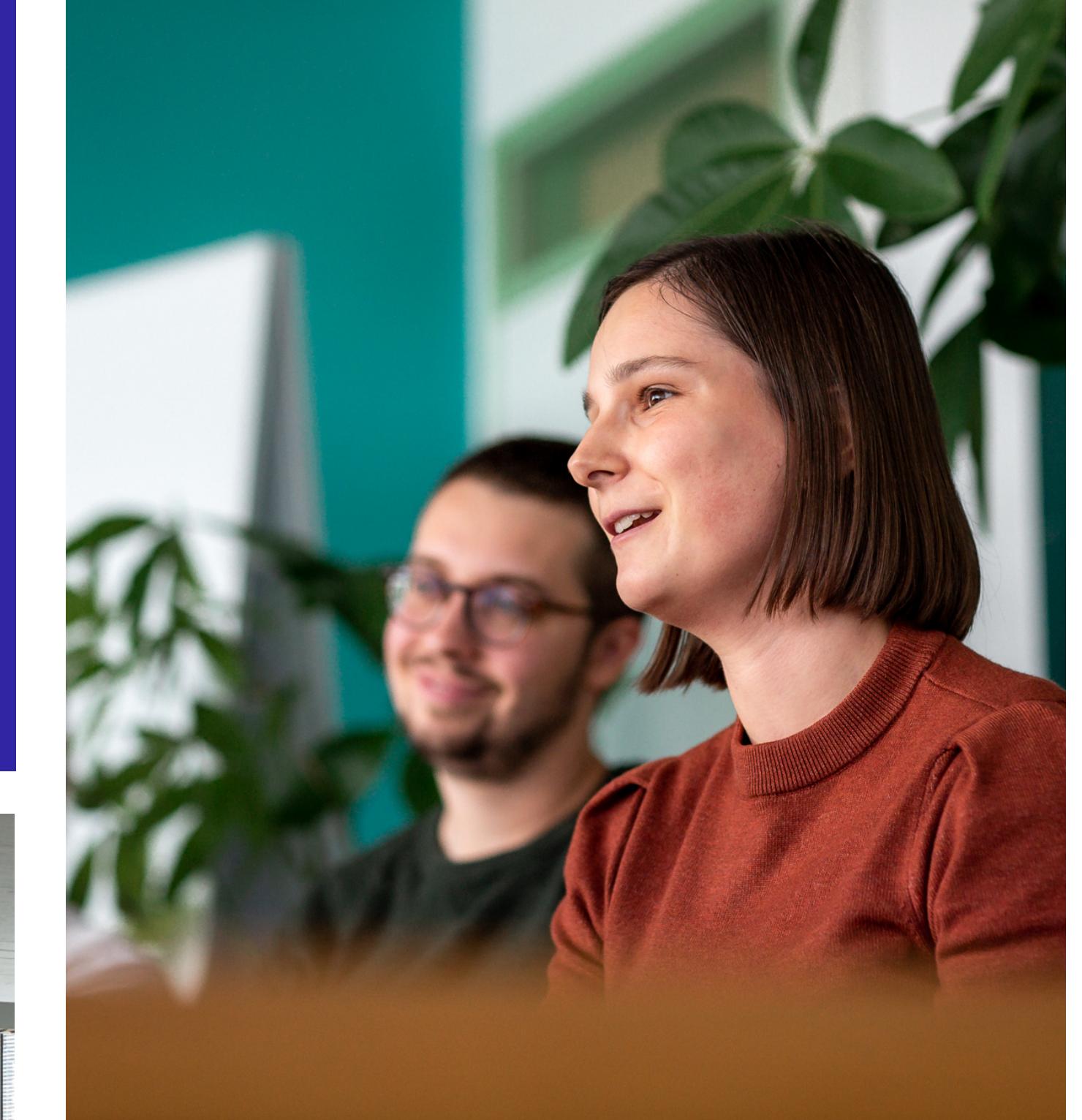
Who am I?

DATA BIAS





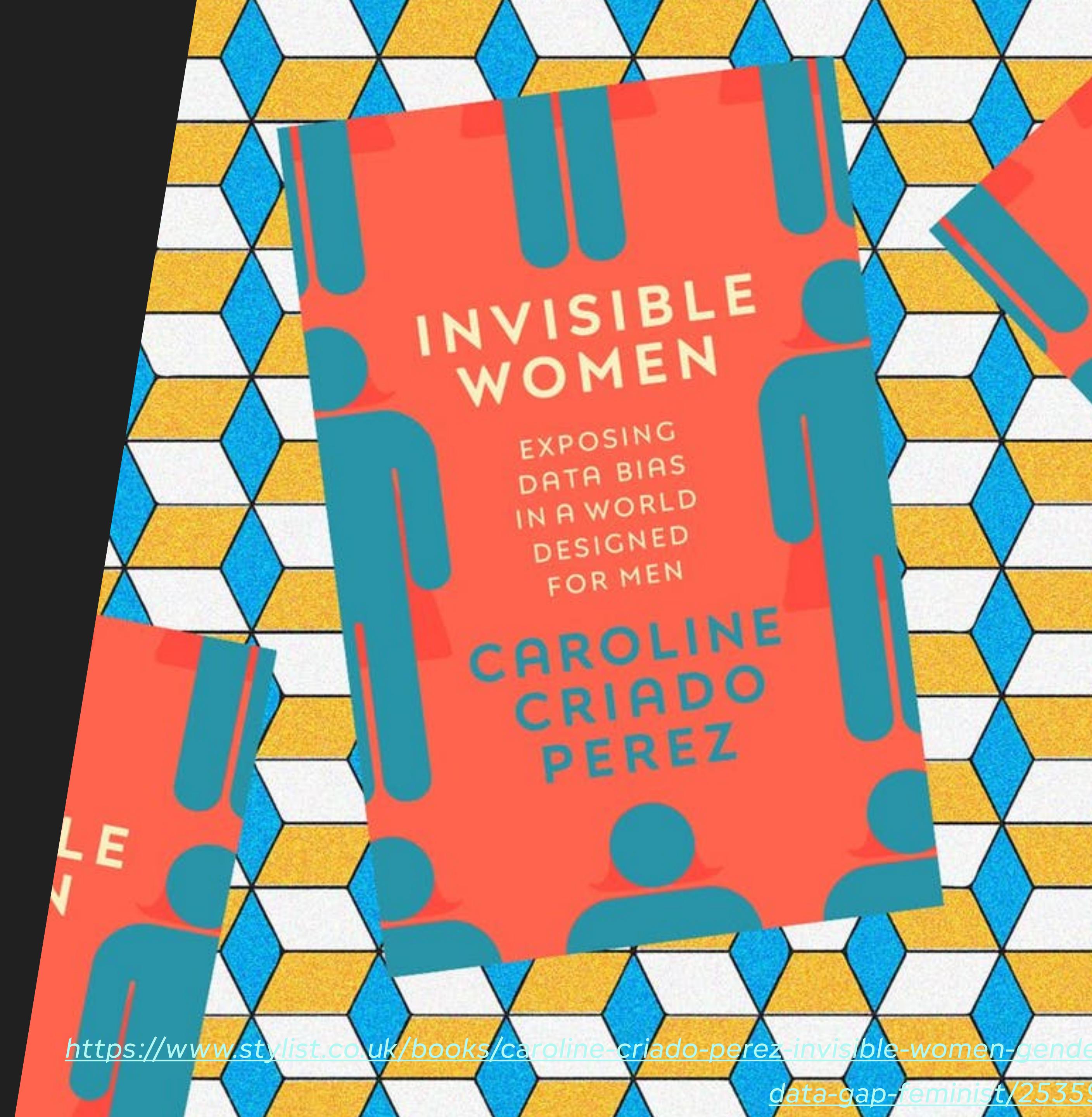
Let's
fetch(aCoffee)
together.



Discovering the data gap

DATA BIAS

INVISIBLE WOMEN



<https://www.stylist.co.uk/books/caroline-criado-perez-invisible-women-gender>

data-gap-feminist/25359

66

**If they have a heart attack,
women are 50% more likely to be
misdiagnosed and more likely to
die than a man**

66

**Since Crashtest-Dummies, designed in the 1950s, orient to male proportions, women are 17% more likely to die in a car crash.
In 2011 a female Dummy was introduced.
In two out of three frontal impact tests, it sits in the passenger seat.**

66

Speech recognition, which is often used in cars and in medicine, is likely to be at least 13% more accurate for men than it is for women.

DATA BIAS

INVISIBLE WOMEN

- *Gender Data Gap*



<https://www.stylist.co.uk/books/caroline-criado-perez-invisible-women-gender-data-gap-feminist/253599>

DATA BIAS

INVISIBLE WOMEN

- *Gender Data Gap*
- „*Default Male Thinking*“



DATA BIAS

INVISIBLE WOMEN

- *Gender Data Gap*
- „*Default Male Thinking*“
- *Projection error*



<https://www.stylist.co.uk/books/caroline-criado-perez-invisible-women-gender-data-gap-feminist/253599>

Human bias translates to Data Bias

What's data bias?

DEFINITION OF DATA BIAS

| 'DĀ-TƏ 'BĪ-ƏS |

AVAILABLE DATA

...IS NOT REPRESENTATIVE OF THE POPULATION OR

PHENOMENON OF STUDY

...DOES NOT INCLUDE VARIABLES THAT PROPERLY

CAPTURE THE PHENOMENON WE WANT TO PREDICT

...INCLUDES CONTENT PRODUCED BY HUMANS

WHICH MAY CONTAIN BIAS AGAINST GROUPS OF

PEOPLE

DATA BIAS

DESIGNING FOR DEFAULTS

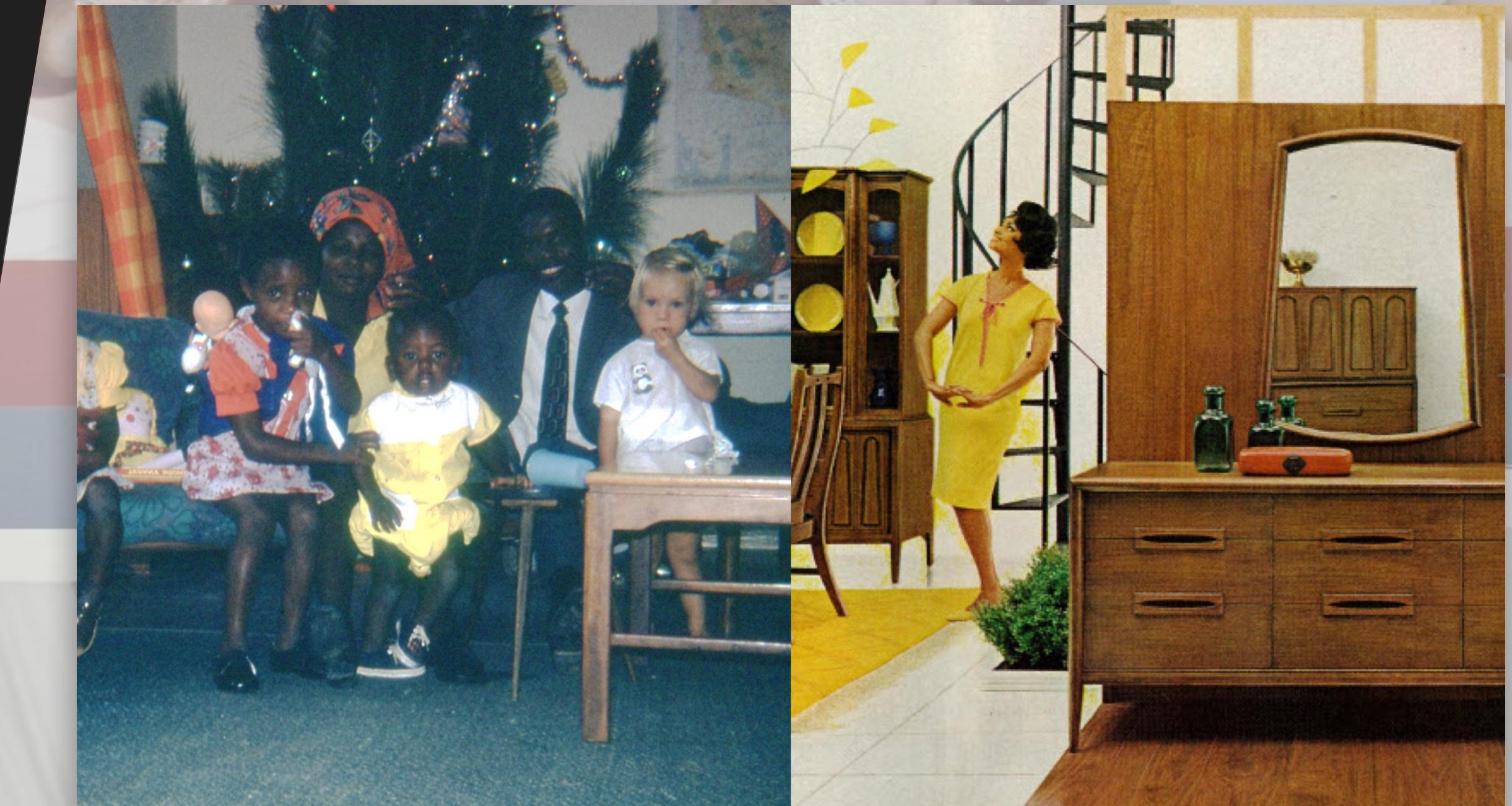
Shirley Cards



<https://design.google/library/fair-not-default/?s=09>

DATA BIAS

PRODUCT DESIGN & BIAS



<https://design.google/library/fair-not-default/?s=09> // Source (left to right):

Walt Jabsco, Creative Commons, Classic Film, Creative Commons.

DATA BIAS

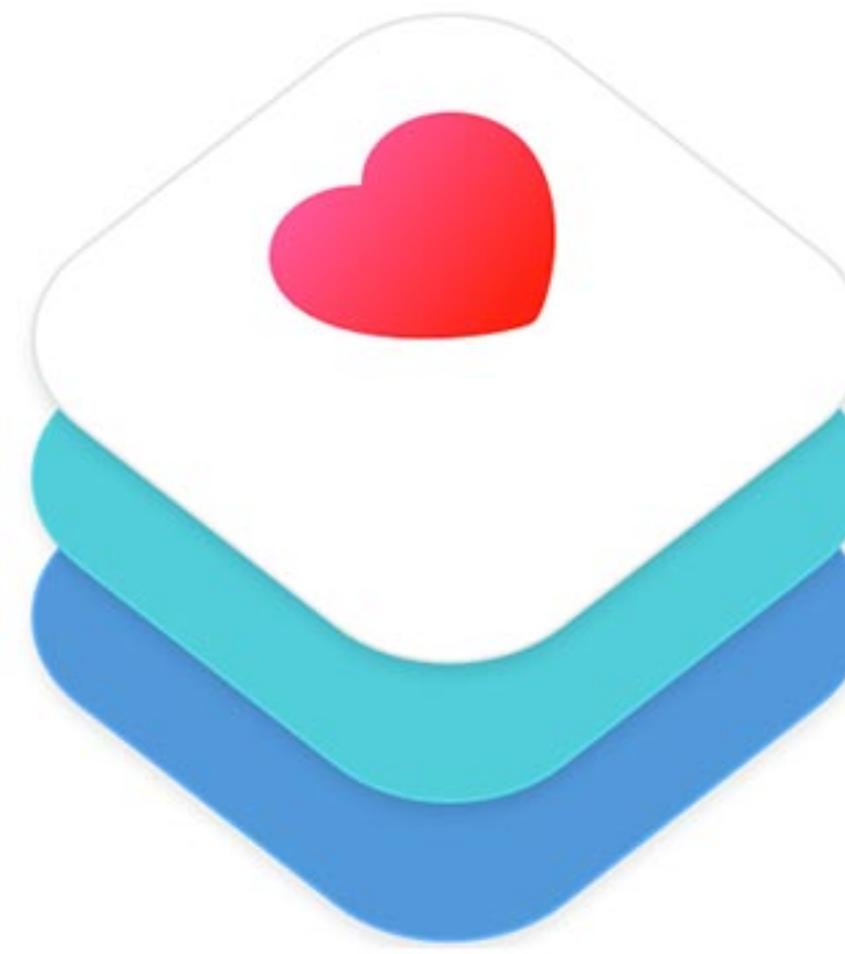
HARDWARE & DIVERSE TEAMS



https://www.youtube.com/watch?v=YJjv_OeiHmo&t=20s

DATA BIAS

SOFTWARE & DIVERSE TEAMS



HealthKit

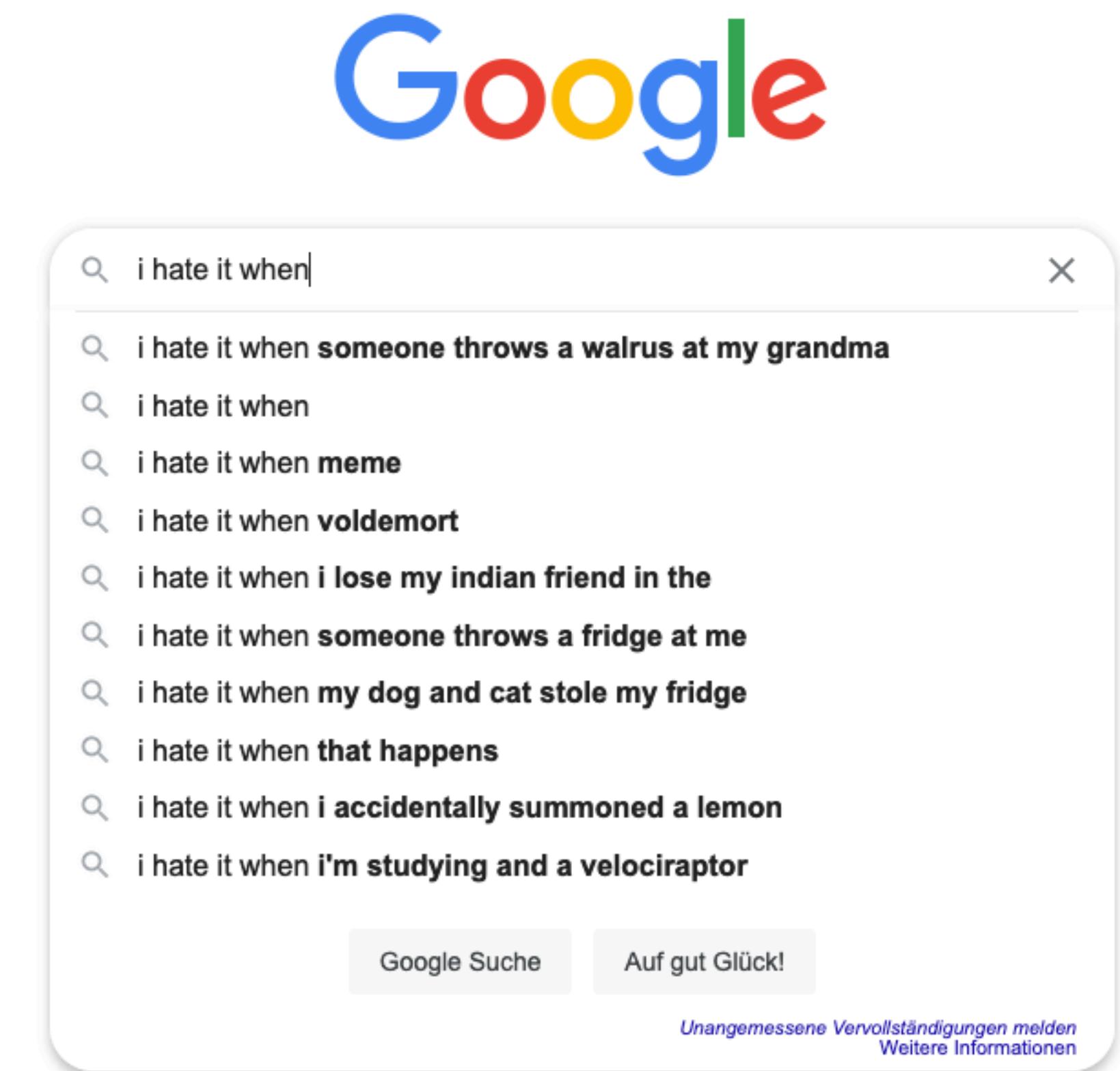
<https://www.theverge.com/2014/9/25/6844021/apple-promised-an-expansive-health-app-so-why-cant-i-track>

bias = dead angle

Machines are dumb.

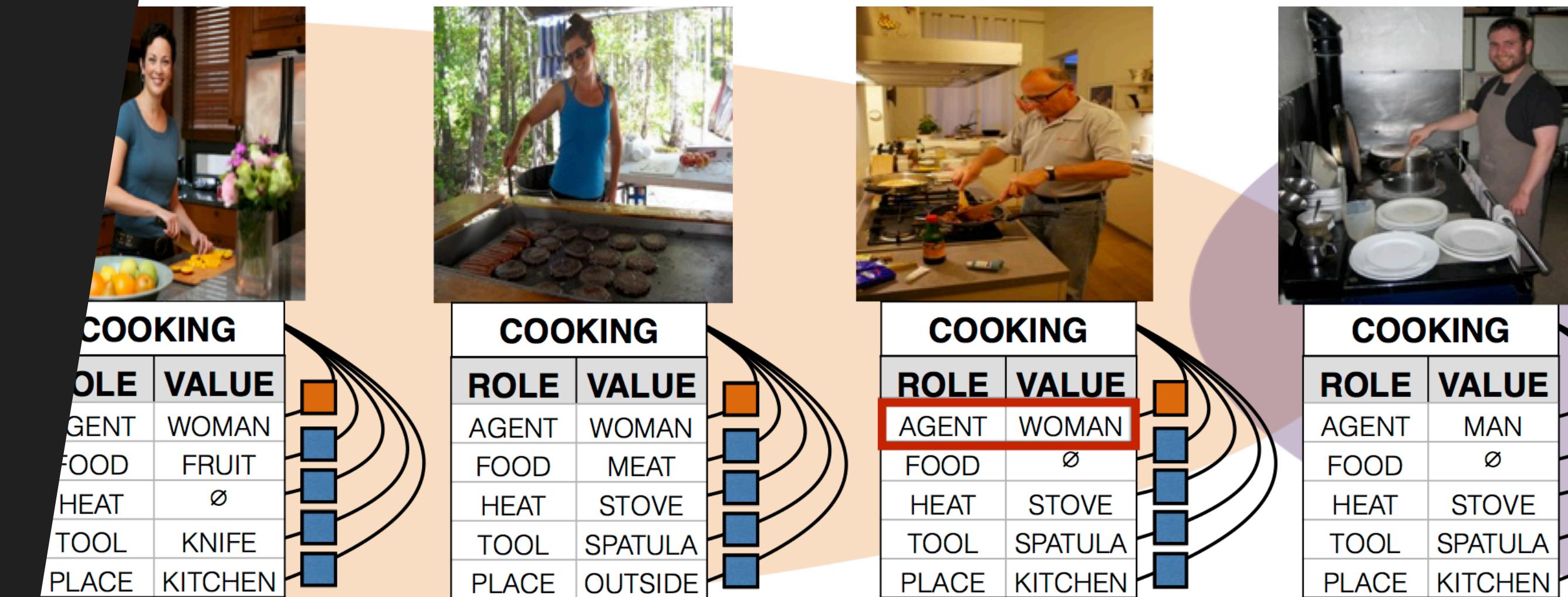
DATA BIAS

AUTOCOMPLETE



DATA BIAS

IMAGE RECOGNITION



DATA BIAS

SKEWED DATA

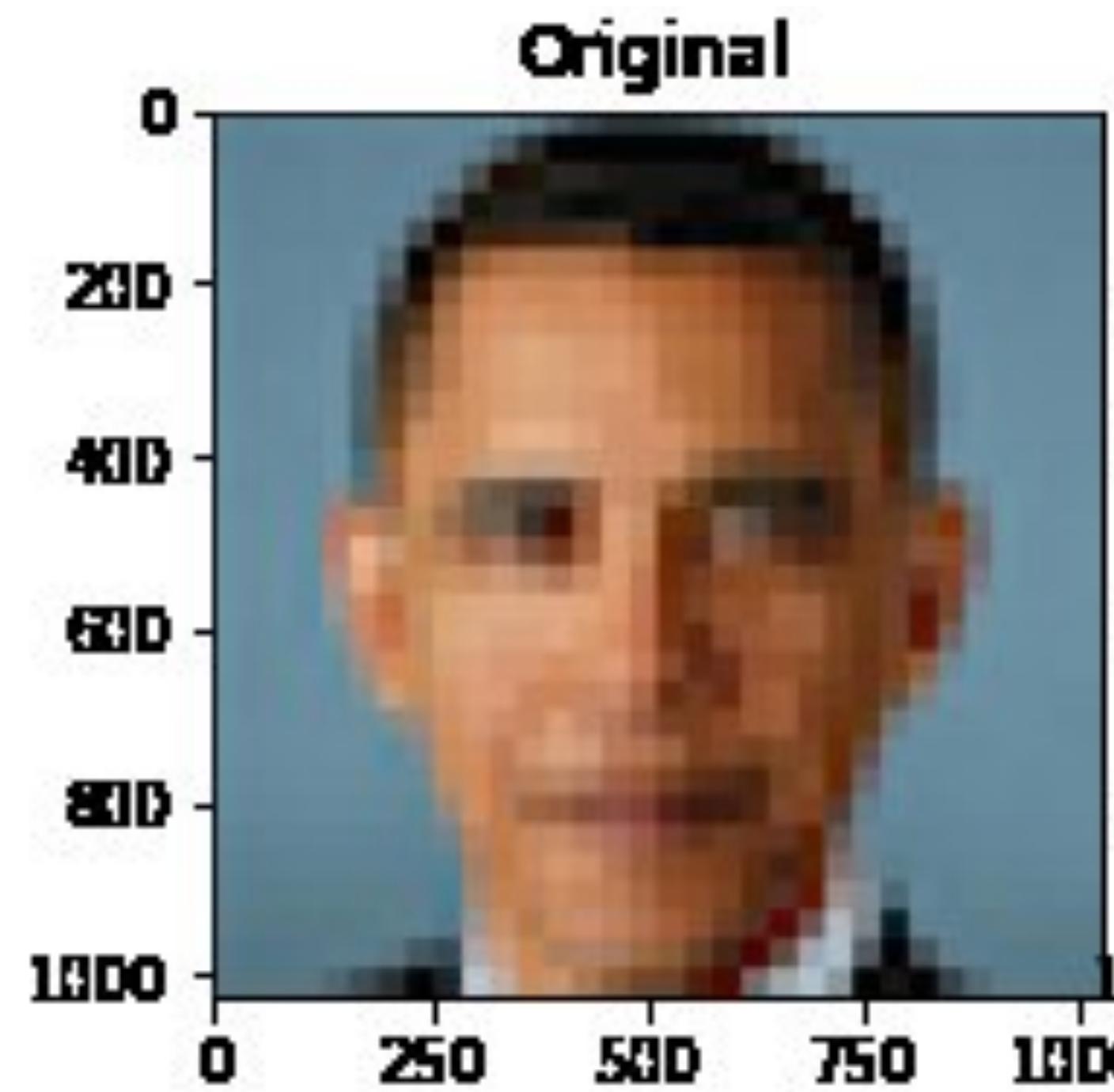
- *uneven data*
- *unintended correlations*
- *biased collection*

Machine Learning \neq Neutral

DATA BIAS

FAIR ALGORITHMS

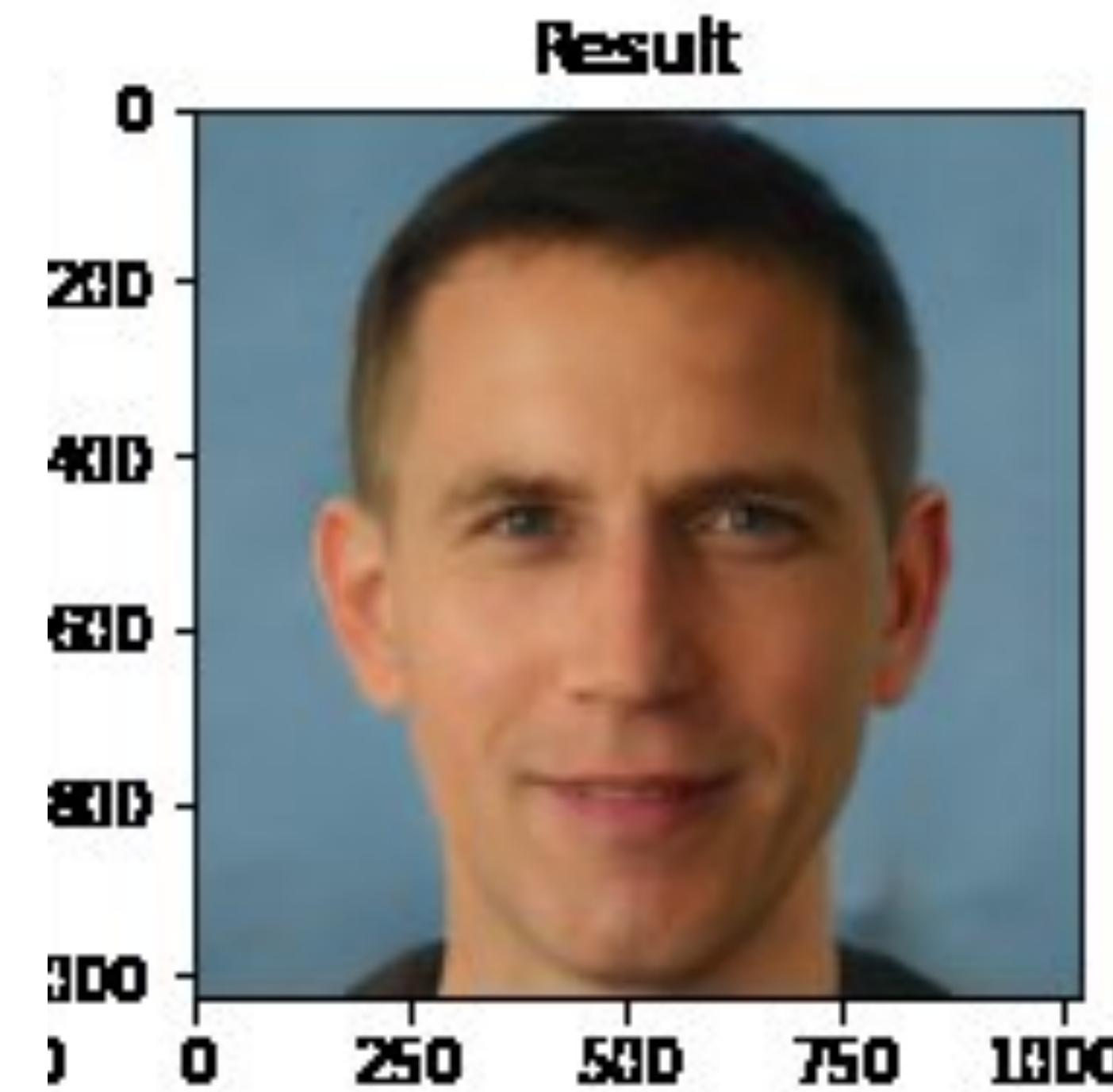
Can unbiased data produce biased results?



DATA BIAS

FAIR ALGORITHMS

Can unbiased data produce biased results?

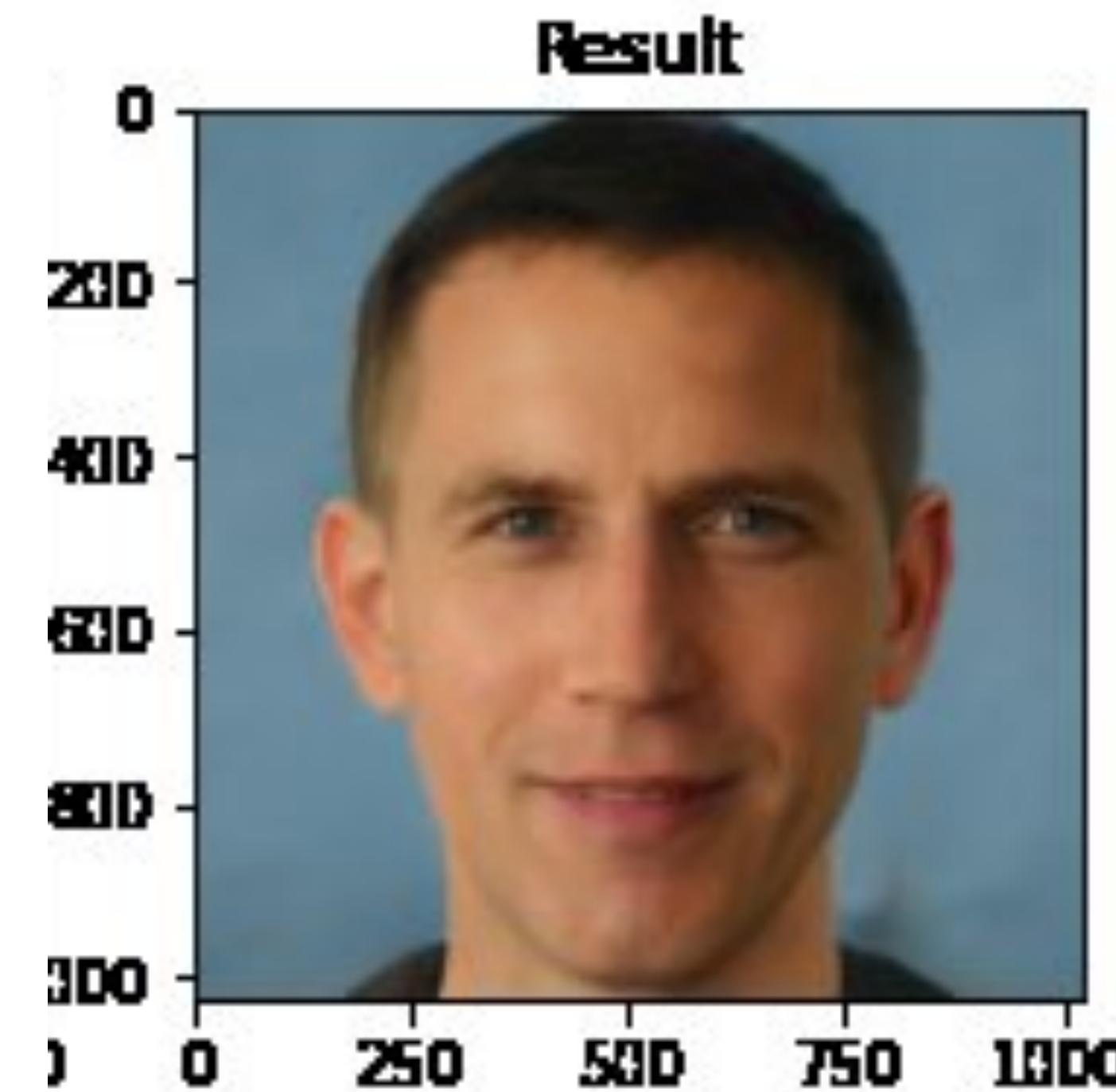


DATA BIAS

FAIR ALGORITHMS

Can unbiased data produce biased results?

Multi-level bias

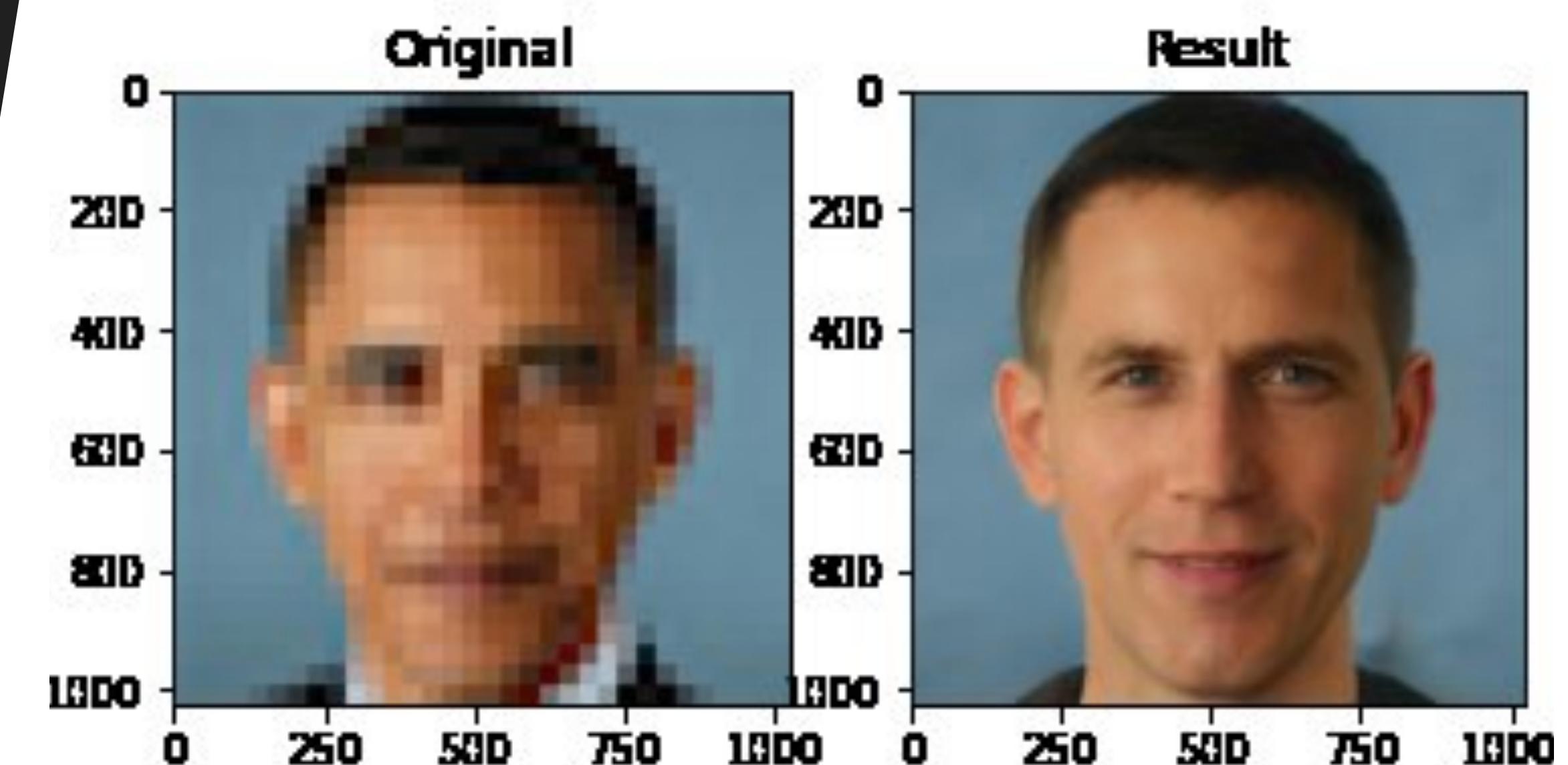


DATA BIAS

FAIR ALGORITHMS

Can unbiased data produce biased results?

Fair AI needs fair systems.



Why is data bias a problem?
aka
Why should you care?

**We should design machines based on
the reality we would like to have.**

What can we all do about it?

DATA BIAS

RECOGNIZE (YOUR) BIAS

DATA BIAS

RECOGNIZE (YOUR) BIAS

WORK WITH A DIVERSE TEAM

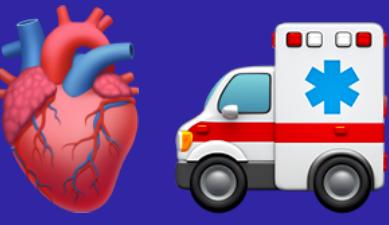
DATA BIAS

RECOGNIZE (YOUR) BIAS

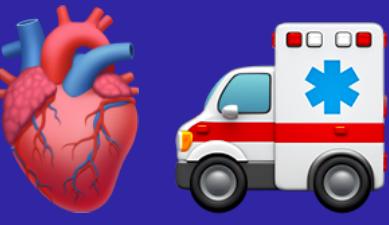
WORK WITH A DIVERSE TEAM

CONTRIBUTE

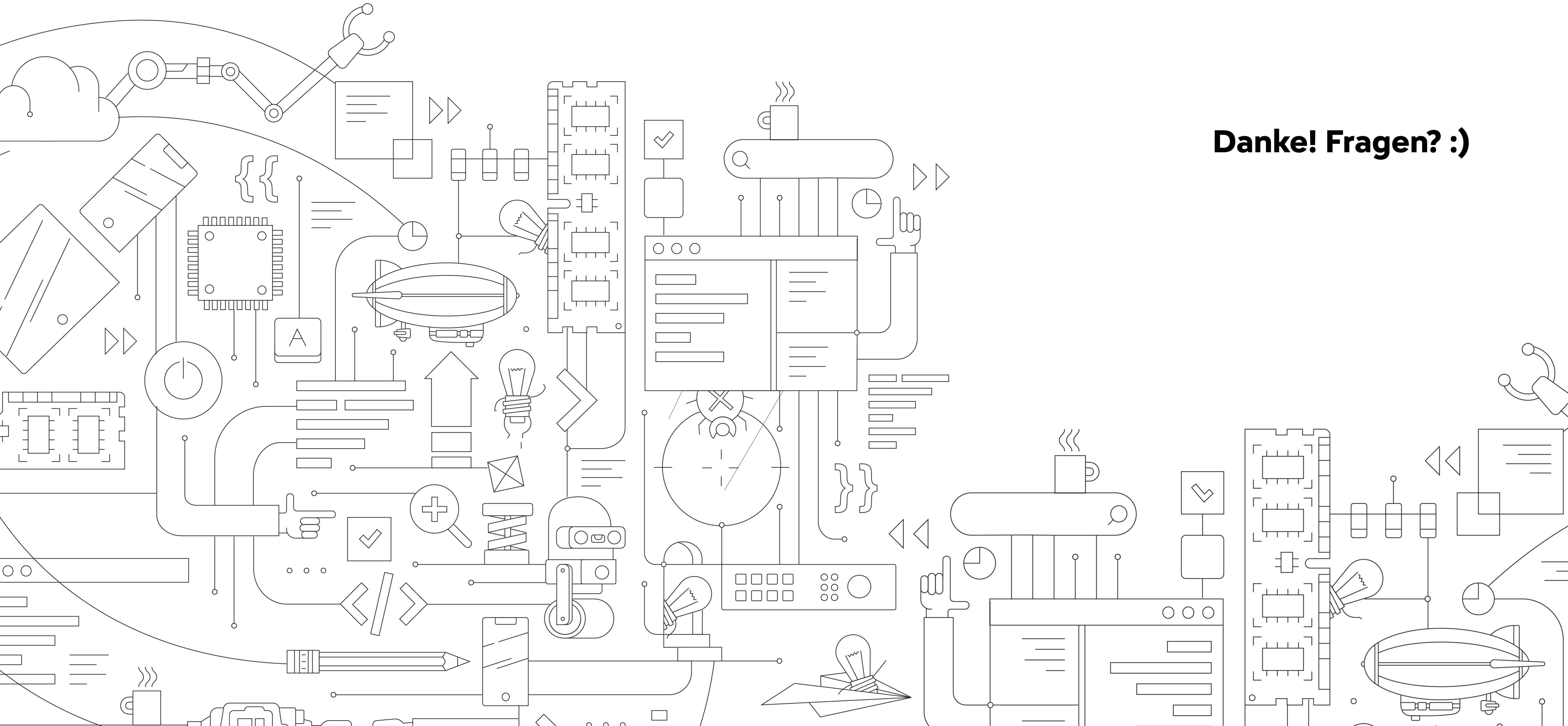
How to detect a Women's Heart Attack



How to detect a Women's Heart Attack



- ***CHEST PAIN (PRESSURE, SQUEEZING, FULLNESS)***
- ***PAIN IN ONE OR BOTH ARMS, THE BACK, NECK, JAW OR STOMACH***
- ***SHORTNESS OF BREATH***
- ***COLD SWEAT, NAUSEA, VOMITING OR LIGHTEADEDNESS***



Danke! Fragen? :)

DATA BIAS

MORE ON THE TOPIC

 Caroline Criado-Perez – *Invisible Women*

 Janelle Shane – *You Look Like a Thing and I love you*

 *Coded Bias (Netflix)*

 ...and a lot of podcasts