



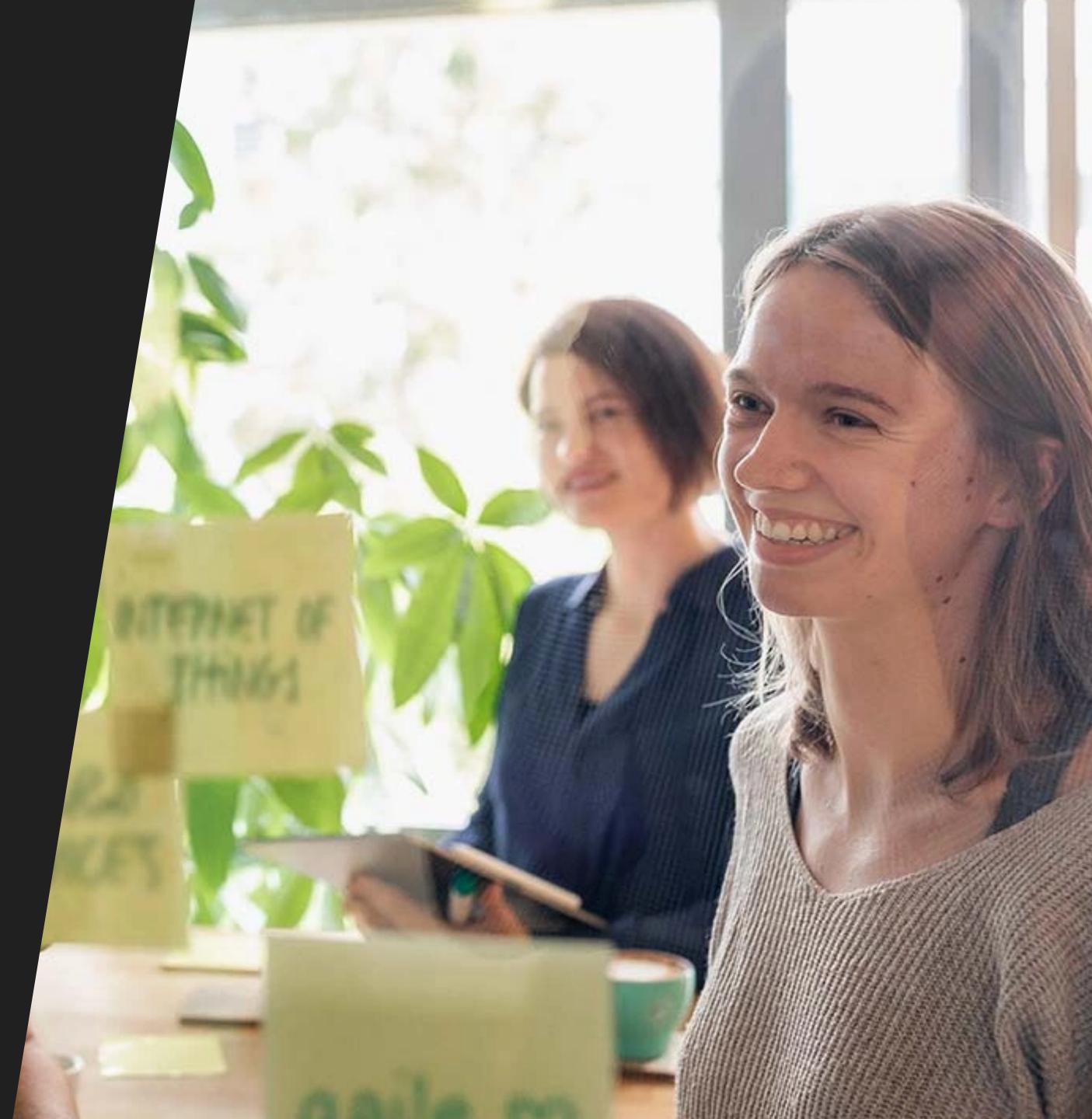
# **Data Bias: the flaw in designing for defaults.**

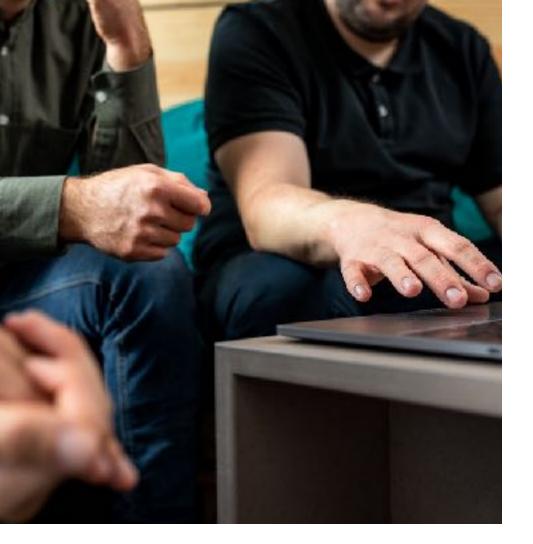
#### DATA BIAS: DESIGNING FOR DEFAULTS

- 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?

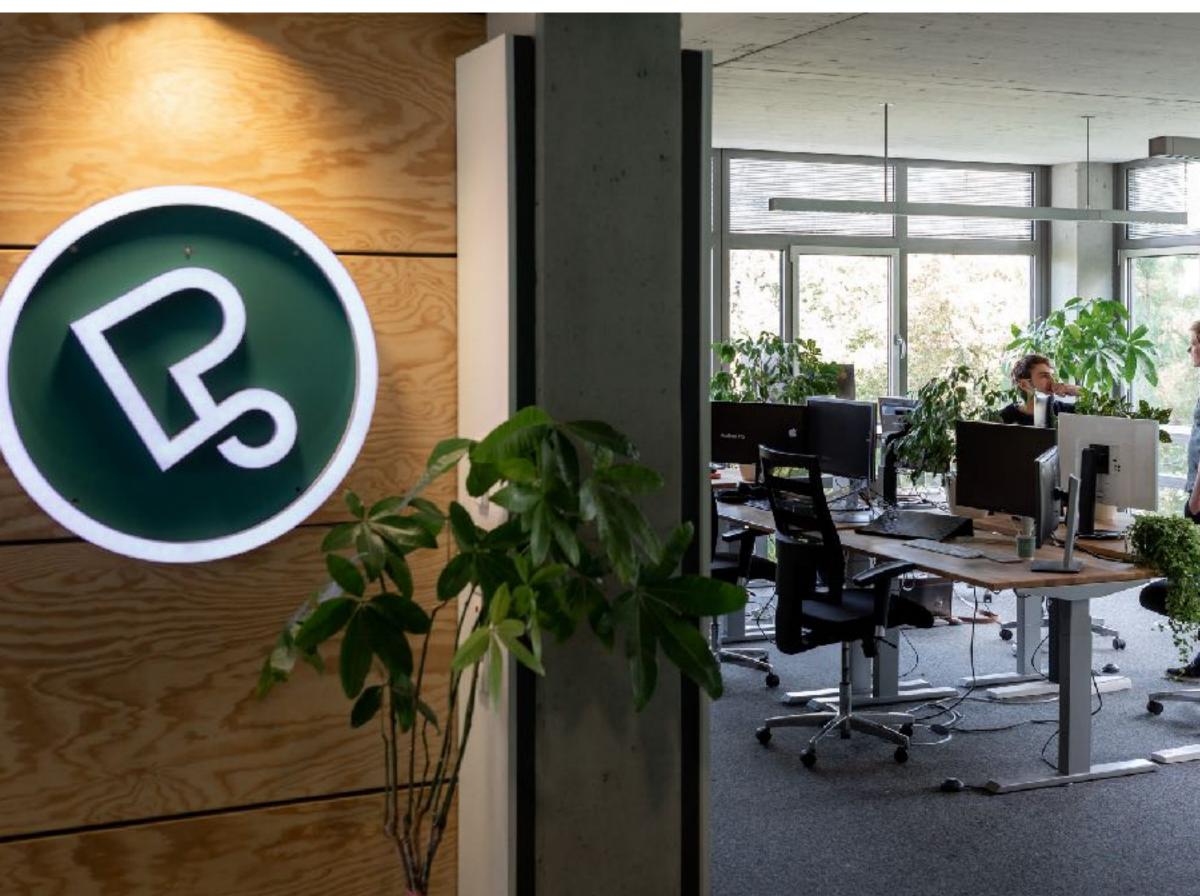


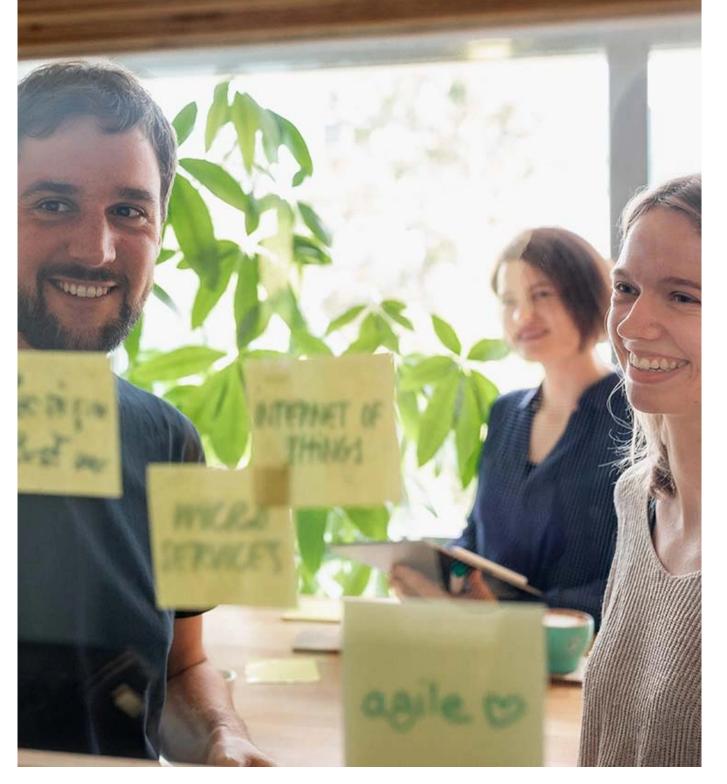


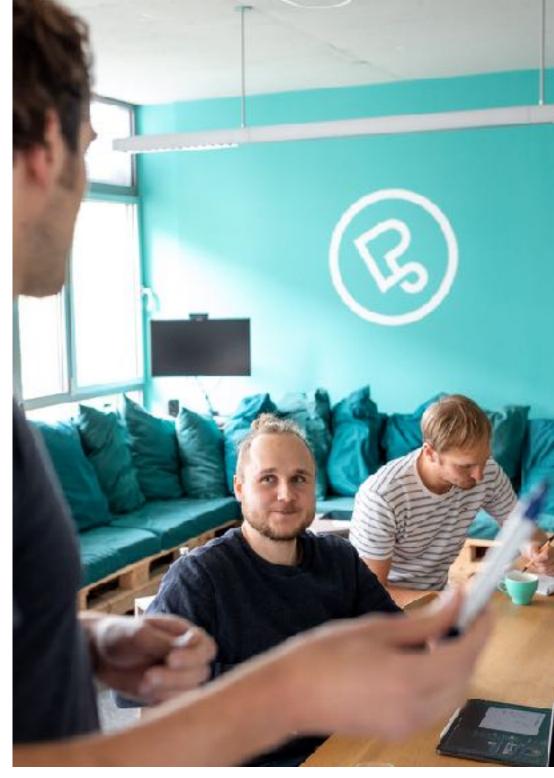


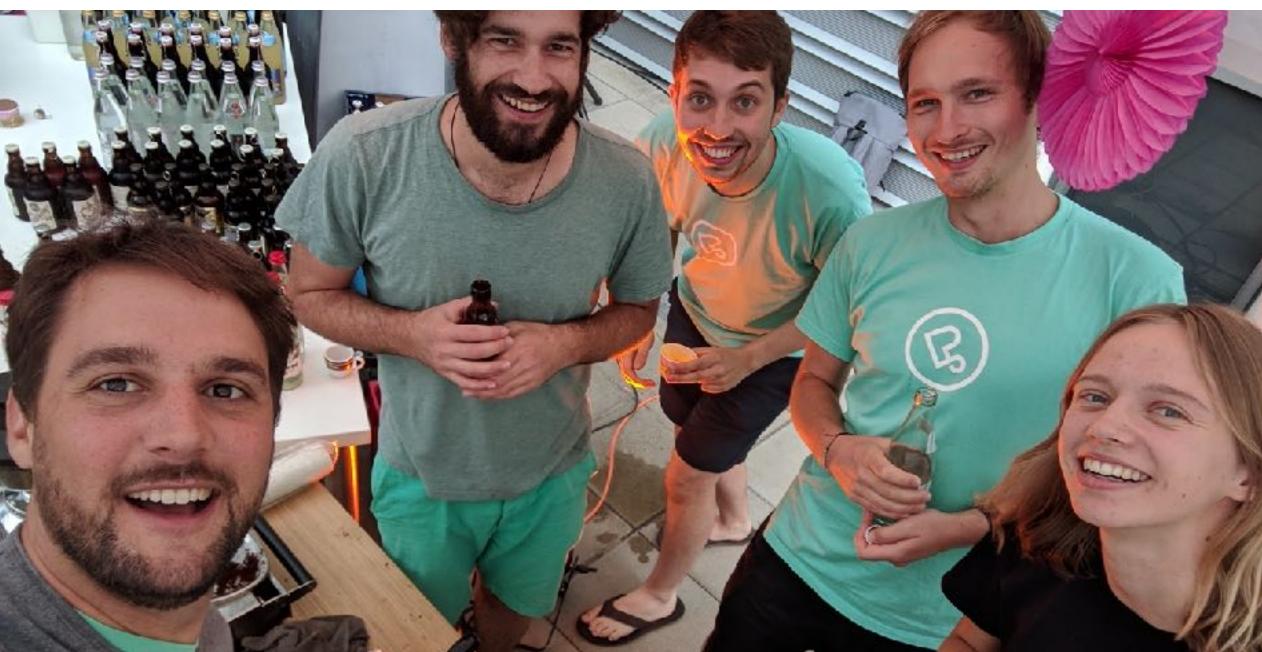


### Let's fetch(aCoffee) together.









# **Discovering the data gap**

https://www.newstatesman.com/politics/uk-politics/2019/06/caroline-criado-perez-s-diary-heart-attacks-women-dogs-polling-stations

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



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

<u>https://www.consumerreports.org/cro/2011/08/crash-test-101/index.htm // https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3222446/ // https:// www.washingtonpost.com/local/trafficandcommuting/female-dummy-makes-her-mark-on-male-dominated-crash-tests/2012/03/07/</u>



### **INVISIBLE WOMEN**

- Gender Data Gap
- "Default Male Thinking"
- Projection error

### INVISIBLE WOMEN

EXPOSING DATA BIAS IN A WORLD DESIGNED FOR MEN

CAROLINE CRIADO CRIADO PEREZ

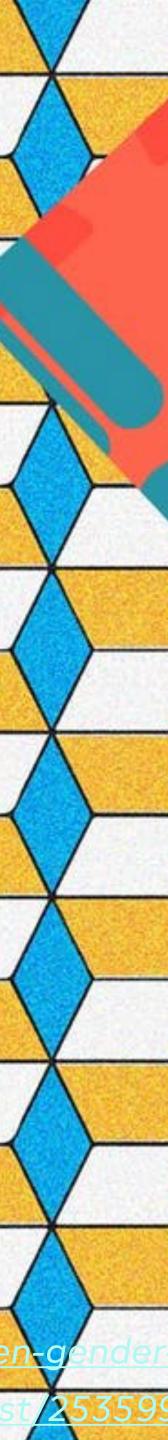
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https://wwv



### Human bias translates to Data Bias



What's data bias?

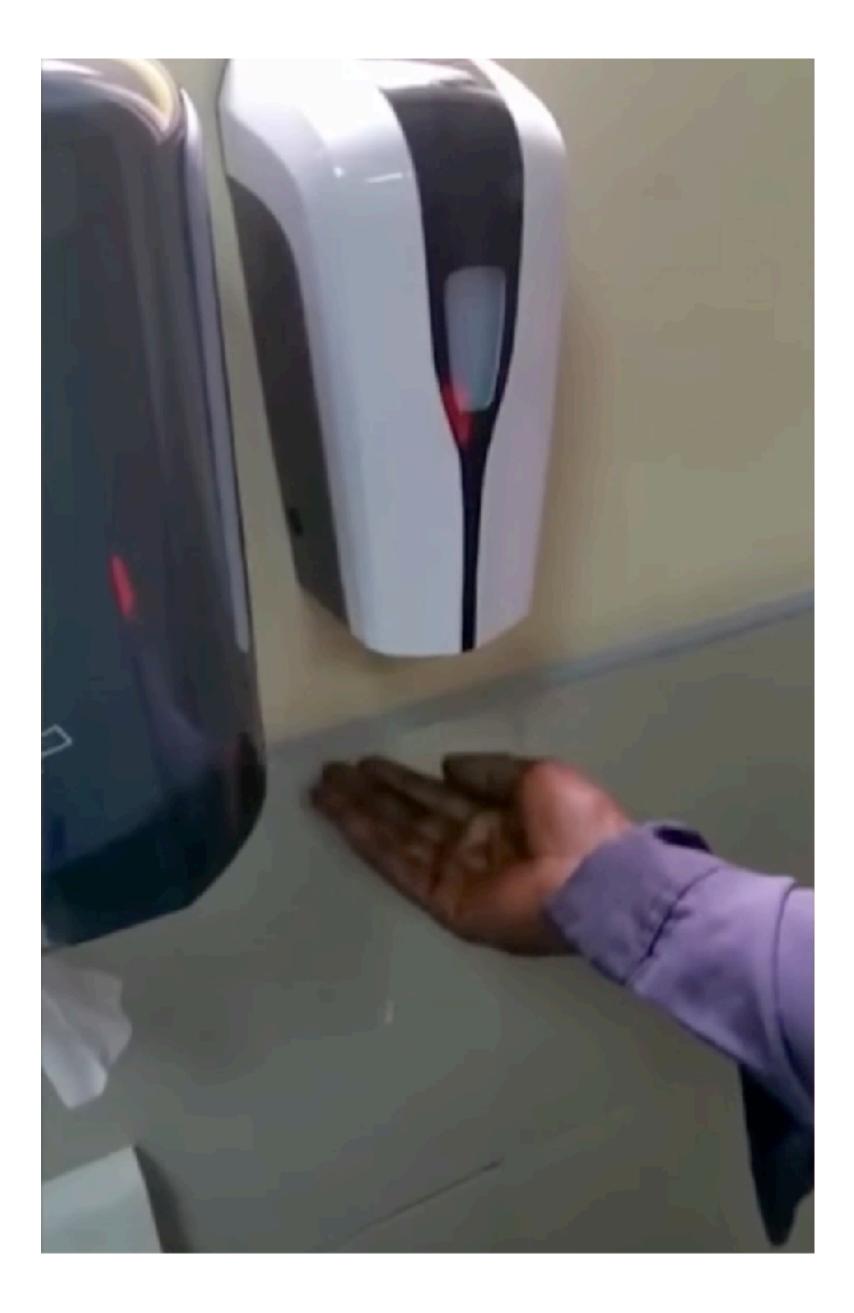
**DEFINITION OF DATA BIAS** \'DĀ-TƏ 'BĪ-ƏS \ **AVAILABLE DATA** ... IS NOT REPRESENTATIVE OF THE POPULATION OR **PHENOMENON OF STUDY** ...DOES NOT INCLUDE VARIABLES THAT PROPERLY **CAPTURE THE PHENOMENON WE WANT TO PREDICT** ...INCLUDES CONTENT PRODUCED BY HUMANS WHICH MAY CONTAIN BIAS AGAINST GROUPS OF PEOPLE

Prabhakar Krishnamurthy // https://towardsdatascience.com/survey-d4f168791e57

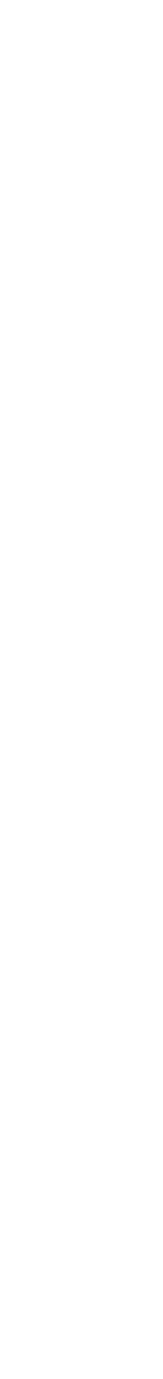


### Designing for defaults.

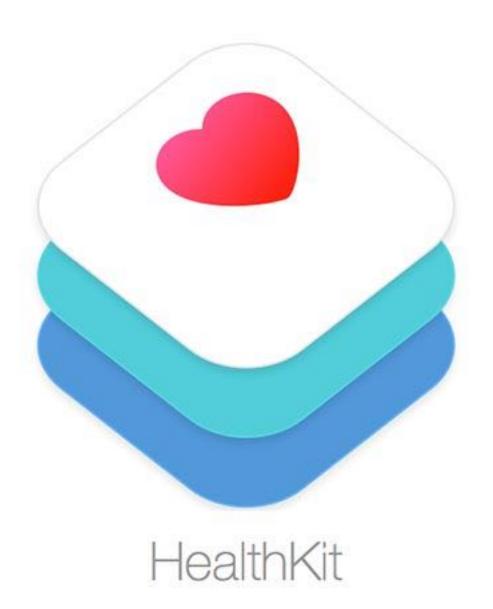
### HARDWARE & DIVERSE TEAMS



#### https://www.youtube.com/watch?v=YJjv\_OeiHmo&t=20s



### SOFTWARE & DIVERSE TEAMS



https://www.theverge.com/2014/9/25/6844021/apple-promised-an-expansive-

health-app-so-why-cant-i-track

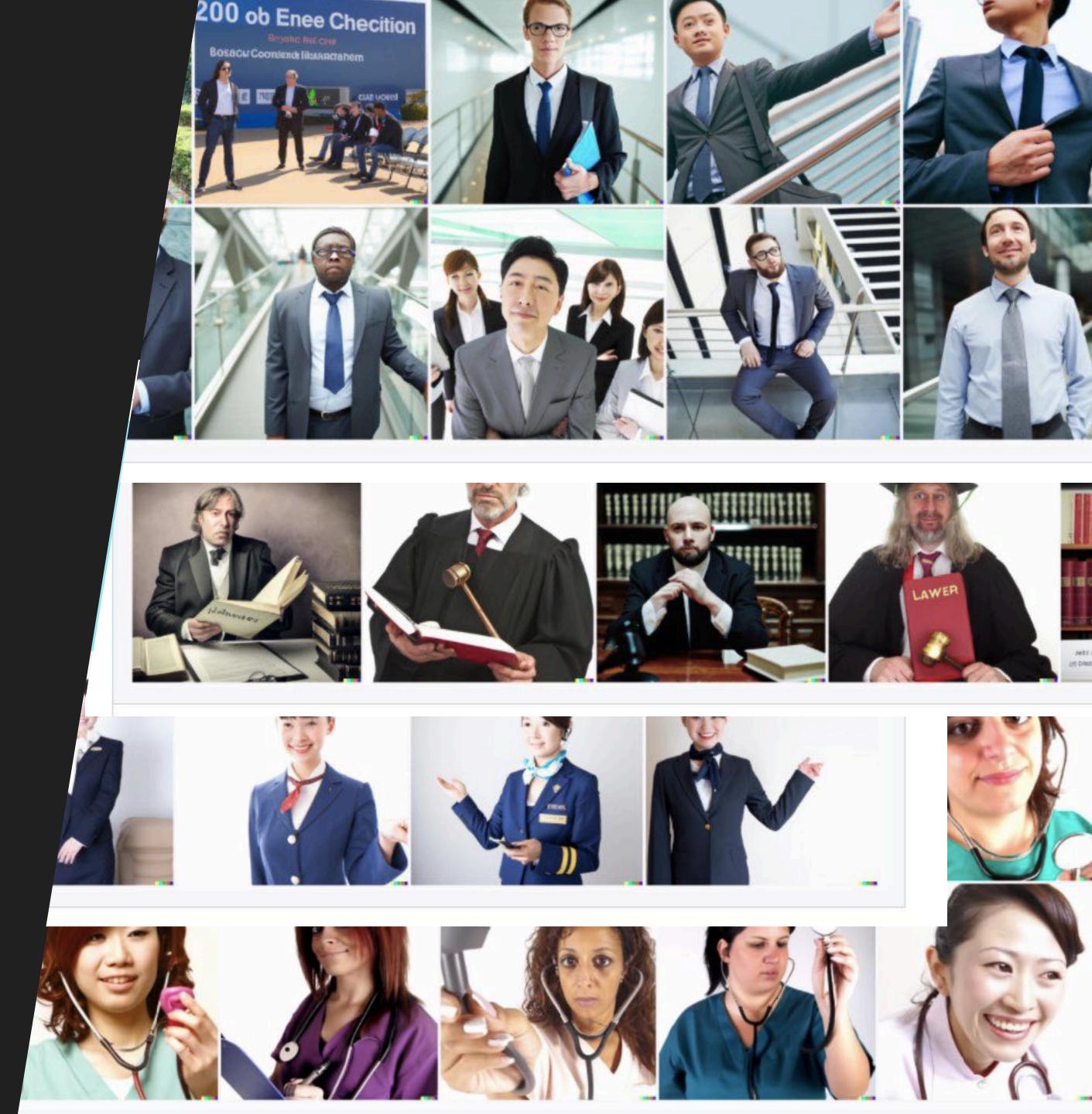


## bias = dead angle

### Machines are dumb.

### **IMAGE GENERATION**

<u>twitter</u> // <u>https://github.com/openai/dalle-2-preview</u>



### SKEWED DATA

- uneven data
- unintended correlations
- biased collection

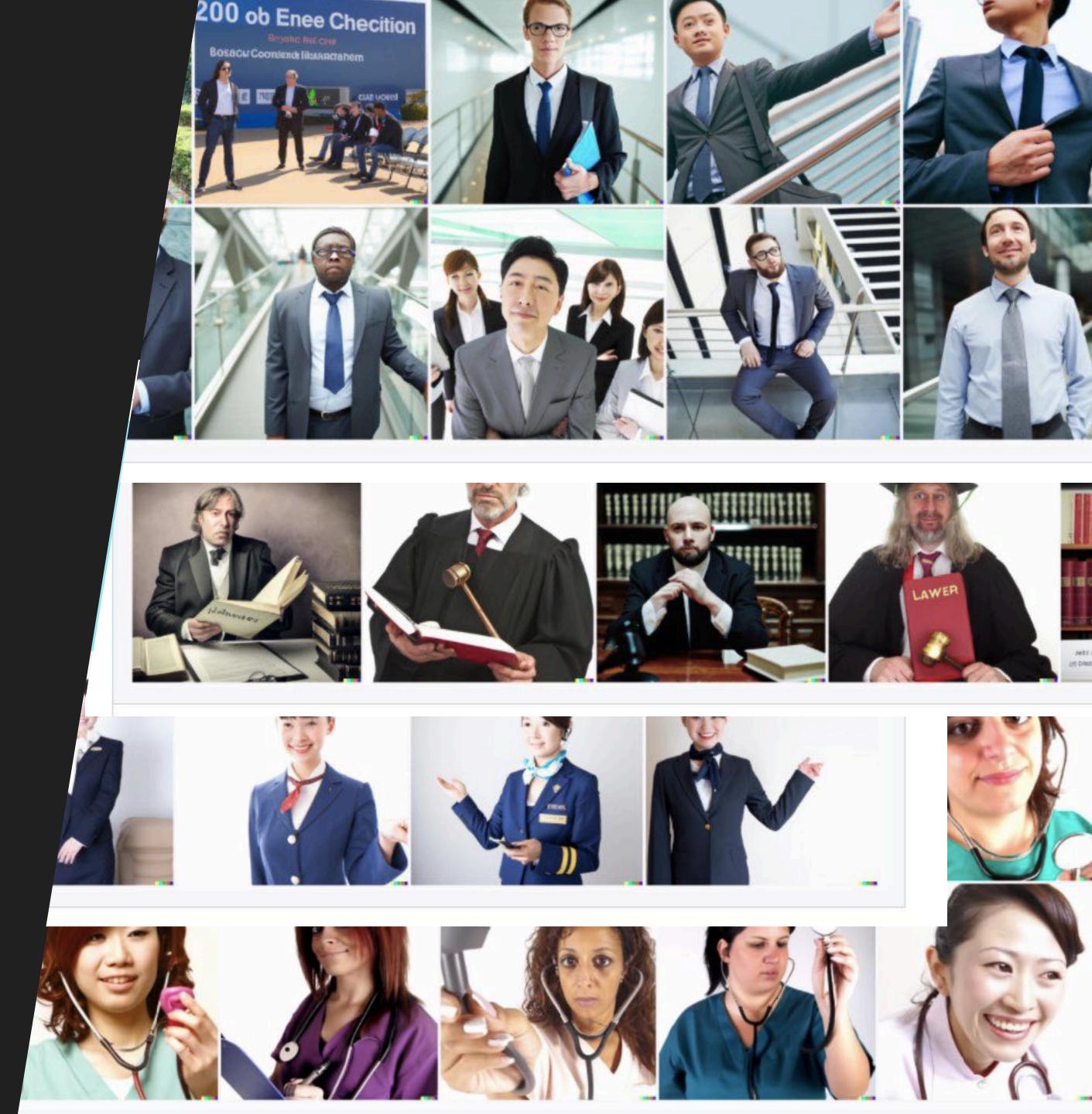
## Machine Learning !== Neutral

### **RISKS & LIMITATIONS**

"Use of DALL·E 2 has the potential to harm individuals and groups by reinforcing stereotypes, erasing or denigrating them, providing them with disparately low quality performance, or by subjecting them to indignity. These behaviors reflect biases present in DALL·E 2 training data and the way in which the model is trained."

DALL·E 2 Bias & Representation

twitter // https://github.com/openai/dalle-2-preview



### FAIR ALGORITHMS

Can unbiased data produce biased results?

Fair AI needs fair systems.



Why should you care?

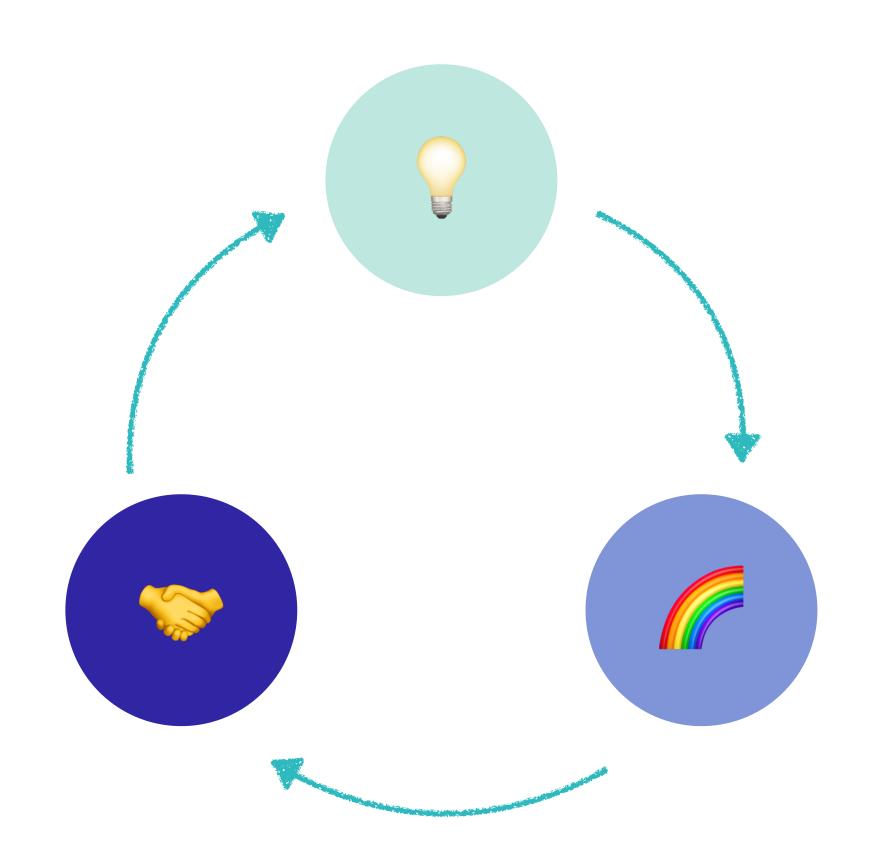
We should design machines based on the reality we would like to have.

### What can we all do about it?

### **RECOGNIZE (YOUR) BIAS**

#### WORK WITH A DIVERSE TEAM

CONTRIBUTE



https://commonvoice.mozilla.org/de



### How to detect a Women's Heart Attack

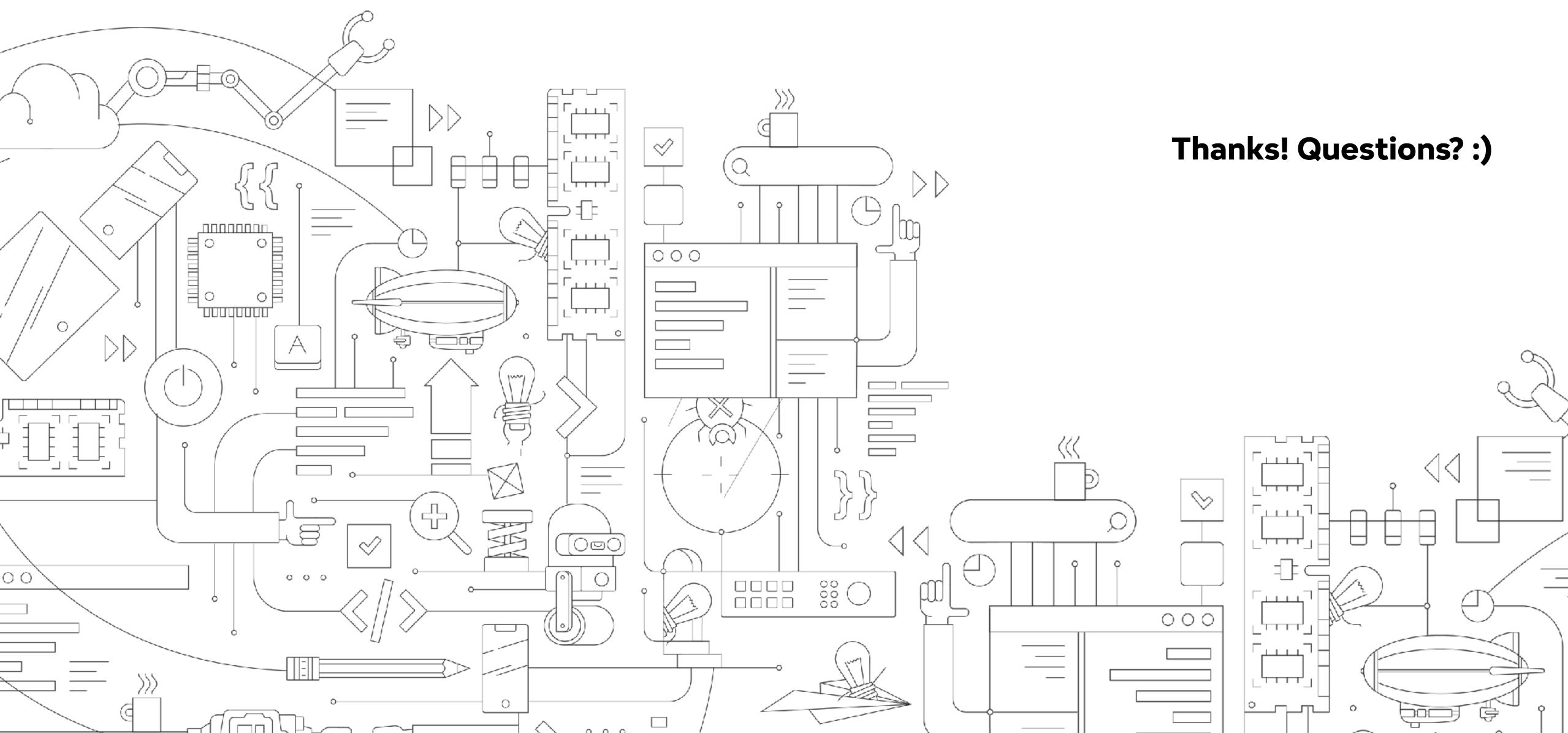
• CHEST PAIN (PRESSURE, SQUEEZING, FULLNESS)

- PAIN IN ONE OR BOTH ARMS, THE BACK, NECK, JAW OR STOMACH
- SHORTNESS OF BREATH
- COLD SWEAT, NAUSEA, VOMITING OR LIGHTHEADEDNESS

https://www.heart.org/en/health-topics/heart-attack/warning-signs-of-a-heart-attack/heart-attack-symptoms-in-women









### MORE ON THE TOPIC

Se Caroline Criado-Perez – Invisible Women (and her newsletter)

Sanelle Shane – You Look Like a Thing and I love you

🖀 Coded Bias (Netflix)

₩ ...and a lot of podcasts