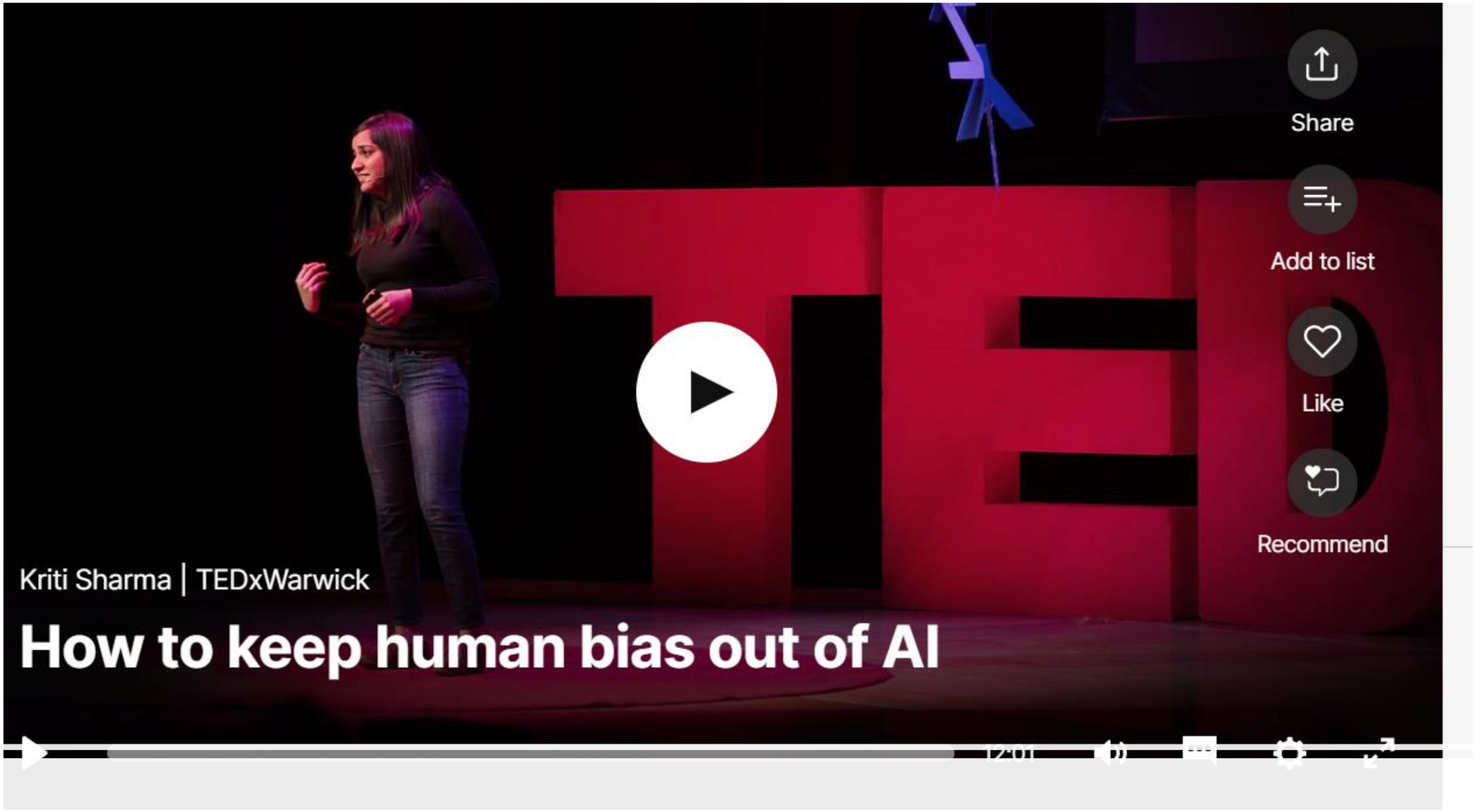
Bias

Are you asking the right questions when it comes to systemic bias?

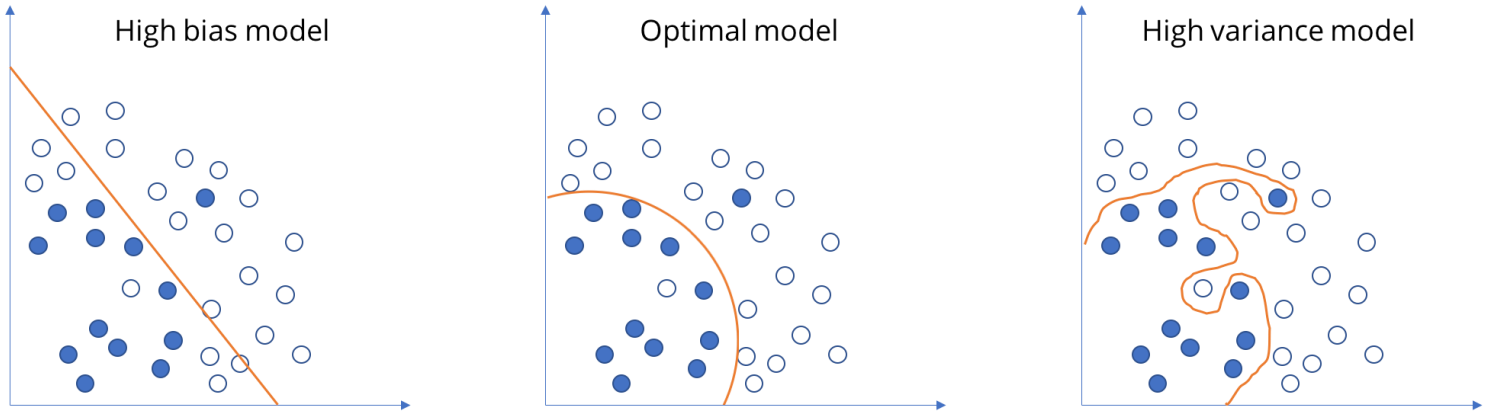


https://www.ted.com/talks/kriti_sharma_how_to_keep_human_bias_out_of_ai/transcript

Machine Learning Bias

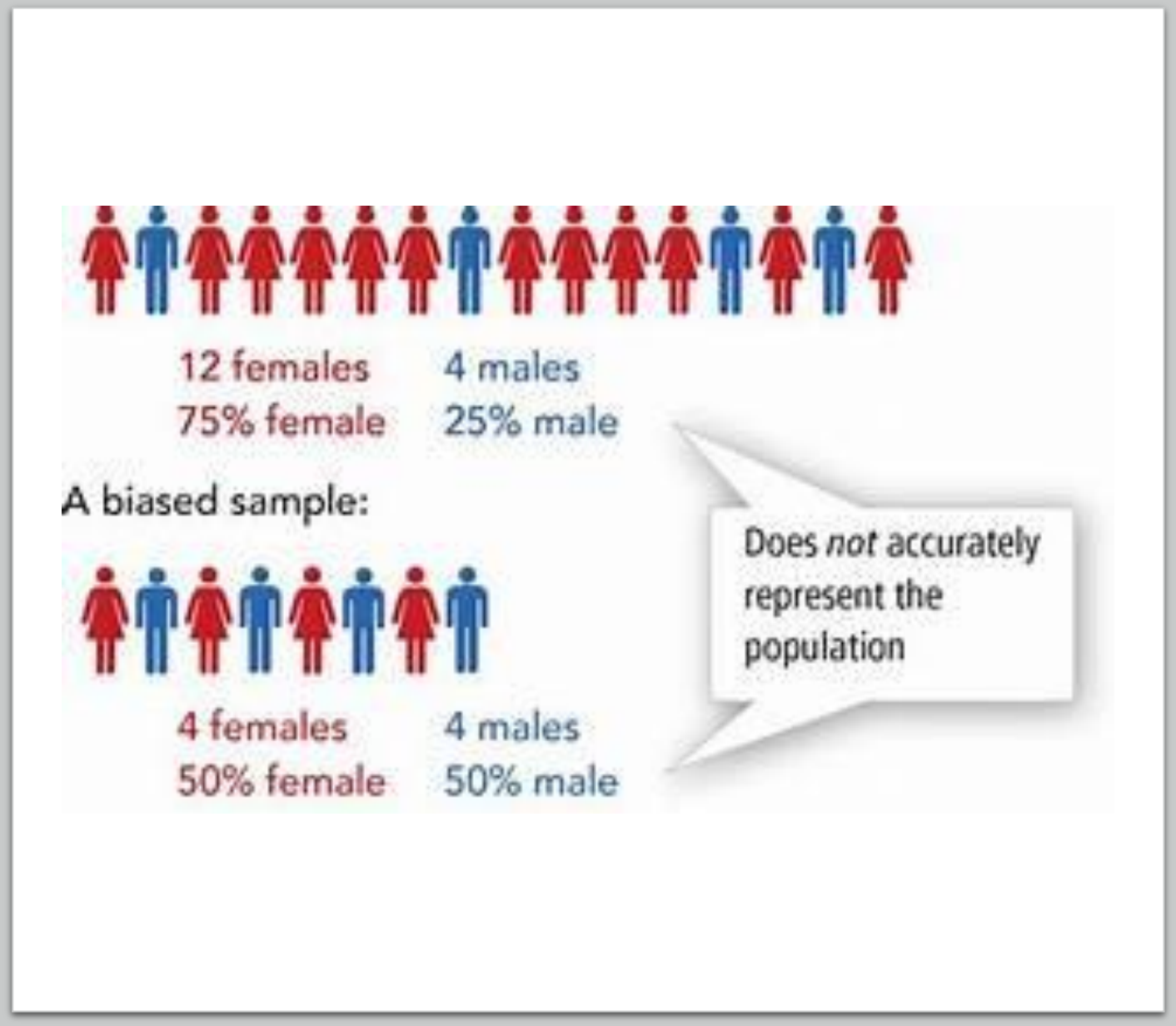
1. *Algorithm bias*:

- This first kind of bias has nothing to do with data. Instead, it refers to a property of the AI algorithm itself.
- It happens when there's an issue within the algorithm that carries out the calculations which enable the machine learning computations.



Machine Learning Bias

2. *Sample bias*: Occurs when the data used to train the model does not accurately represent the problem space the model will operate in.



Machine Learning Bias

3. *Prejudicial bias* (sometimes still referred to as racial bias):

- Occurs when training data content held by the human trainer is influenced by stereotypes or prejudice coming from the population.
- When people act on these prejudicial attitudes, it is called discrimination. Bias can be conscious or unconscious, and it can have serious implications in the workplace.

TYPES OF COGNITIVE BIAS

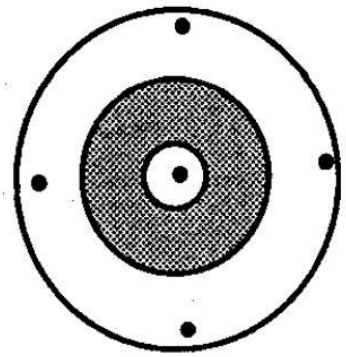
Association bias	Based on stereotypes common to a certain society
Confirmation bias	Favors options that confirm pre-existing beliefs and stereotypes over those that contradict them
Societal bias	Reproduces existing prejudice toward historically marginalized groups
Interaction bias	Introduced by humans when they try to influence the AI system or continuously interact with it

Machine Learning Bias

4. *Measurement bias*:

- This kind of bias results from faulty measurement.
- The outcome is a systematic distortion of all the data. Bias that is caused when any measurement collected about or from subjects is not completely valid (accurate) any type of variable : exposure outcome or confounder misclassification bias information bias (text) identification bias misclassification is the immediate result of an error in measurement.

Reproducibility and Validity of a Measurement



With only one shot at the measurement, most of the time you will be off the center of the target

Machine Learning Bias

5. *Exclusion bias:*

- Happens when an important data point is missing or overlooked from the data being used. This is also very common in the data preprocessing stage. Most often it occurs due to removing valuable data erroneously considered to be unimportant.

6. *Observer bias* (also known as confirmation bias):

- Happens when the observer purposefully finds the results they expect to see, independent of what the data states.

7. *Recall bias* (type of measurement bias):

- Common in the data labeling phase. Recall bias takes place when similar types of data are labeled inconsistently. This affects the accuracy of the end result.

Maximize AI and minimize risk

1. Avoid regulatory and ethical issues
2. Optimize AI through control and collaboration
3. Create a robust AI quality assurance process
4. Harness the power of AI to deliver real business value

Resources in AI

- “9 Black Women in Data Science You Should Know”

- #BlackinDataWeek (Online data conference, Took place November 17th in 2020)

- Black in AI
  - Advocacy has focused on removing barriers faced by Black people around the world in the field of AI. https://twitter.com/black_in_ai

- Inequality Project, project featuring deep reporting and cutting-edge research on inequality of all kinds, all over the world.
  - @GdnInequality, https://twitter.com/GdnInequality