

# Responsible Data Science

---

**Julia Stoyanovich**

Computer Science & Engineering  
Center for Data Science  
Center for Responsible AI  
**New York University**

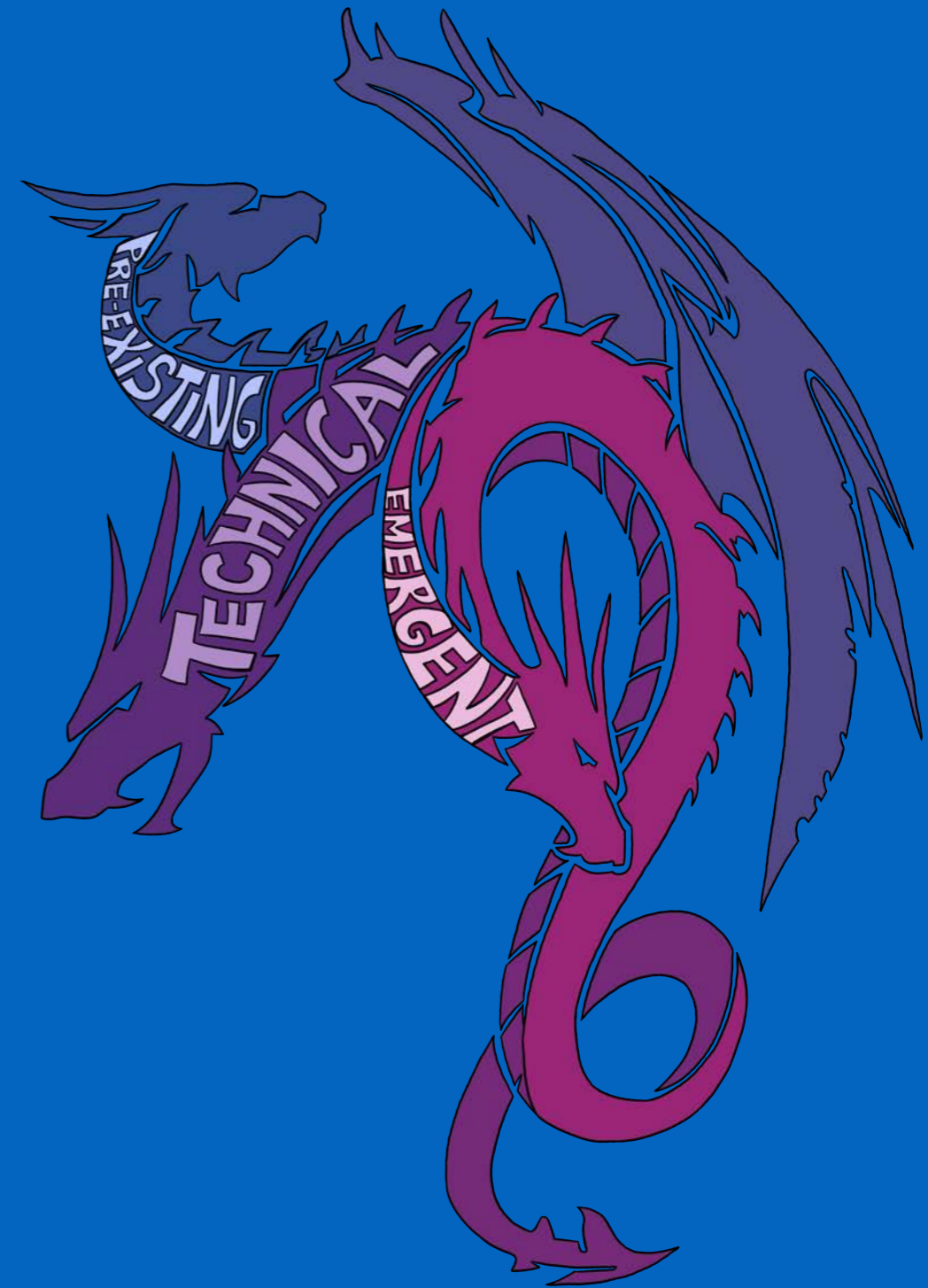
**stoyanovich@nyu.edu**  
**@stoyanoj**

# Bias in computer systems

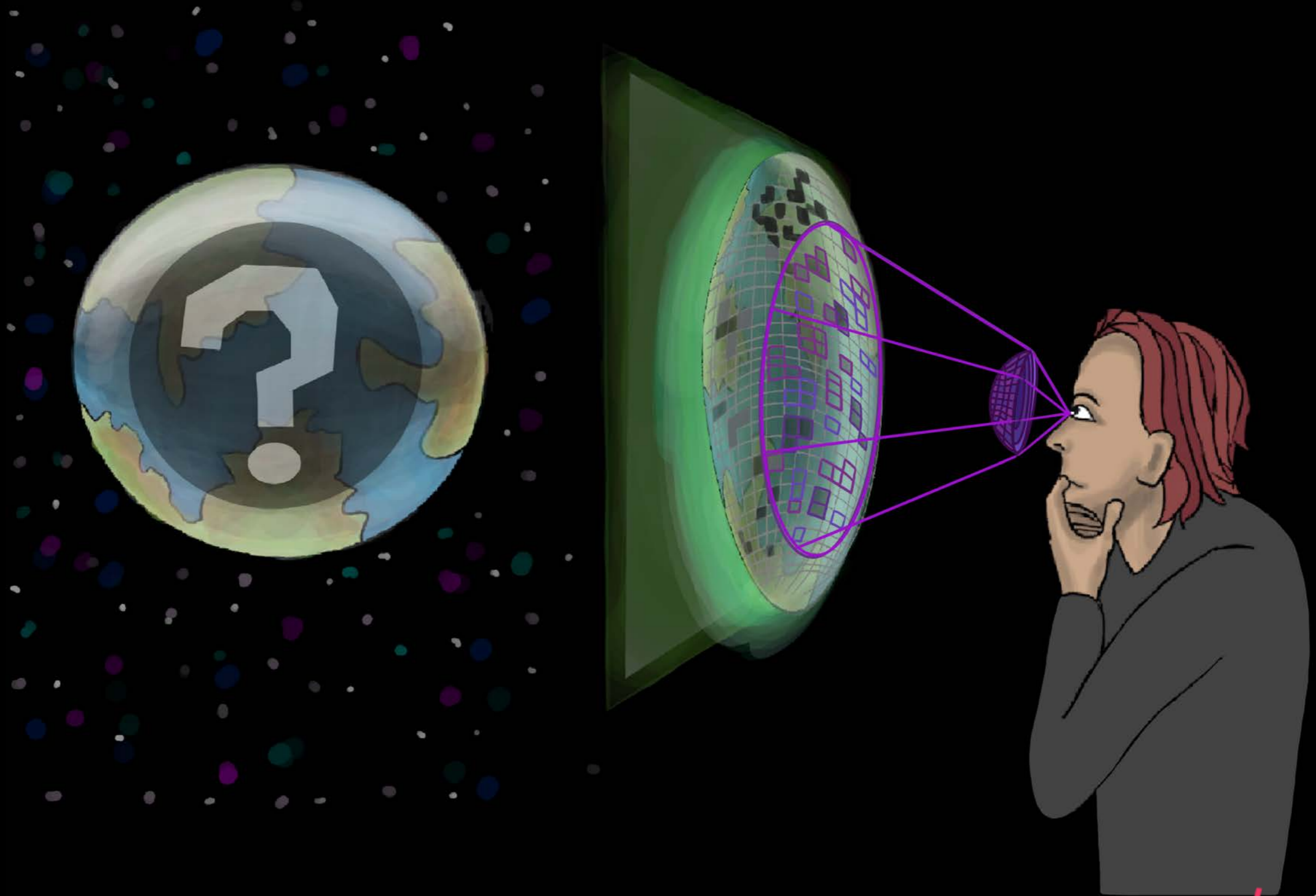
**Pre-existing:** exists independently of algorithm, has origins in society

**Technical:** introduced or exacerbated by the technical properties of an ADS

**Emergent:** arises due to context of use

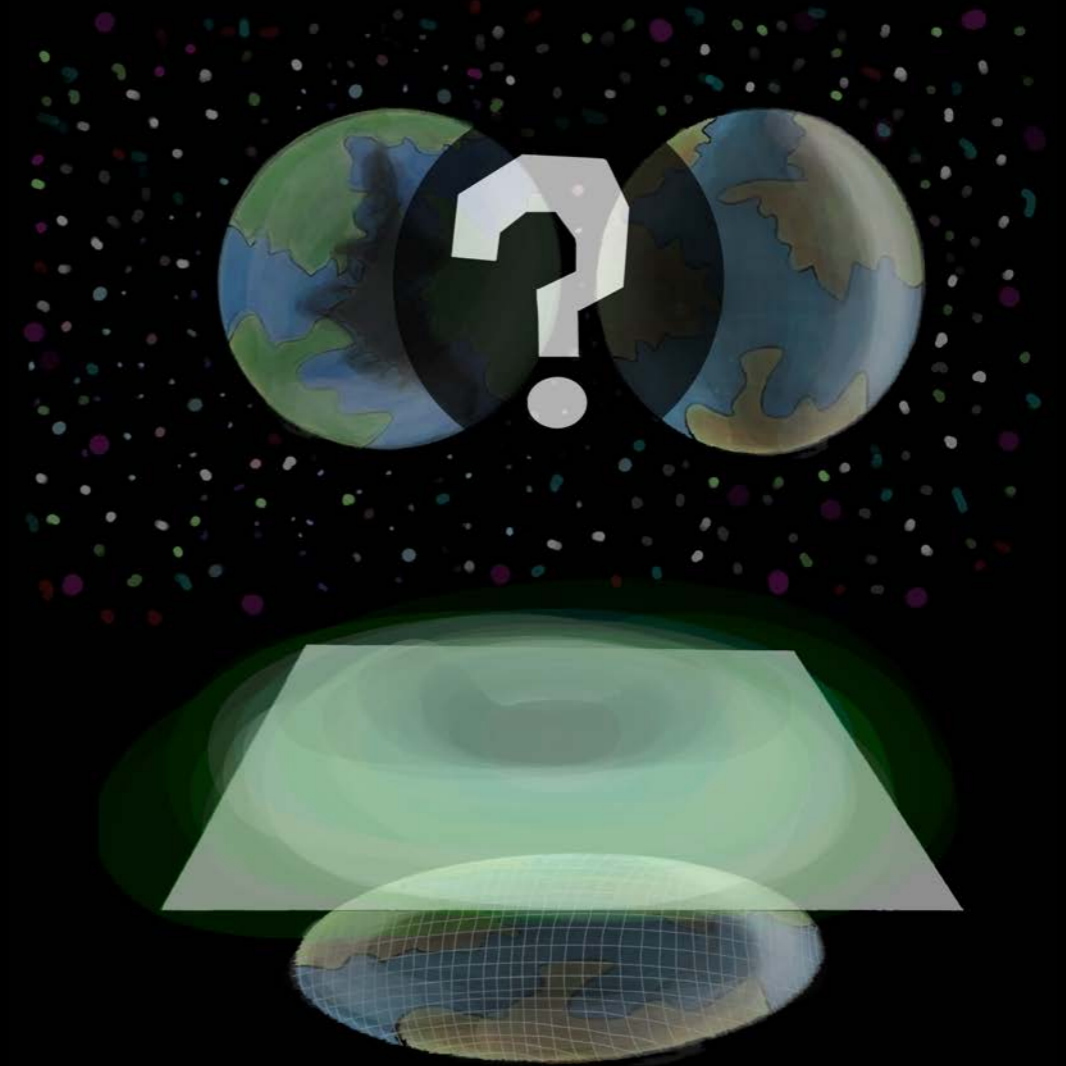
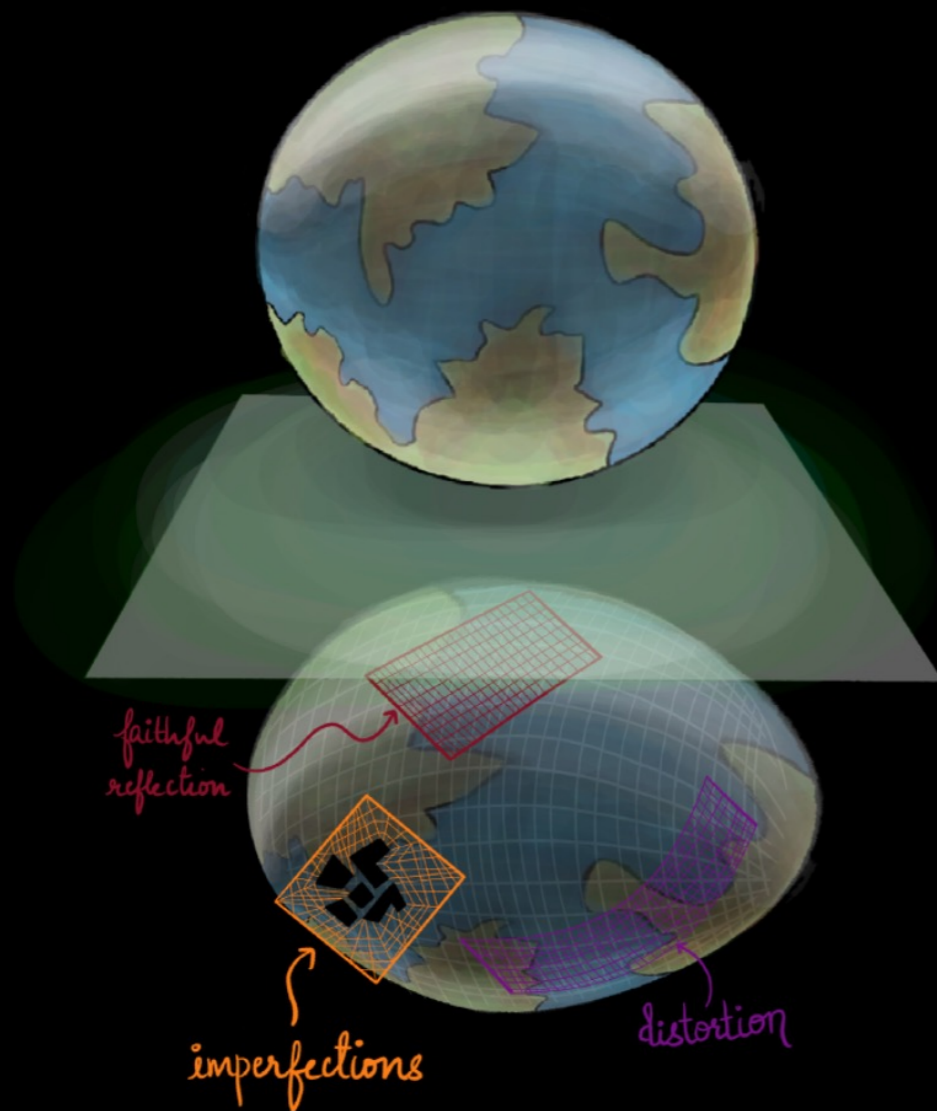


# Pre-existing bias: data



[Stoyanovich, Howe, Jagadish (2020)]

# Pre-existing bias: data



# Technical bias: models



# Model development lifecycle

## Goal

design a model to predict an appropriate level of compensation for job applicants

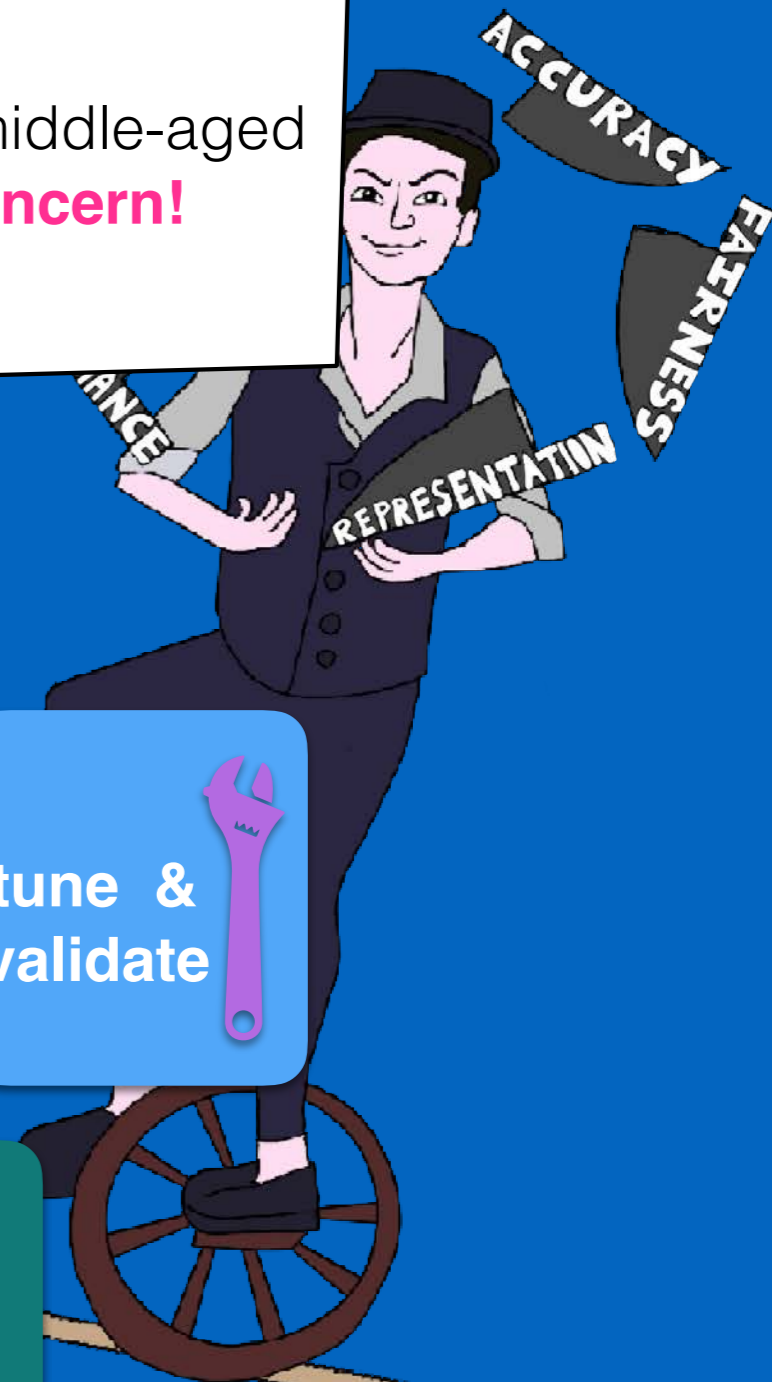
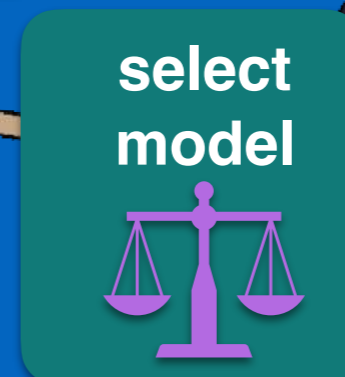
## Problem

accuracy is lower for middle-aged women - **a fairness concern!**

now what?

demographics			

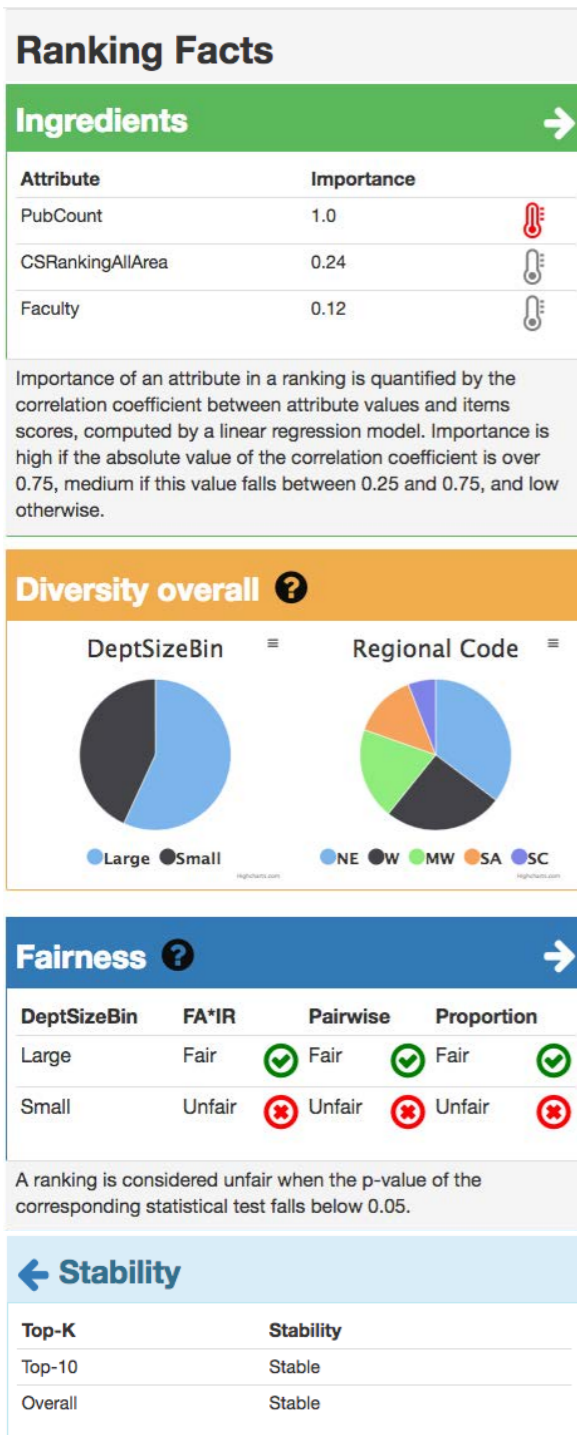
employment	



# Emergent bias: impacts



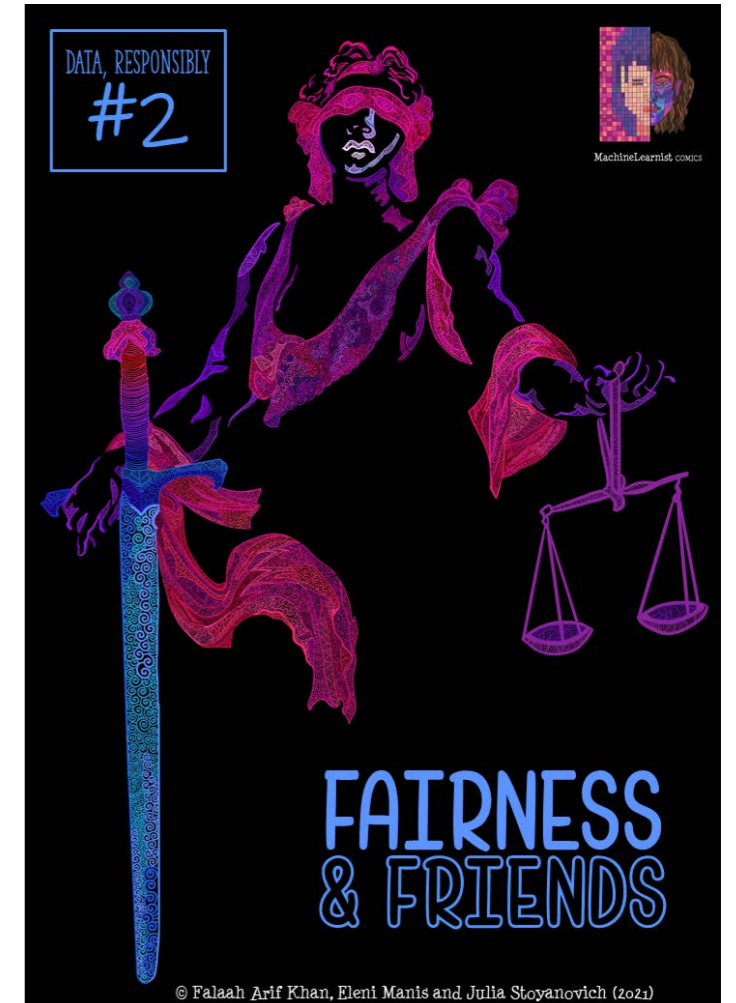
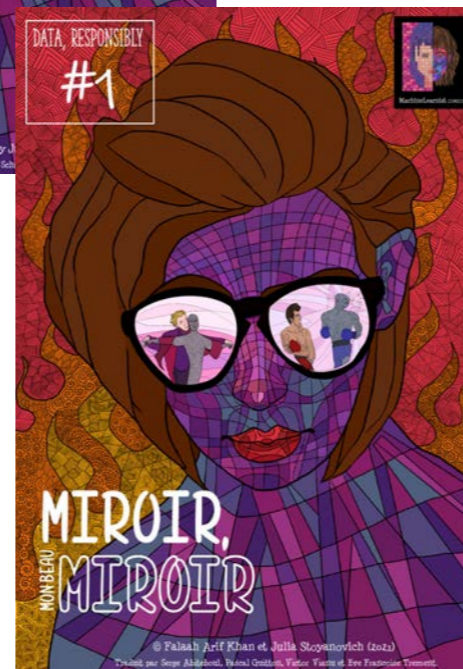
# Nutritional labels



**comprehensible:** short, simple, clear  
**consultative:** provide actionable info  
**comparable:** implying a standard  
**computable:** incrementally constructed



# RDS comics



# RDS courses



FAIRNESS

DATA SCIENCE LIFECYCLE

DATA PROTECTION

TRANSPARENCY AND INTERPRETABILITY

Previous module:

◀ FAIRNESS

★ WEEK 5

★ WEEK 6

▶ WEEK 7

Next module:

DATA PROTECTION ▶

## Data Science Lifecycle

**Lecture:** Taming technical bias

**Topics:**

- Types of technical bias
- Data distribution debugging

**Reading:** See [Responsibility in the Data Science Lifecycle](#)

**Lab:** mlinspect

## Responsible Data Science: Charting New Pedagogical Territory



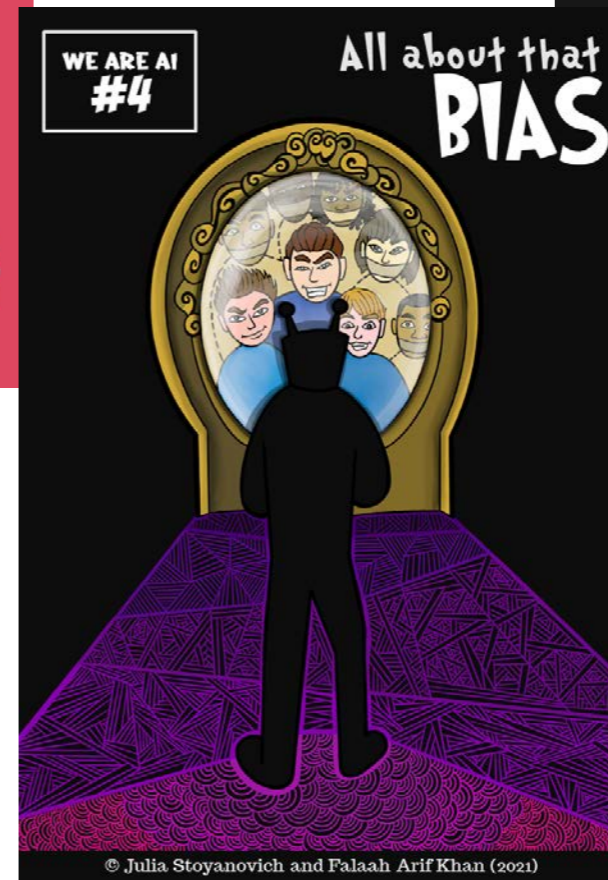
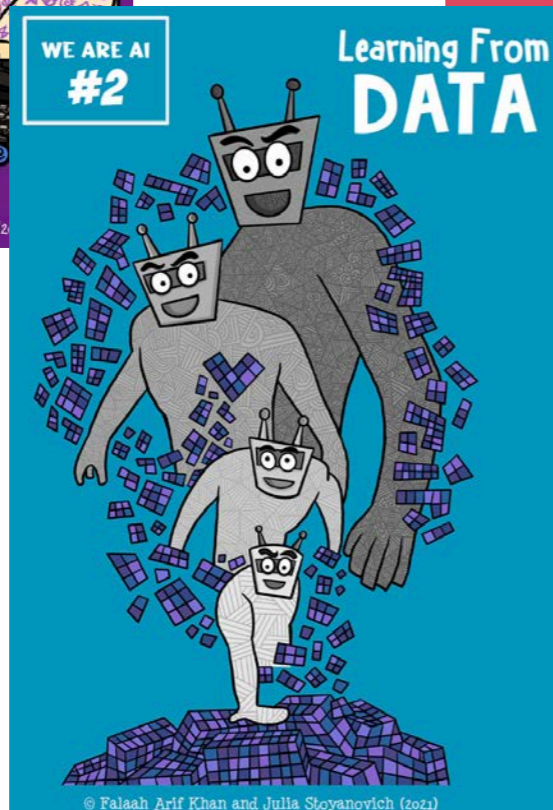
NYU Center for Data Science Feb 17, 2020 · 4 min read



In response to the dearth of scholarship surrounding responsible data science (RDS), NYU CDS faculty are paving the way with a course dedicated to RDS and the publication of their pedagogical methodology.

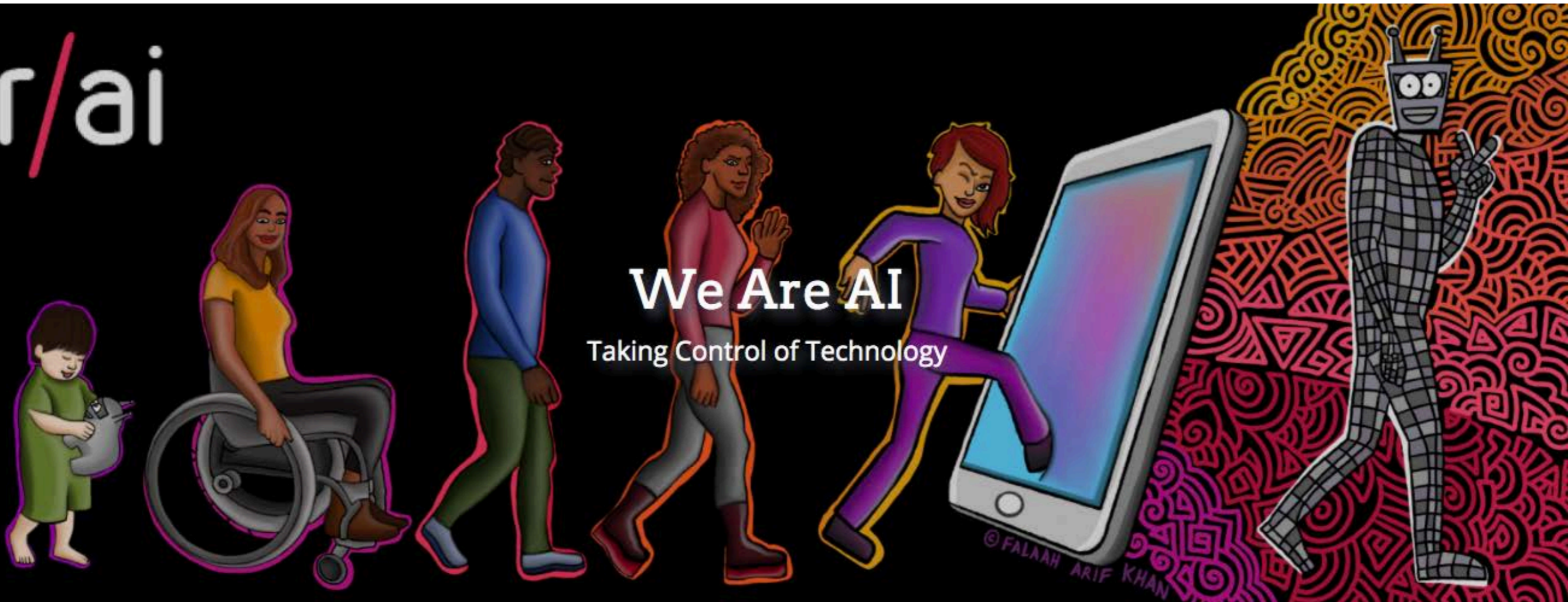


# AI comics for the general public



# Public education on AI

r/ai





# Thank you!

---

[dataresponsibly.github.io](https://dataresponsibly.github.io)  
[/courses](#)  
[/comics](#)



@stoyanoj

@FalaahArifKhan



NYU

TANDON SCHOOL  
OF ENGINEERING



NYU

Center for  
Data Science

r/ai