AI FOR GOOD
FOUNDATION

Bridging Science, Government, and Industry for a Better Future

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Teaching People to Think with Data

The United Nation's goals for a better world by 2030 seem unlikely to be reached.

Can data and computation be the engine to help us close the research and implementation gap on the biggest challenges of our generation?

We think so.

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My Experience

Studies

Summer Schools & Short Courses

Invited Talks

Europe & US Funded Projects

Hackathons, Challenges, Competitions

Industry Research Lab

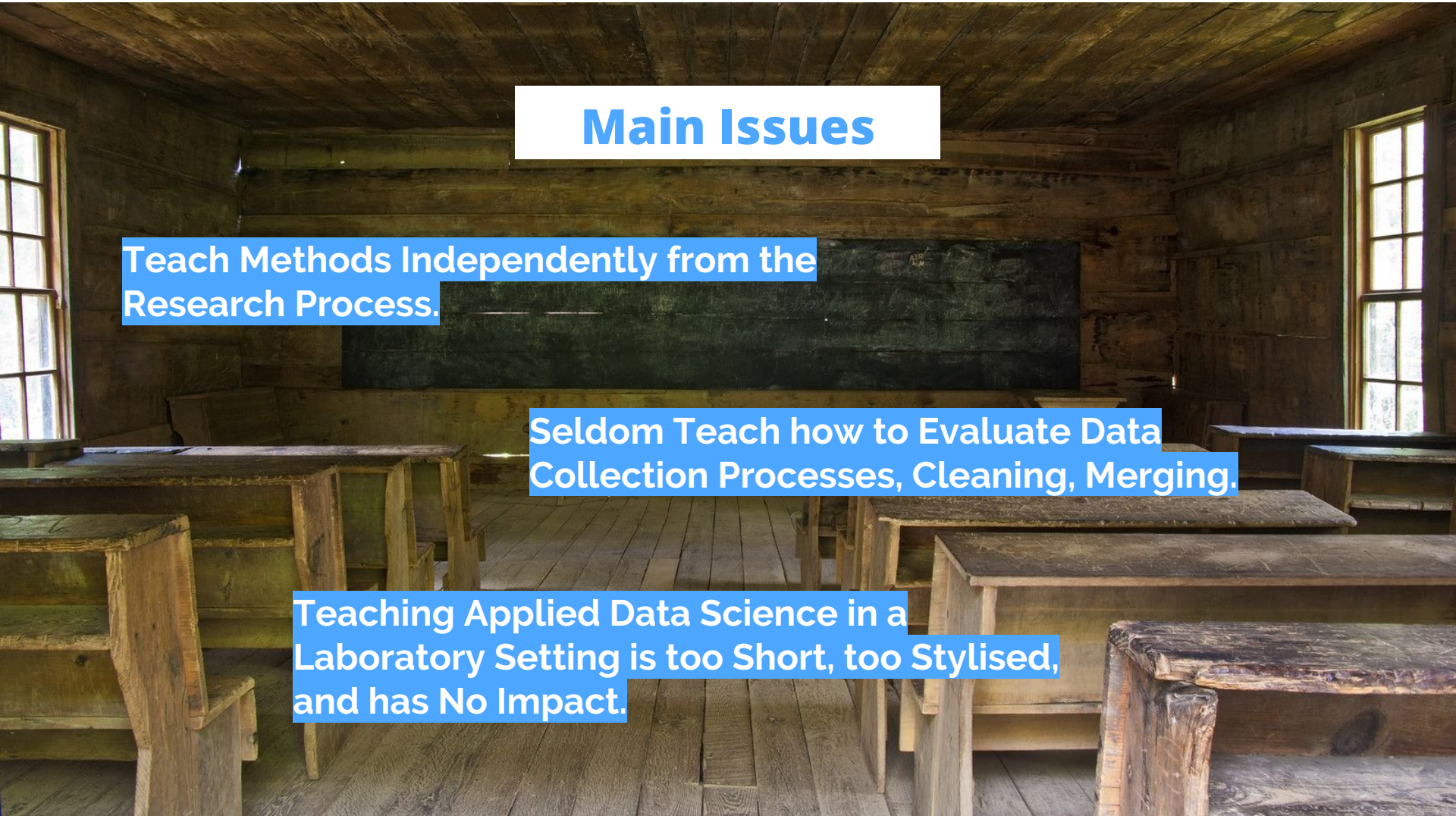
Creation of Data Science Institutes

Data Science

A set of Algorithmic Methods and Engineering Practices that need a channel for development and adoption within empirical research.

The requisite Data Literacy to allow industry and society to harness the value of data to aid in solutions to a wide variety of challenges.


What We Want to Achieve
DATA DRIVEN SCIENCE
OPEN INFRASTRUCTURE, DATA, METHODS
DATA LITERACY ACROSS CAMPUS
DATA INNOVATION HUBS
CROSS-DISCIPLINARY RESEARCH + TEACHING RESOURCES
DATA SCIENCE FOR SOCIAL GOOD
ENCOURAGE DIVERSITY


Main Issues
Teach Methods Independently from the Research Process.
Seldom Teach how to Evaluate Data Collection Processes, Cleaning, Merging.
Teaching Applied Data Science in a Laboratory Setting is too Short, too Stylised, and has No Impact.

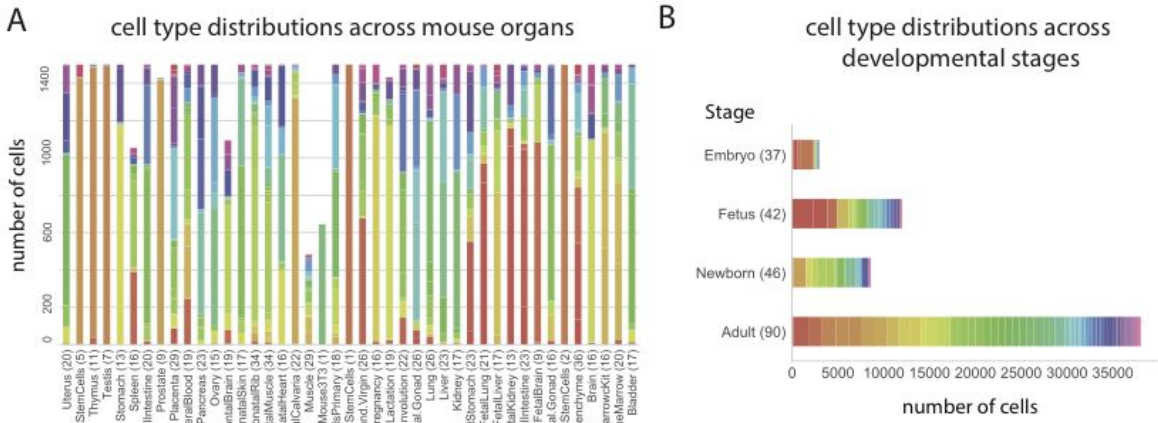
Challenge

1

Reasoning About the Unseen

Human Cell Atlas

How Many Cell Types Have We Not Seen Yet?



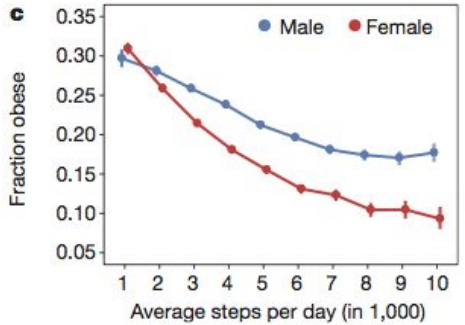
Challenge

2

Establishing Causal Relationships

Observational Data Alone Do Not Answer "What If?" Questions

> *"Do I walk too little because I am obese, or am I obese because I walk too little?"*



Challenge

3

Ensuring Replicability of Results

Amgen could replicate only 6 of 53 studies considered landmarks in basic cancer science.

Pervasive; e.g. see Kaplan's report from FDA

Huge national and international concerns

- National Academy of Sciences
- Leading publications (*Science*, *Nature*,…)
- Leading professional societies
- President's Council of Advisers on S&T

Societal Concern: Public Confidence in Science?

Challenge

4

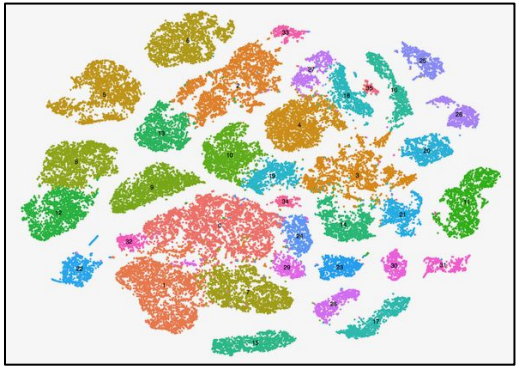
Visualizing Data Effectively

Datasets are Large, Unruly, & Difficult to Visualize.

Looking at data requires choosing one of many possible representations; this is not neutral or easy:

What cell types do we see in a tumor sample?

Visualization of single-cell mRNA-seq

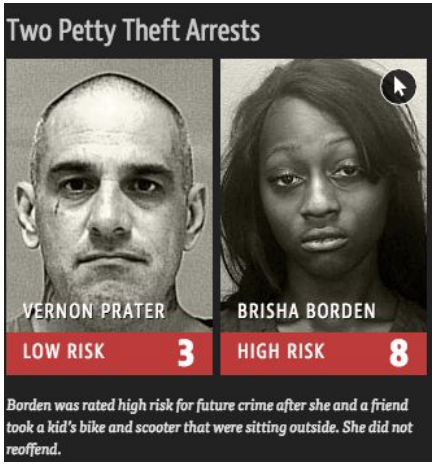


Challenge

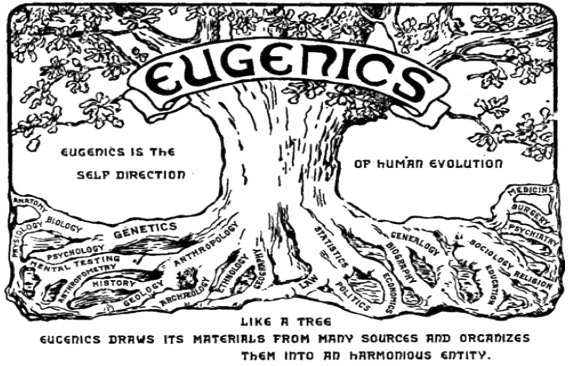
5

Distinguishing Information from Structural Bias

Let us not reify our prejudices



Do recidivism prediction instruments produce discriminatory biases?



Why White Supremacists Are Chugging Milk (and Why Geneticists Are Alarmed)

Amy Harmon, October 17, 2018

The New York Times

Social Impact.


How does
“Social Good”
fit in?
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Open Problems.
Open Data.
Open Source.
Open Infrastructure.
Open Innovation.
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THE GLOBAL GOALS
For Sustainable Development

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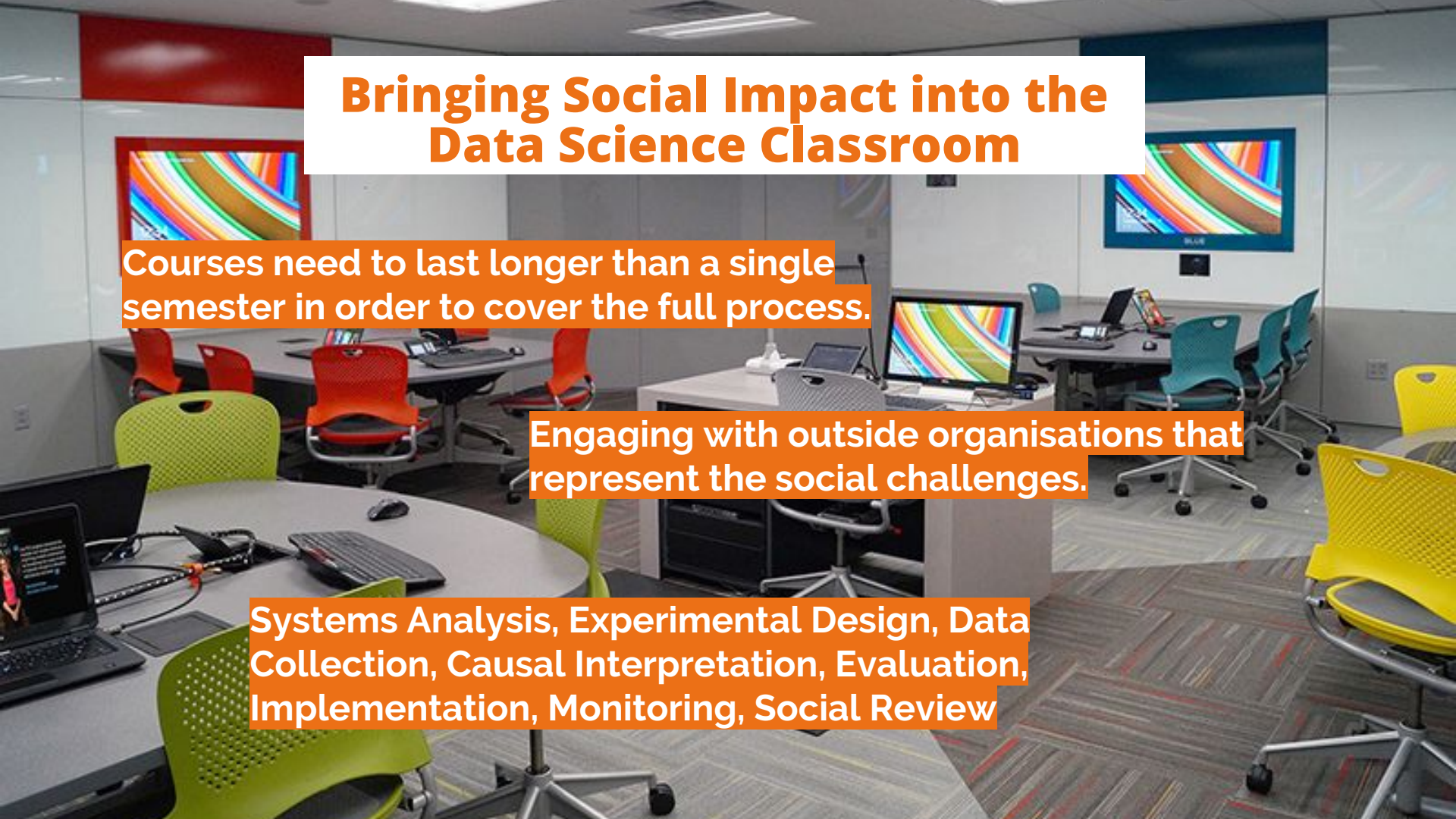

Bringing Social Impact into the Data Science Classroom

Courses need to last longer than a single semester in order to cover the full process.

Engaging with outside organisations that represent the social challenges.

Systems Analysis, Experimental Design, Data Collection, Causal Interpretation, Evaluation, Implementation, Monitoring, Social Review

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Sign up to our Newsletter.

Partner with us.

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