

# Soc 596: Computational Social Science

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01-01-Introduction to computational social science



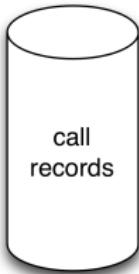
# What is computational social science?

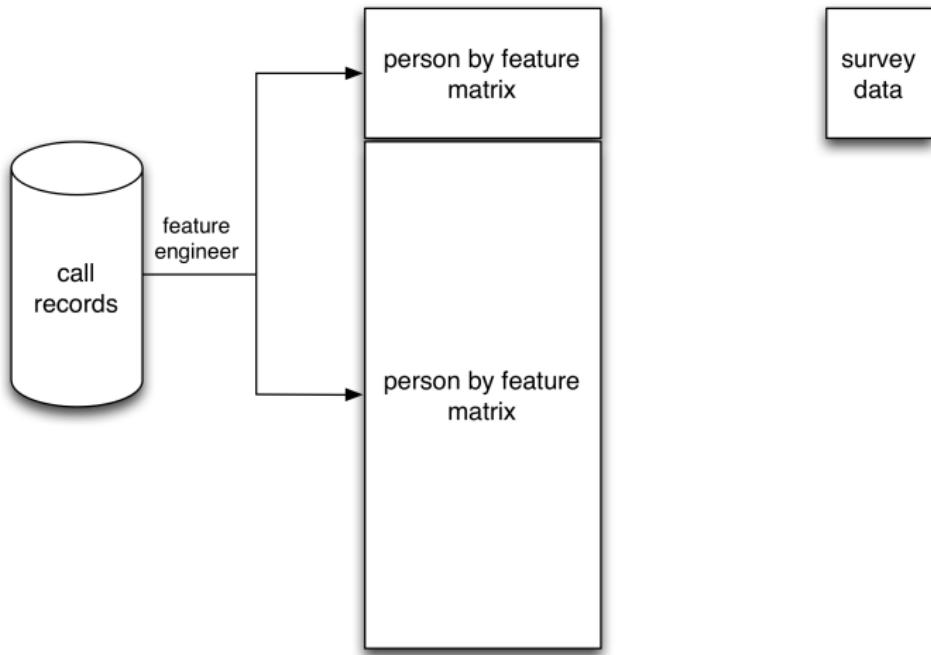
# Predicting poverty and wealth from mobile phone metadata

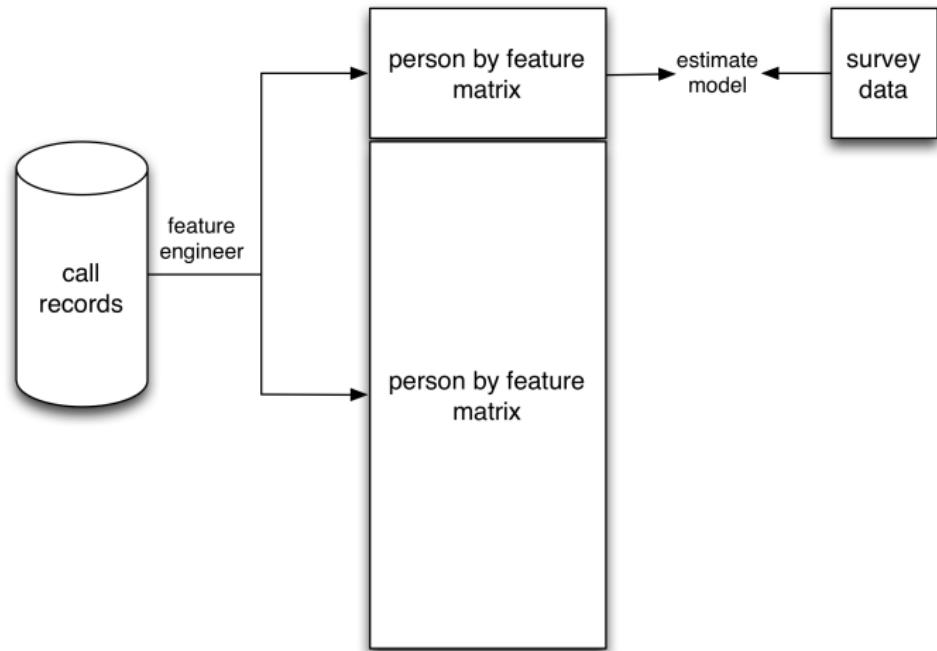
Joshua Blumenstock,<sup>1\*</sup> Gabriel Cadamuro,<sup>2</sup> Robert On<sup>3</sup>

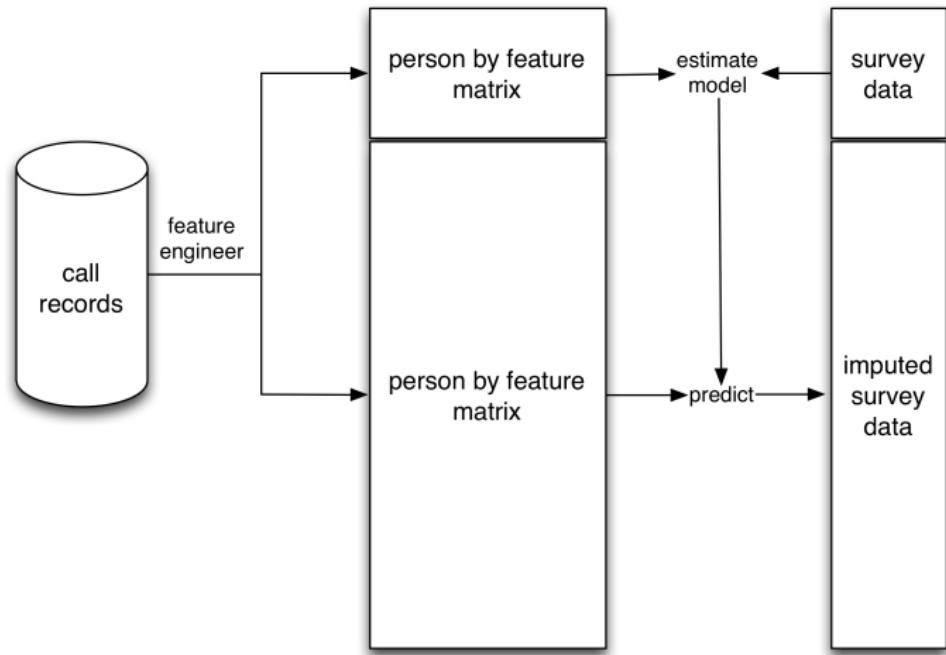
<http://dx.doi.org/10.1126/science.aac4420>

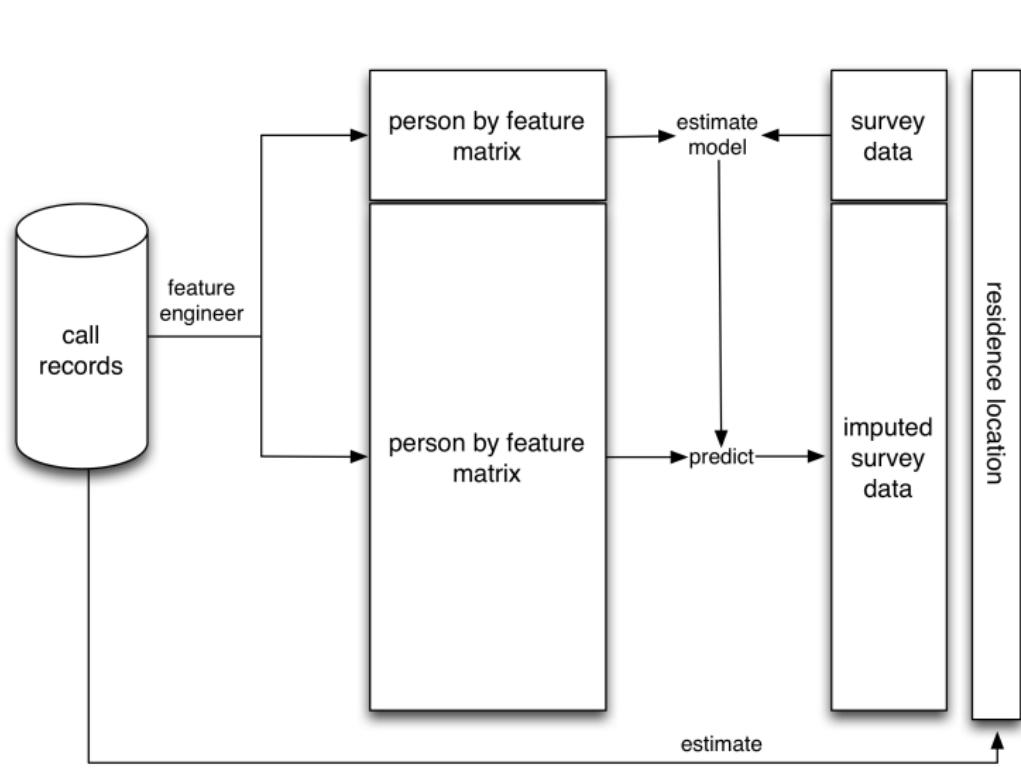


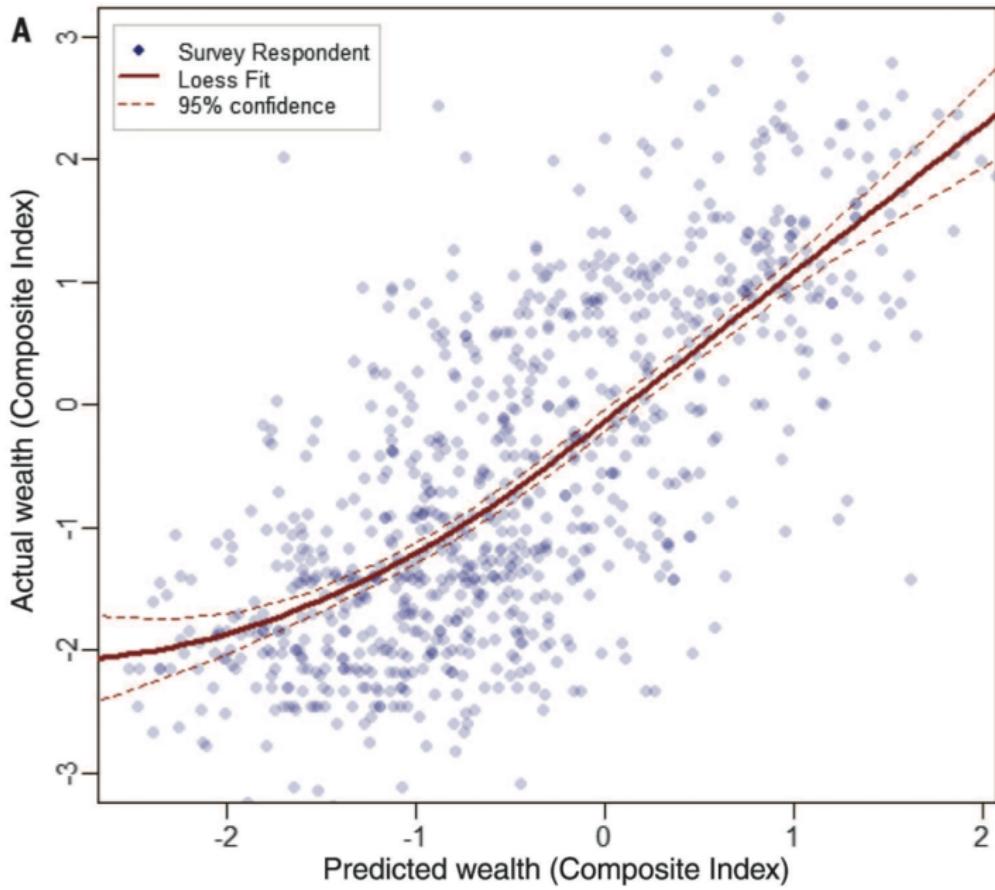


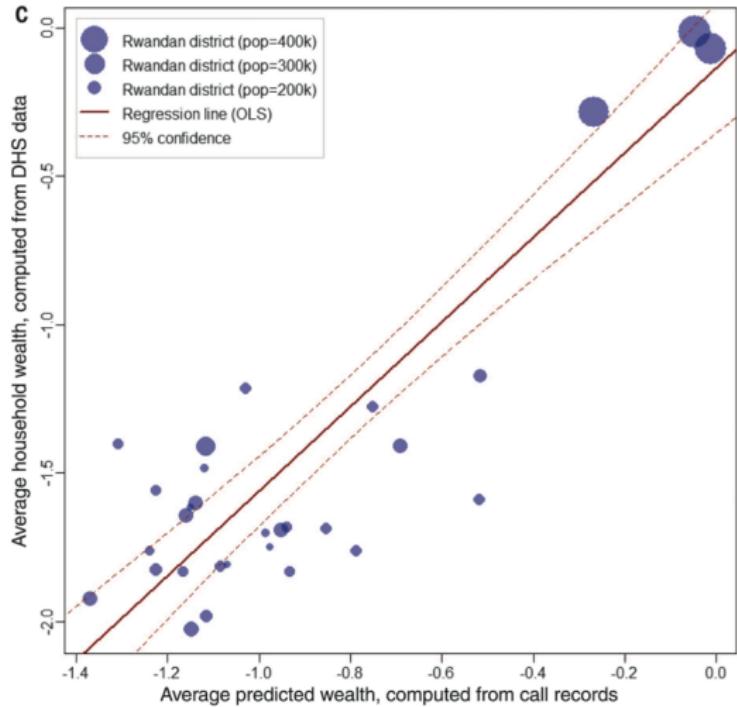


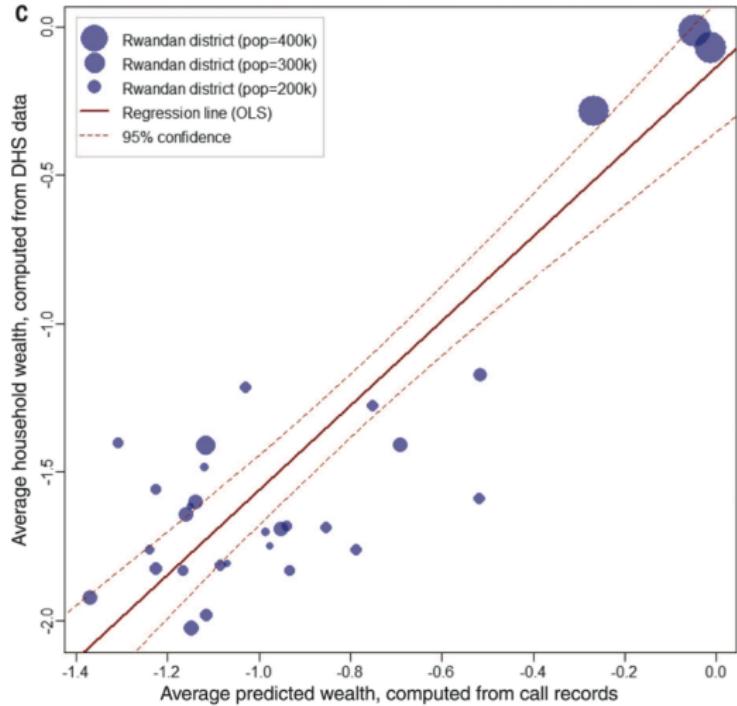






**A**





- ▶ 10 times faster
- ▶ 50 times cheaper

- ▶ *computational and social science*

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Readymades



Custommades

[https://commons.wikimedia.org/wiki/File:Duchamp\\_Fountainne.jpg](https://commons.wikimedia.org/wiki/File:Duchamp_Fountainne.jpg)

[https://commons.wikimedia.org/wiki/File:%27David%27\\_by\\_Michelangelo\\_JBU0001.JPG](https://commons.wikimedia.org/wiki/File:%27David%27_by_Michelangelo_JBU0001.JPG)

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- ▶ involves five key communities: social science, data science, business people, privacy advocates, policy makers

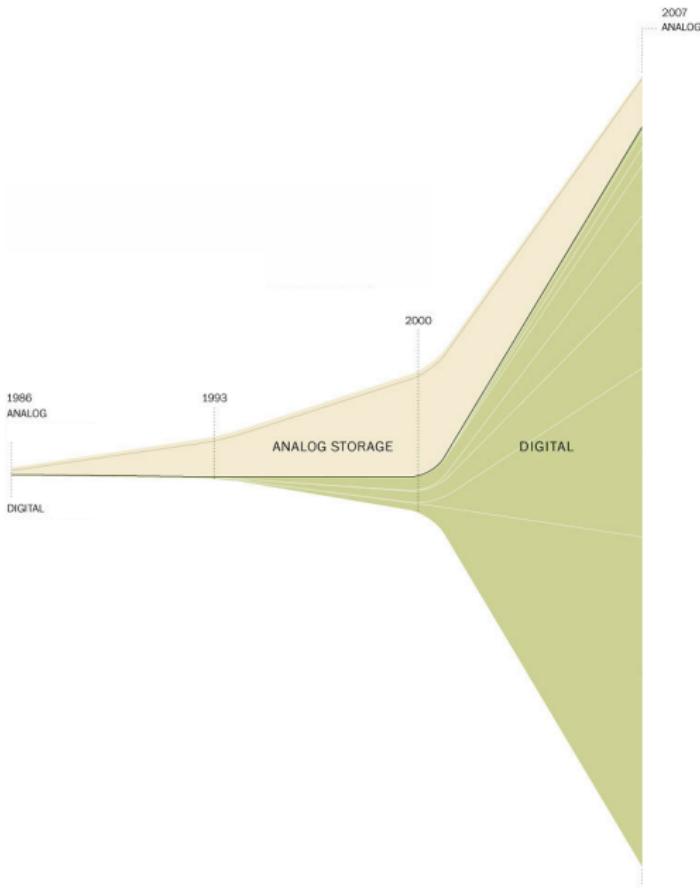
Balance between social science, data science, business people,  
privacy advocates, and policy makers

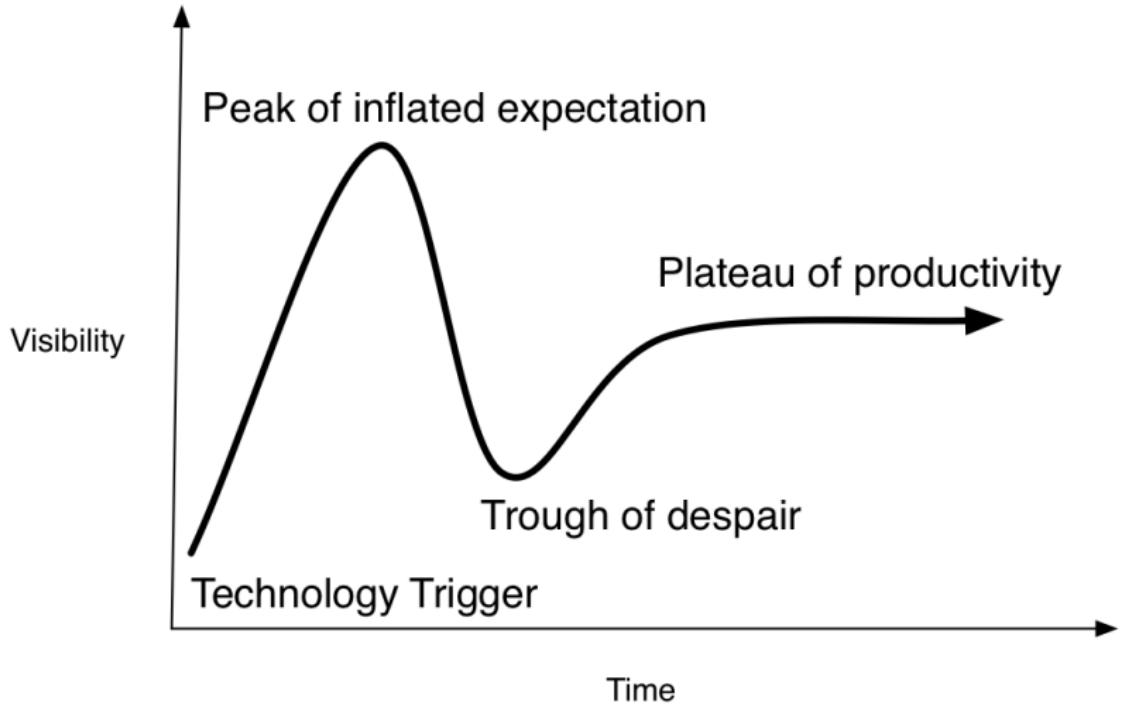
Health Ecosystem vs Horrific Monoculture

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Isn't computational social science a fad?





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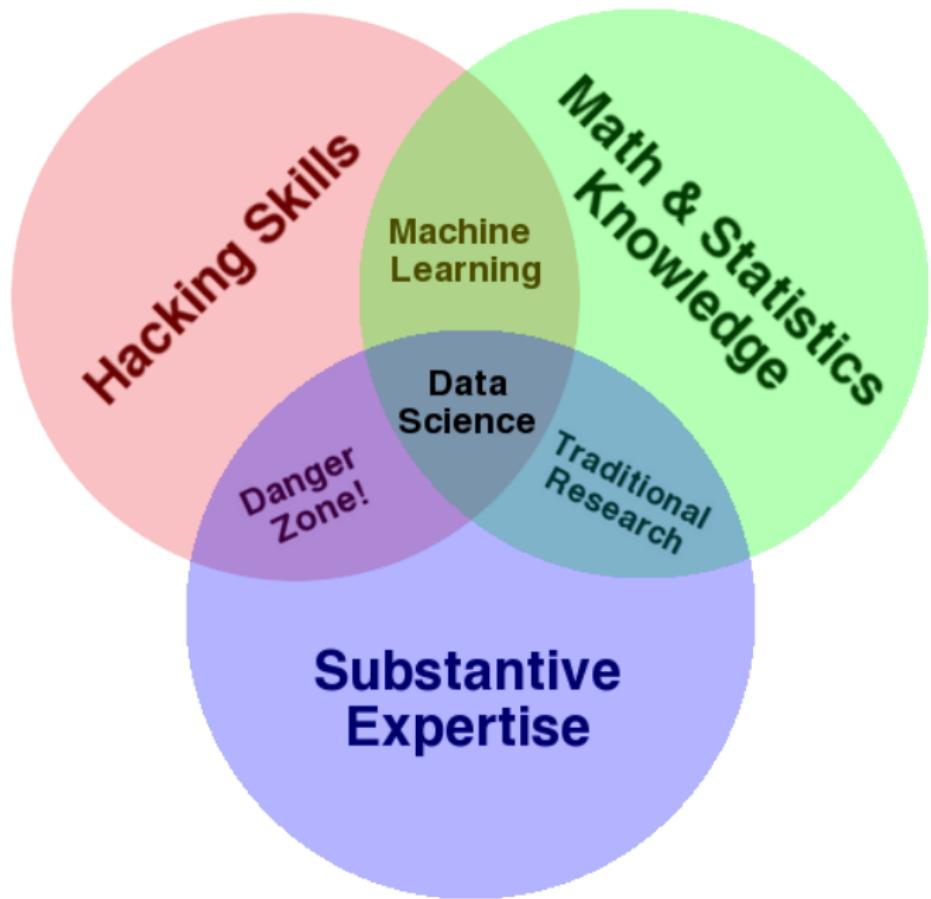
Isn't computational social science a fad?

No

How do we create computational social science, individually and as a community?

Social Scientists ←→ Data Scientists

# What is data science?



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Academic data science and industrial data science

Academic data science (think of Donoho article)

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## Academic data science (think of Donoho article)

- ▶ goes back to Tukey (1962)
- ▶ learning from data
- ▶ it includes statistics and much more

Industrial data science (think of Provost and Fawcett)

- ▶ lots of engineering

## Industrial data science (think of Provost and Fawcett)

- ▶ lots of engineering
- ▶ certain kinds of problems—churn and pop-tarts—which are not as far from social science as they appear

Data science alone is not enough if we want to study social behavior (e.g., Anderson)

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Social science alone is not enough if we want to use new data sources

Wallach: I don't get it. Why is that research?

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Computer science	Social science
Study anything	Study social things
Methods driven	Question driven
Large found data	Small designed data
Prediction	Explanation

Another important difference between social science:



Social Scientists ←→ Data Scientists

*Computational social science* vs Computational *social science*

My goals for this module:

- ▶ SWBAT *describe* computational social science
- ▶ SWBAT assess whether computational social science is a fad
- ▶ SWBAT *describe* the intellectual traditions that underly computational social science