

Soc 596: Computational Social Science

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01-01-Introduction to computational social science



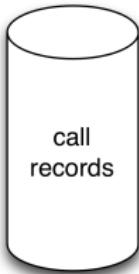
What is computational social science?

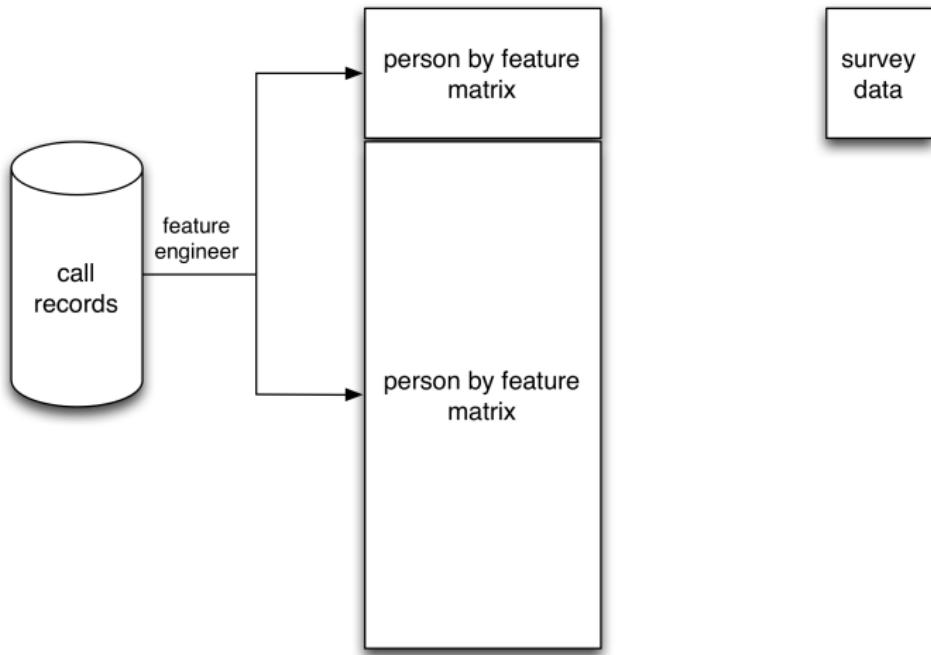
Predicting poverty and wealth from mobile phone metadata

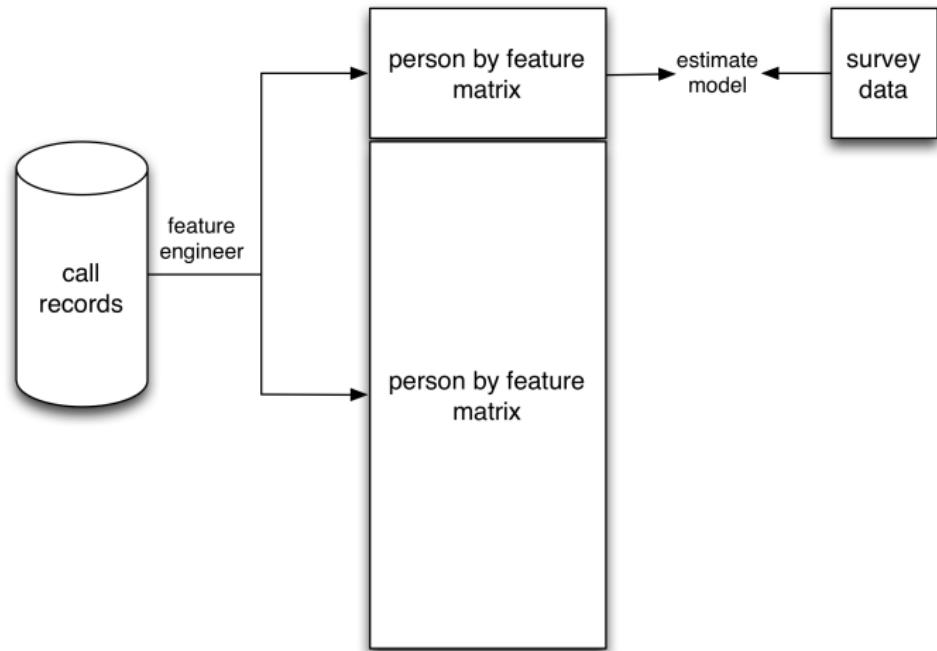
Joshua Blumenstock,^{1*} Gabriel Cadamuro,² Robert On³

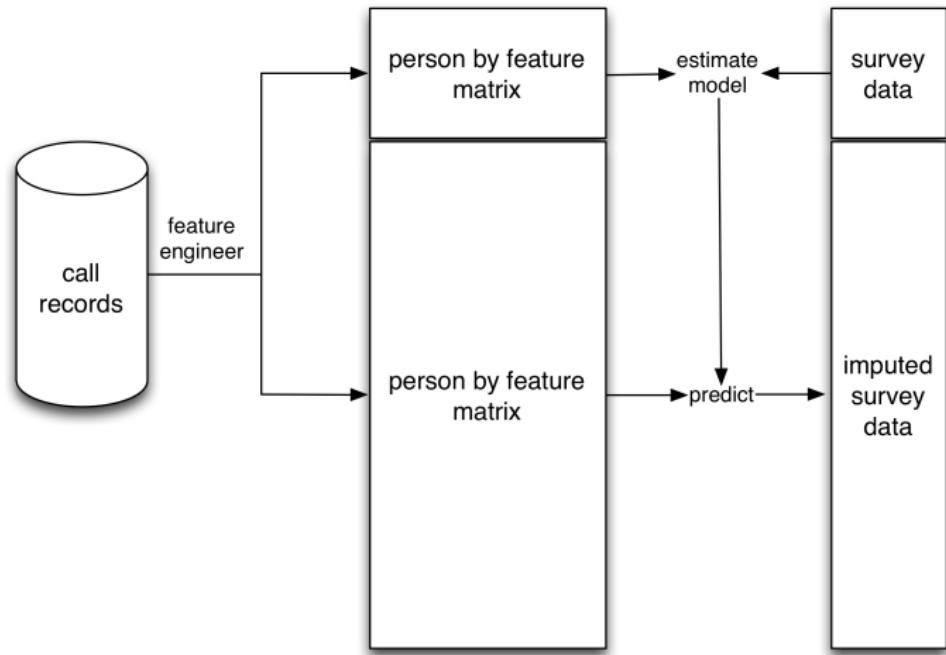
<http://dx.doi.org/10.1126/science.aac4420>

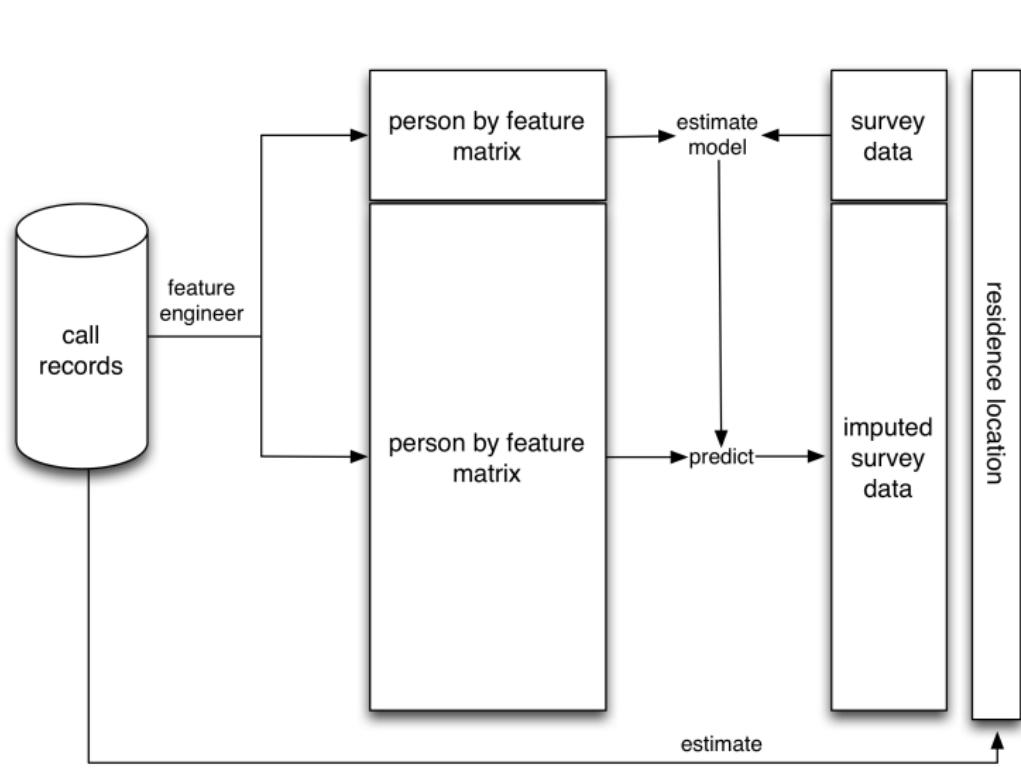


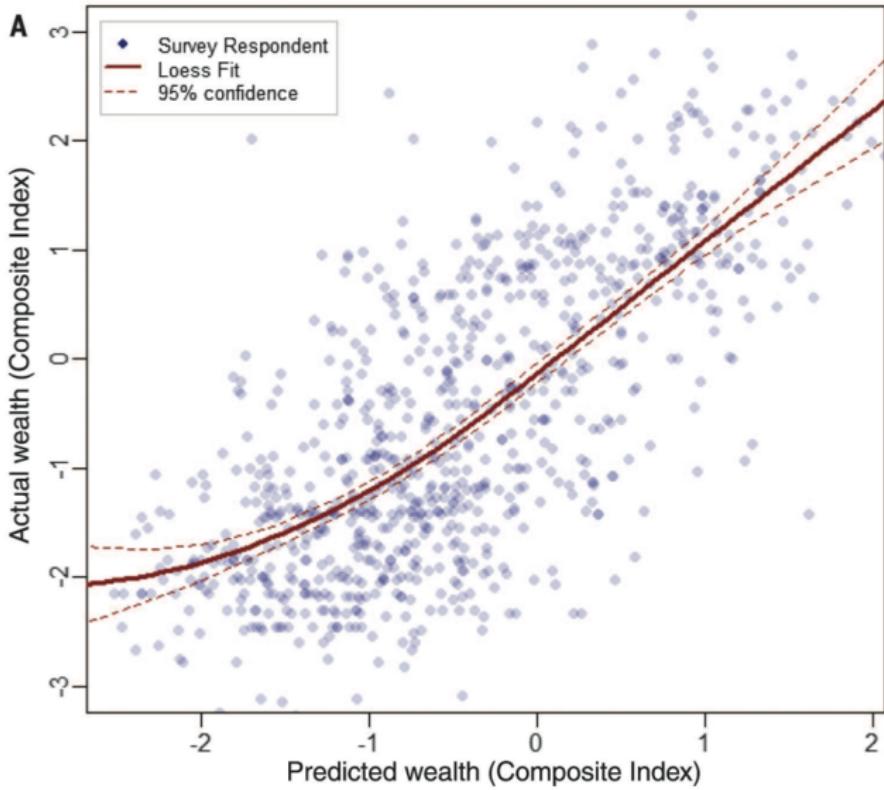


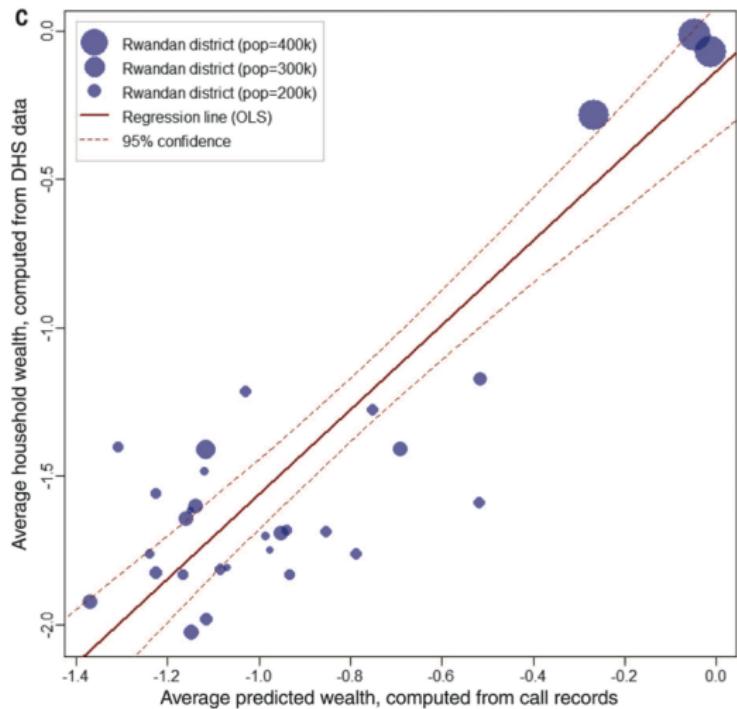


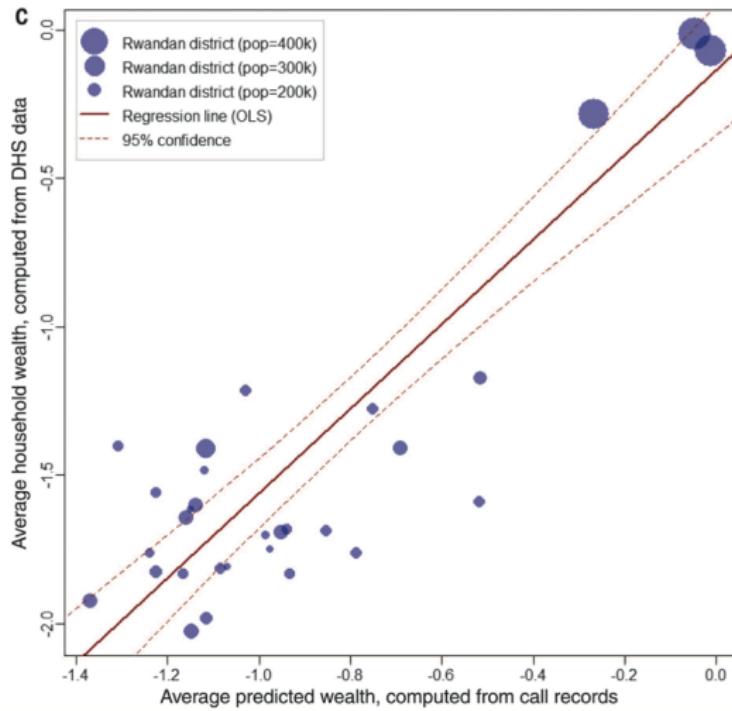












- ▶ 10 times faster
 - ▶ 50 times cheaper

- ▶ *computational and social science*

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- ▶ often involves ethical/privacy questions that are now considered complex

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Readymades



Custommades

https://commons.wikimedia.org/wiki/File:Duchamp_Fountainne.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

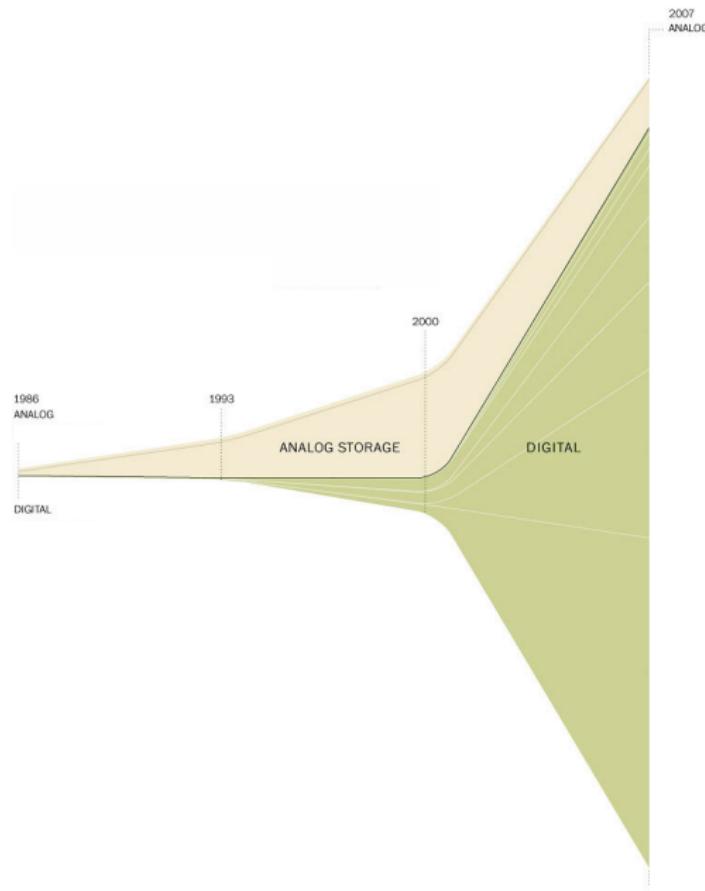
Balance between social science, data science, business people,
privacy advocates, and policy makers

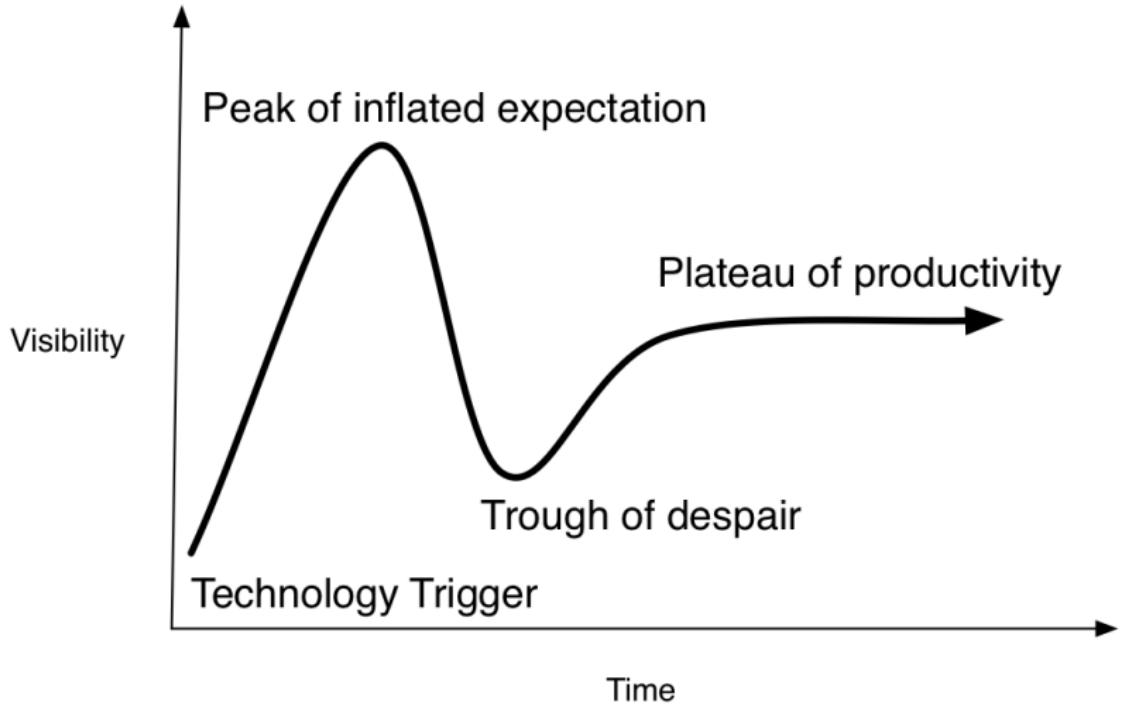
Health Ecosystem vs Horrific Monoculture

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Isn't computational social science a fad?





https://commons.wikimedia.org/wiki/File:Gartner_Hype_Cycle.svg

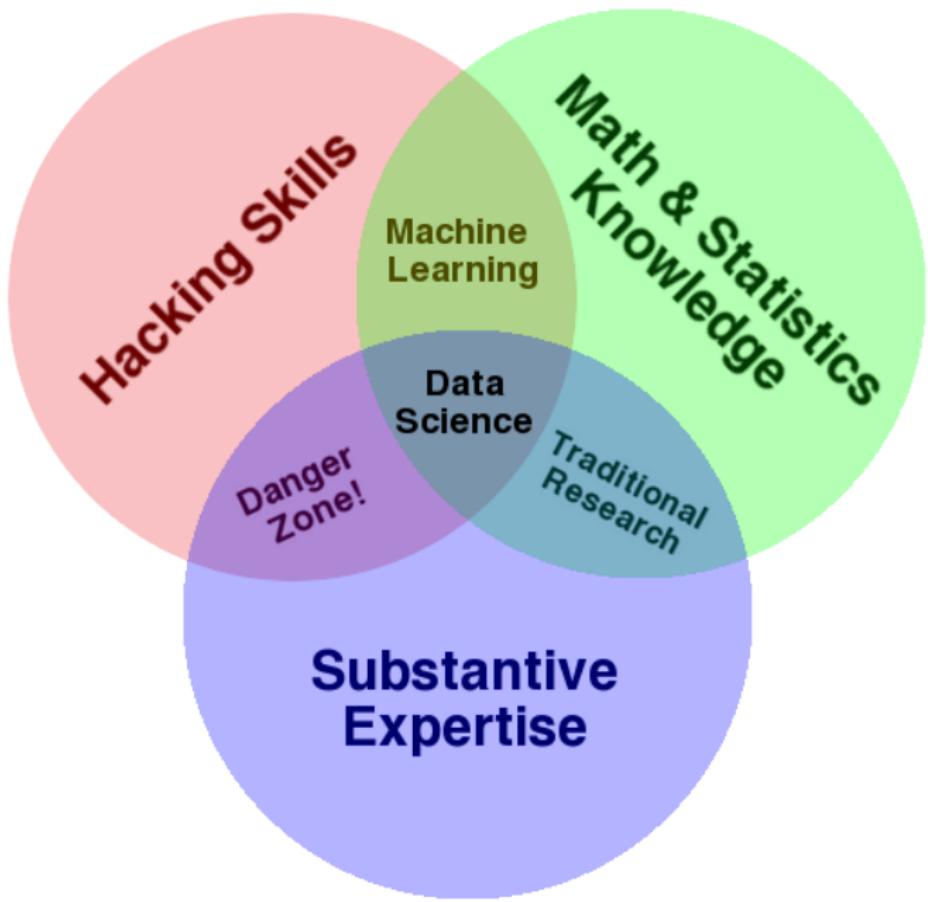
Isn't computational social science a fad?

No

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

Social Scientists ←→ Data Scientists

What is data science?



What is data science?

Academic data science and industrial data science

Academic data science (think of Donoho article)

- ▶ goes back to Tukey (1962)

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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—that 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 (2015) reports overhearing: “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

http://videolectures.net/icml2015_wallach_social_science/

Another important difference between social science and data science:



Social Scientists ←→ Data Scientists

Computational social science vs Computational *social science*

Simplicity vs Complexity

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