

Introduction to computational social science

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What is computational social science?

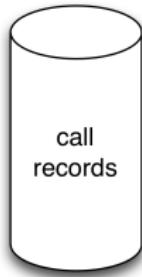
Anything that's cool

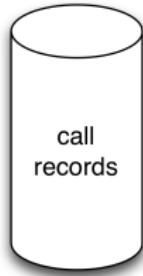
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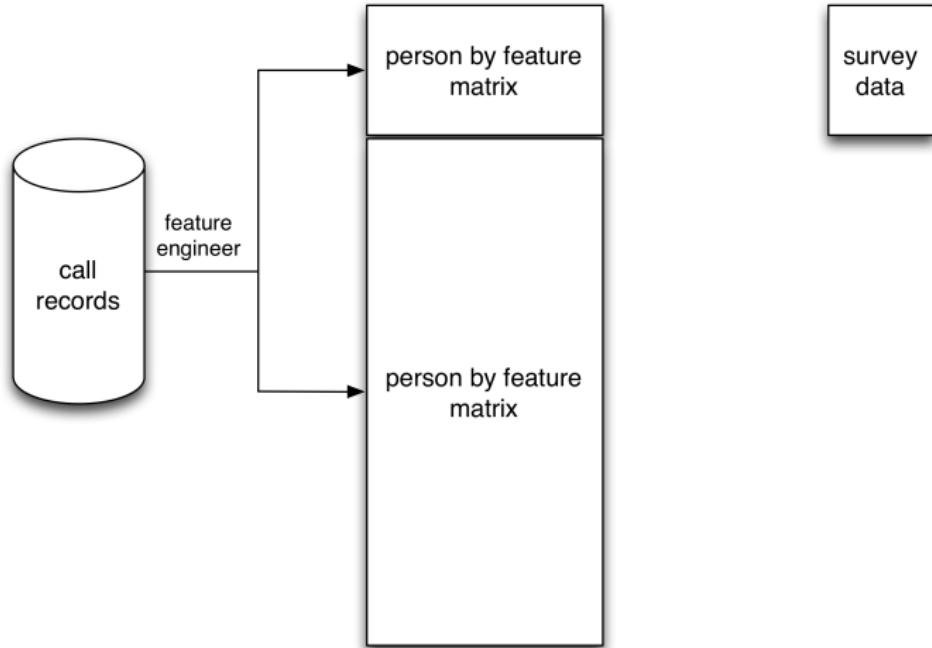
Predicting poverty and wealth from mobile phone metadata

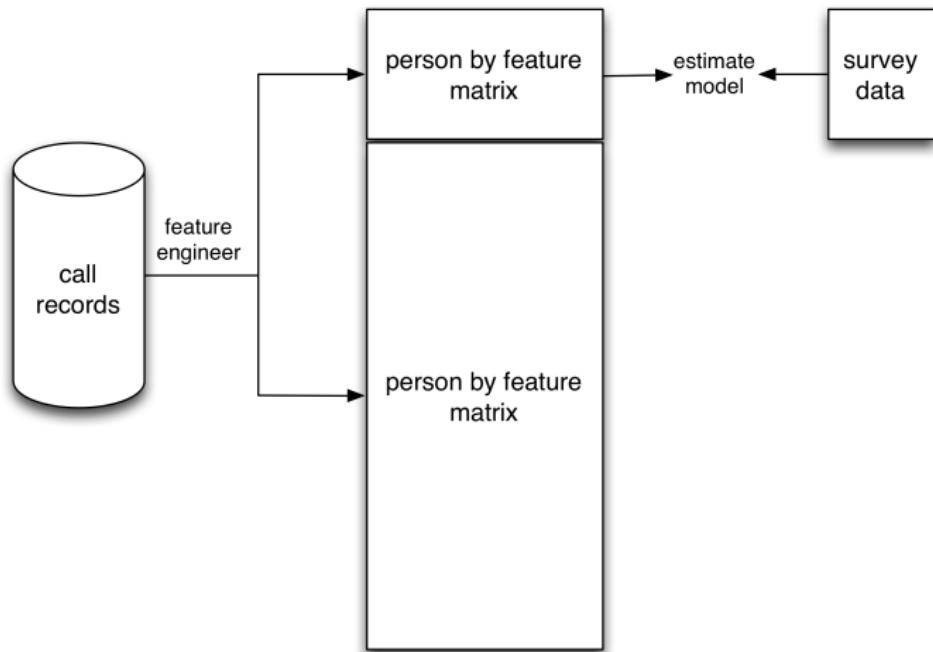
Joshua Blumenstock,^{1*} Gabriel Cadamuro,² Robert On³

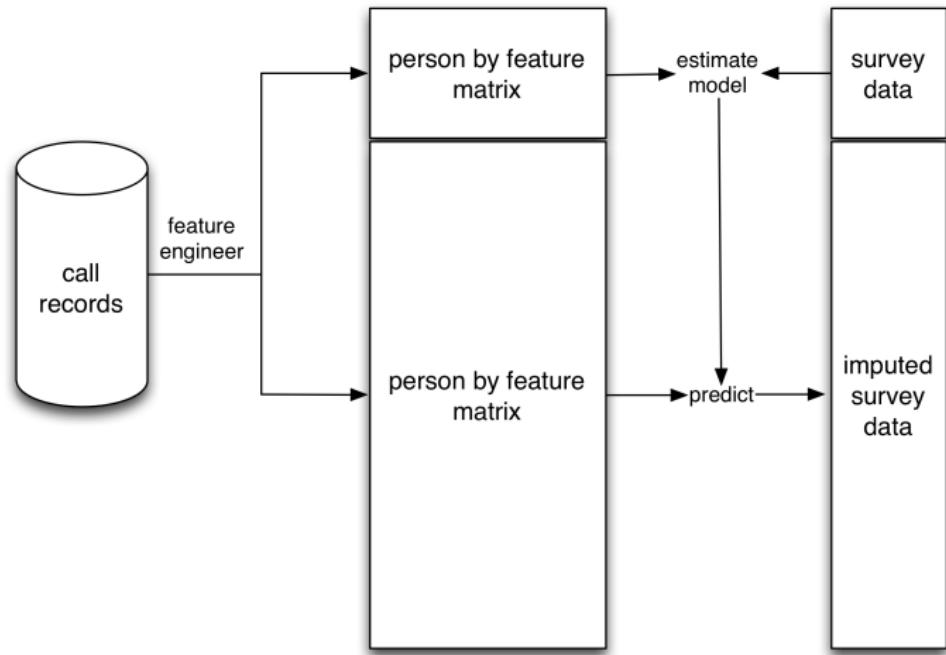
<http://dx.doi.org/10.1126/science.aac4420>

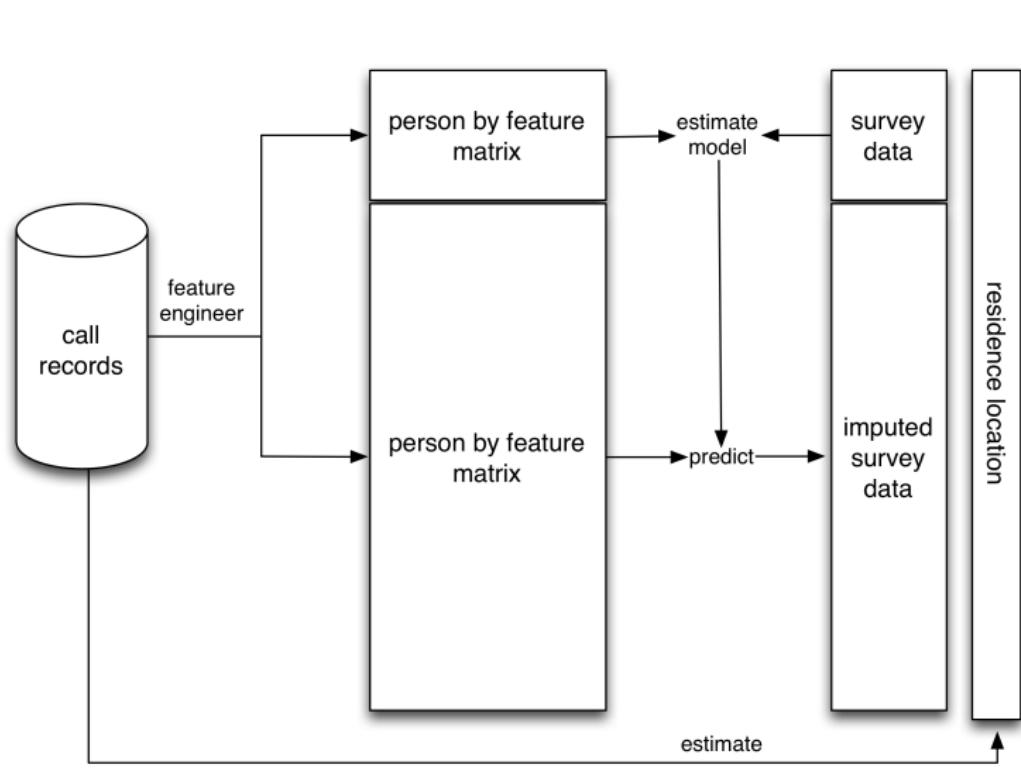


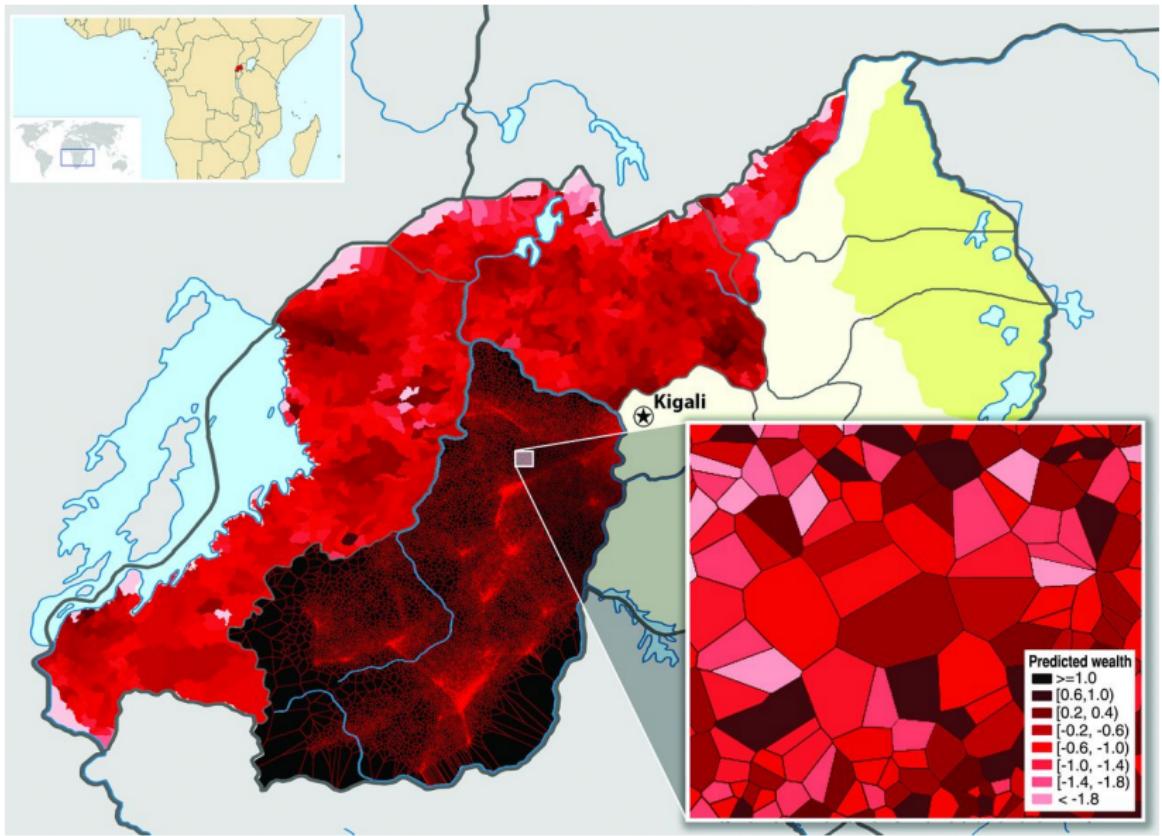




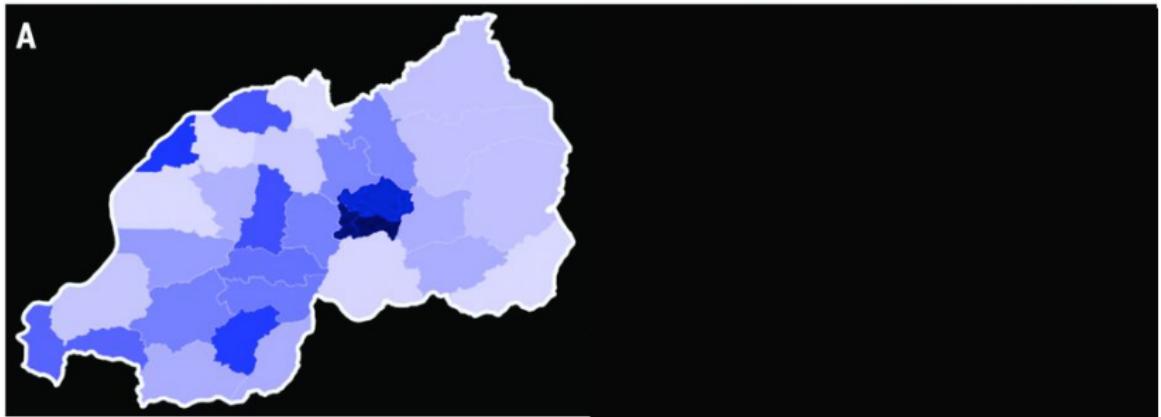




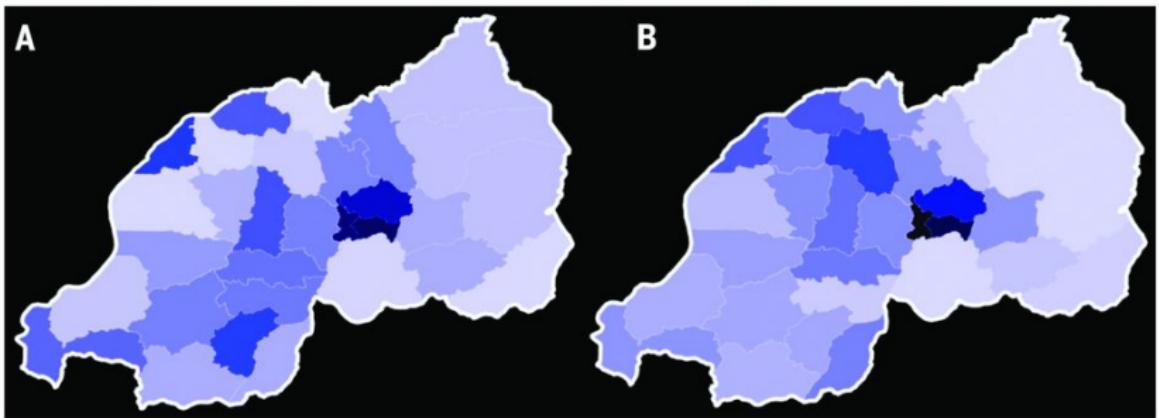




Blumenstock et al. (2015), Figure 2

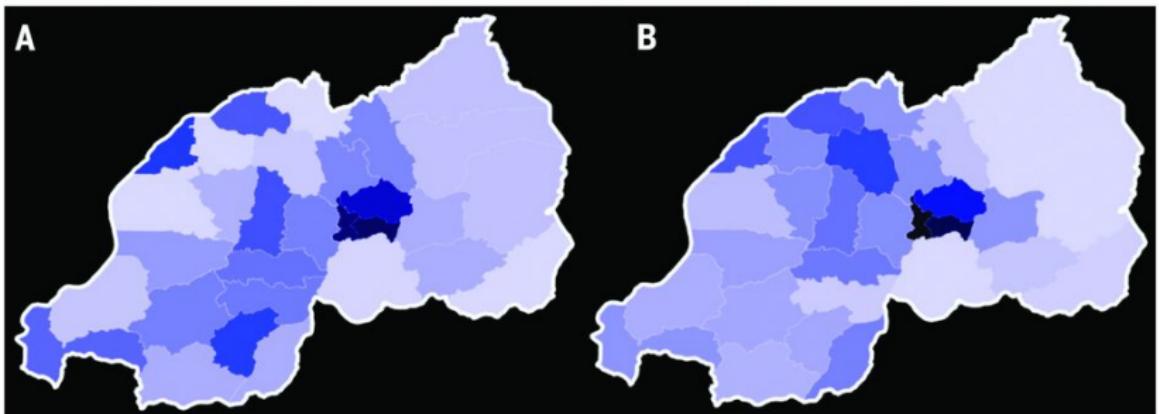


Blumenstock et al.



Blumenstock et al.
Survey

Demographic and Health



Blumenstock et al.
Survey

Demographic and Health
Survey

- ▶ 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:%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

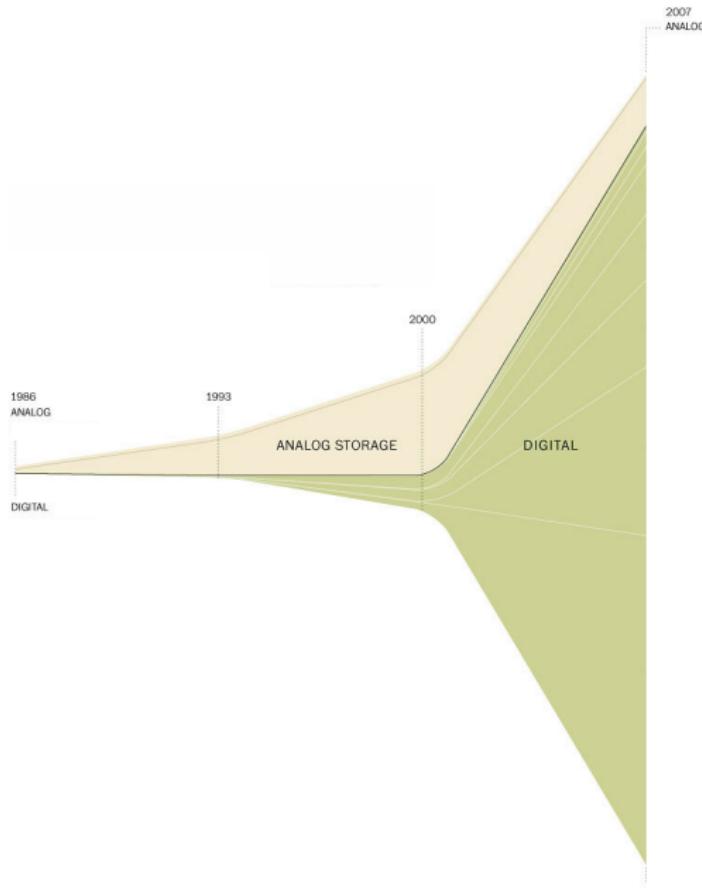
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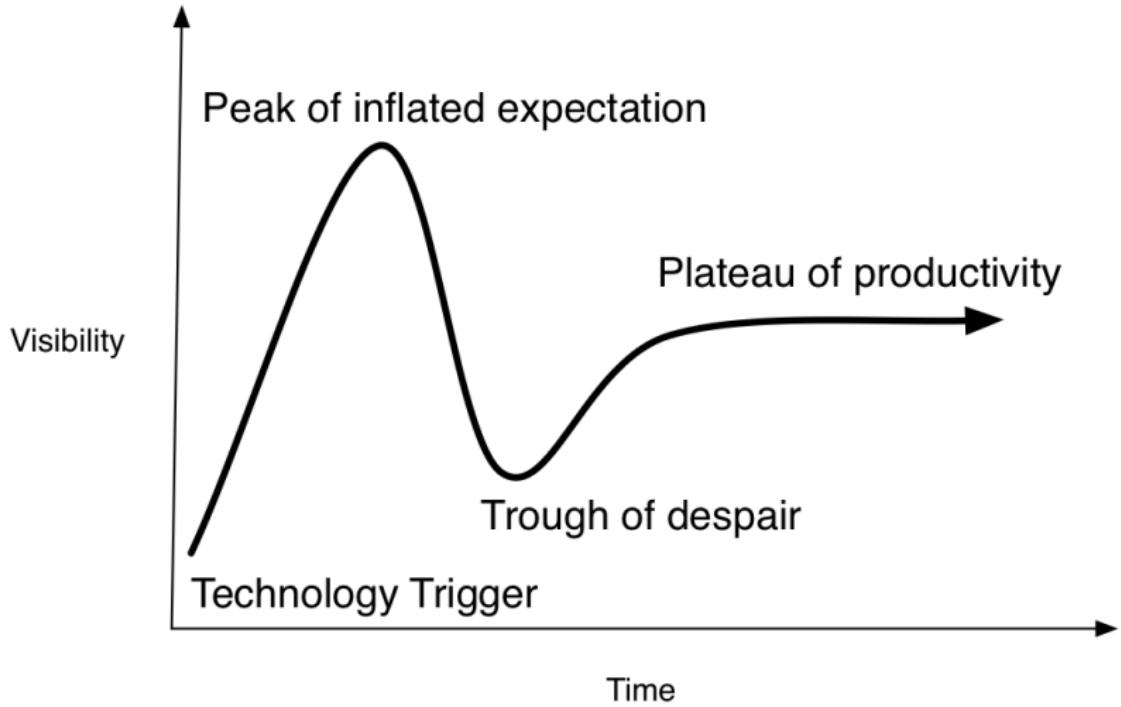
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Isn't computational social science a fad?

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No





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

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

Social Scientists ←→ Data Scientists

What is data science?

Anything that's cool

What is data science?

50 Years of Data Science

David Donoho

Department of Statistics, Stanford University, Standford, CA

<https://doi.org/10.1080/10618600.2017.1384734>

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- ▶ learning from data

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

Social Scientists ←→ Data Scientists

- ▶ Data science alone is not enough if we want to study social behavior

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

Hanna 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

Let's get started . . .