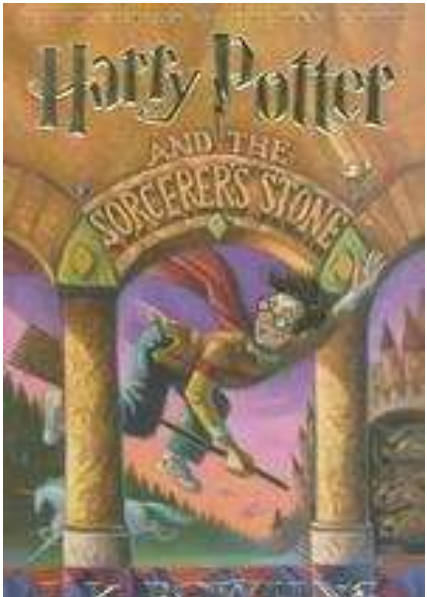
Pre-read for Tuesday, October 6: Social fads, part 1

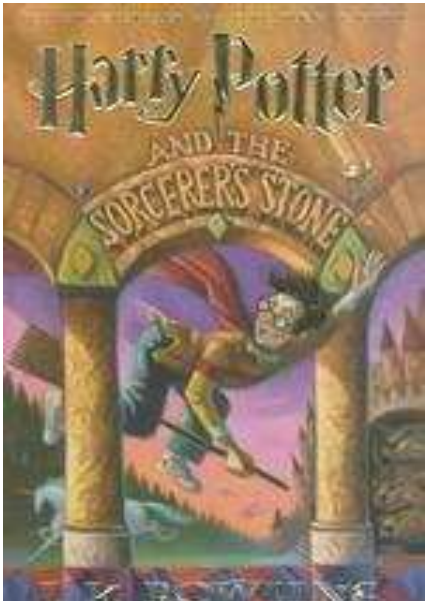
Matthew J. Salganik

COS 597E/SOC 555 Limits to prediction
Fall 2020, Princeton University

Experimental Study of Inequality and Unpredictability in an Artificial Cultural Market

Matthew J. Salganik,[1,2*] Peter Sheridan Dodds,[2*] Duncan J. Watts[1,2,3*]


Harry Potter
AND THE
SORCERER'S STONE



- Wild success
- Rejected by eight publishers

This seems like a strange combination.

- Set box office records, won 6 Oscars, and launched a multi-billion dollar franchise
- Rejected by United Artists and Universal before being made by Fox

- One of the most popular shows of the decade
- Rejected by ABC, CBS, and NBC before being picked up by Fox

Puzzling nature of success for cultural objects (books, movies, piece of art, music, TV shows)

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- **unpredictability in the success of objects**

Psychological explanation:
People agree on what's good, but people are hard to predict

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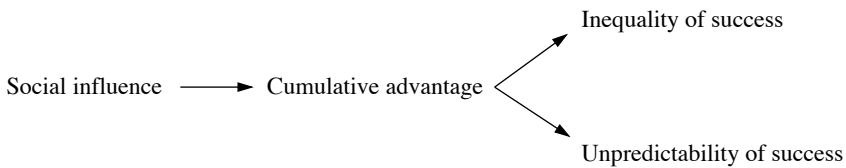
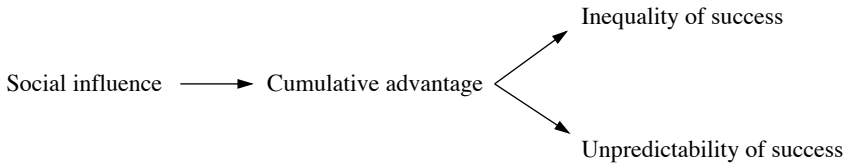
Sociological explanation:
The collective outcomes of inequality and unpredictability of success both arise from an individual-level process of social influence





Problems with observational data:

- don't know what would have happened without social influence
- can't see multiple "histories" to observe unpredictability

Instead of using observational data we are going to run an experiment because

- can run the same process multiple times under exactly the same conditions, allows us to see multiple "histories"
- can control the information that people have about the behavior of others

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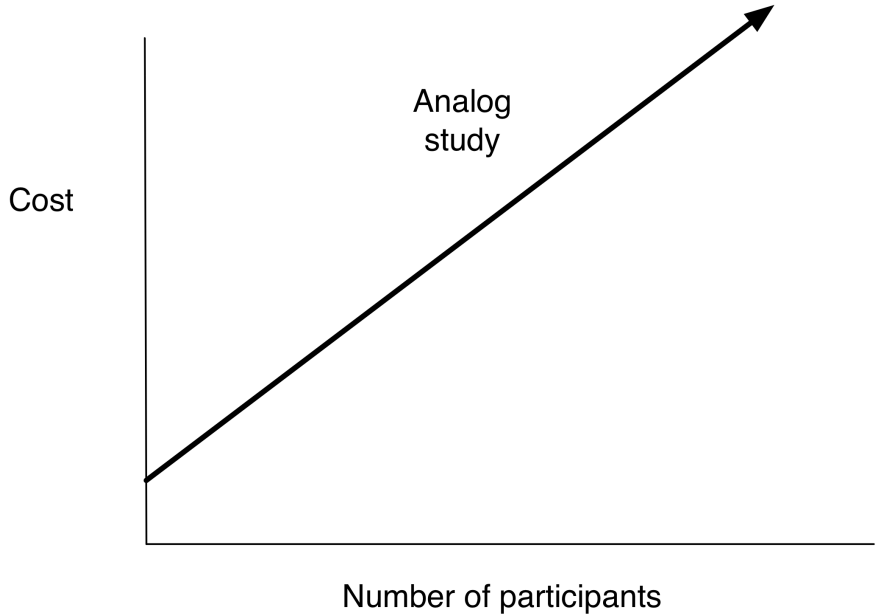
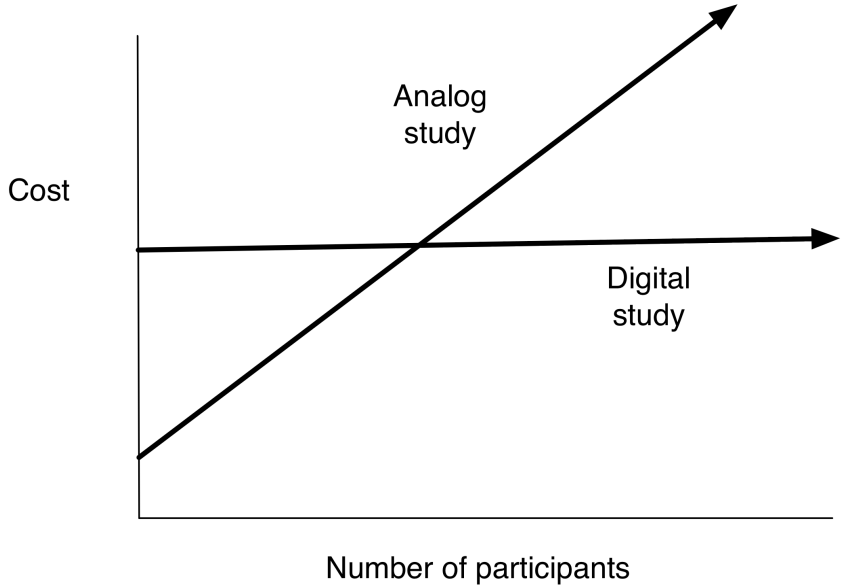
But, this experiment is different from most,

- experiments in psychology and economics have **individual** as unit of analysis, require **hundreds** of participants
- these sociological experiments have **collective outcome** as unit of analysis, require **thousands** of participants

Web-based experiment allow for such large sample sizes because each additional participant has no cost (total $n = 27,267$)


Analog
study
Cost
Number of participants


Analog
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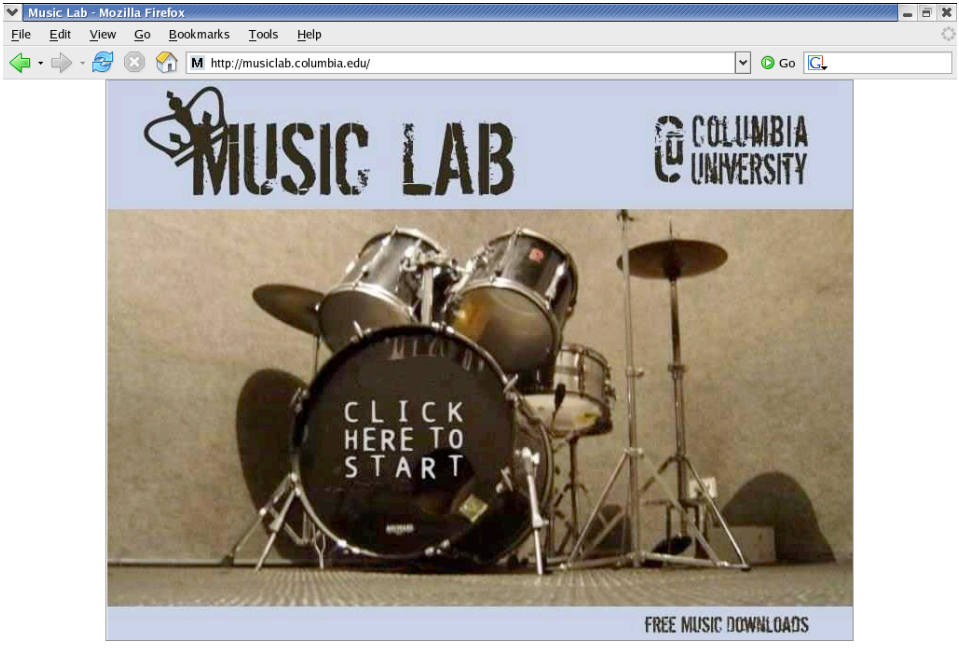
Cost
Digital
study
Number of participants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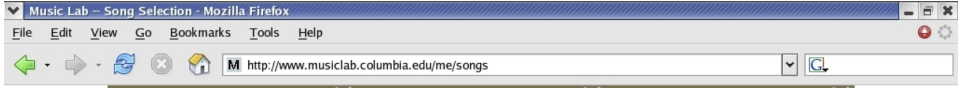

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HARTSFIELD: "enough is enough"	20	GO MOREDCAI: "it does what its told"	12	UNDO: "while the world passes"	24
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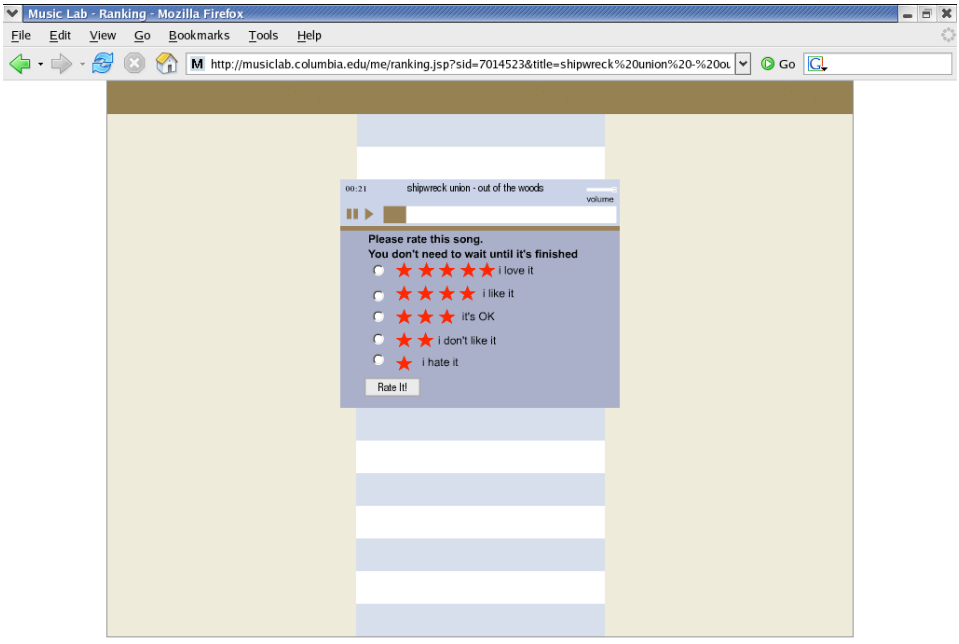
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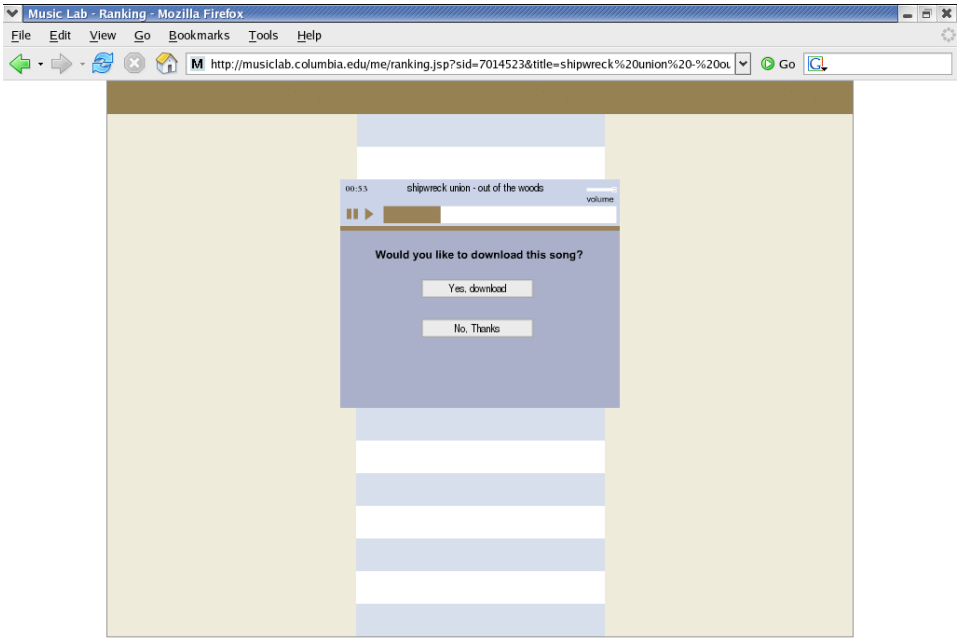
shipwreck union - out of the woods
volume
Please rate this song.
You don't need to wait until it's finished
i love it
i like it
it's OK
i don't like it
i hate it
Rate It!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shipwreck union - out of the woods
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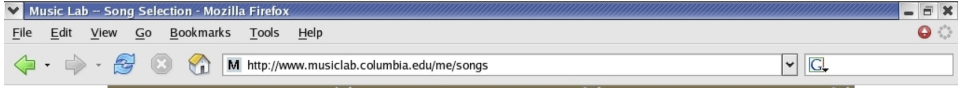
Yes, download
No, Thanks



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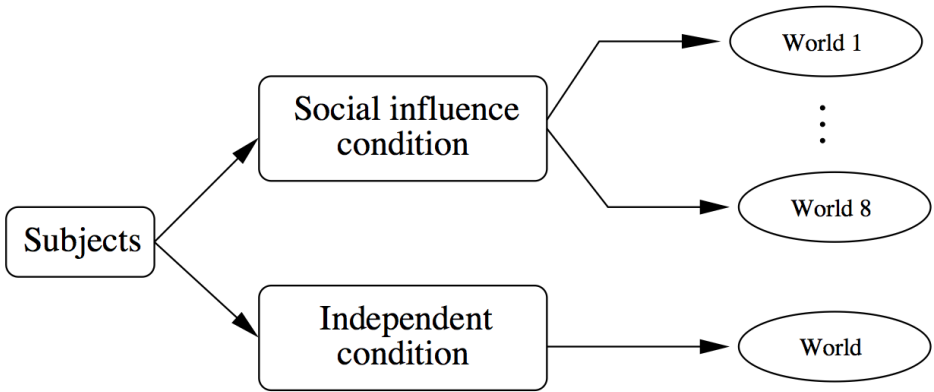
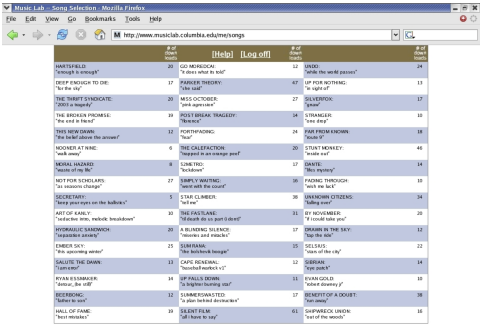
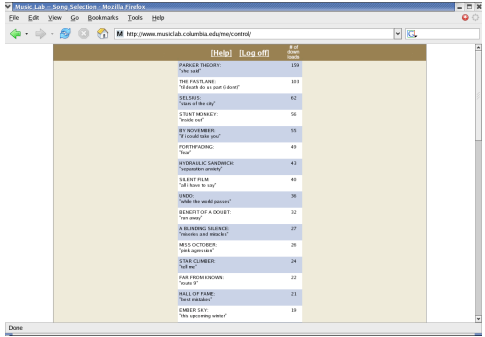

Subjects
Social influence condition
Independent condition
World 1
World 8
World



(a) Experiment 1, Weaker signal



(b) Experiment 2, Stronger signal

Reading notes:

- Notice the definition of unpredictability

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- Looking at Fig 3 would you say the results are completely unpredictable?

Exploring limits to prediction in complex social systems

Travis Martin
University of Michigan
Dept. of Computer Science
Ann Arbor, MI
travisbm@umich.edu

Jake M. Hofman
Microsoft Research
641 6th Ave, Floor 7
New York, NY
jmh@microsoft.com

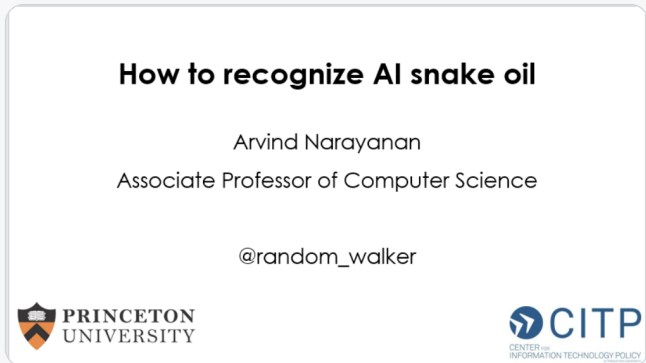
Amit Sharma
Microsoft Research
amshar@microsoft.com

Ashton Anderson
Microsoft Research
ashton@microsoft.com

Duncan J. Watts
Microsoft Research
duncan@microsoft.com

Arvind Narayanan @random_walker · Nov 19, 2019

Much of what's being sold as "AI" today is snake oil. It does not and cannot work. In a talk at MIT yesterday, I described why this happening, how we can recognize flawed AI claims, and push back. Here are my annotated slides: cs.princeton.edu/~arvindn/talks...



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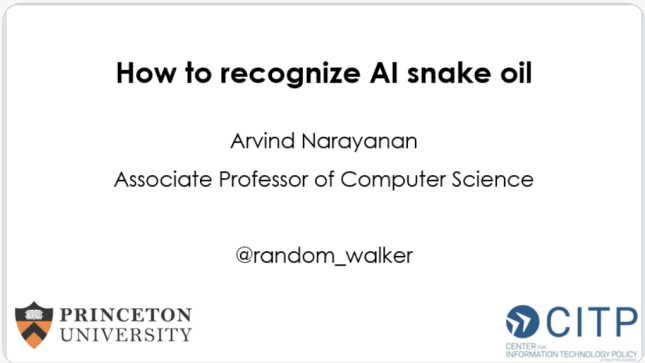

168 5.4K 10.1K

Everyone's an Influencer: Quantifying Influence on Twitter

Eytan Bakshy*
University of Michigan, USA
ebakshy@umich.edu

Jake M. Hofman
Yahoo! Research, NY, USA
hofman@yahoo-inc.com

Winter A. Mason
Yahoo! Research, NY, USA
winteram@yahoo-inc.com

Duncan J. Watts
Yahoo! Research, NY, USA
djw@yahoo-inc.com

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- Travis Martin tried to compare them and could not.

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- What is the fundamental limit and how close are we?
- Is predicting re-tweets a setting where we think predictions should be successful? On the one hand lots of data. On the other hand, think of results from MusicLab.

Prediction and explanation in social systems

Jake M. Hofman,* Amit Sharma,* Duncan J. Watts*

Reading notes:

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- Argue for more careful way of evaluating predictions.
- We should care about quantitatively finding fundamental limits to prediction whether we are computer scientist or social scientist.

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