

School of
Information Sciences

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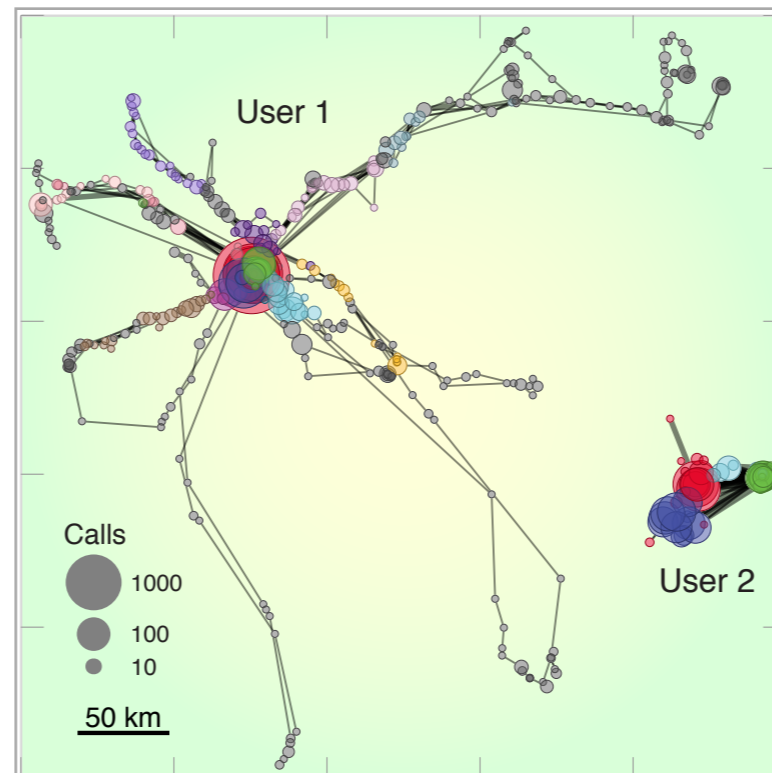
Research interests

- ▶ Understand **human and social dynamics** from big data
- ▶ Develop computational approaches for **mining and visualizing** large-scale, time-varying, heterogeneous, multi-relational, and semistructured data

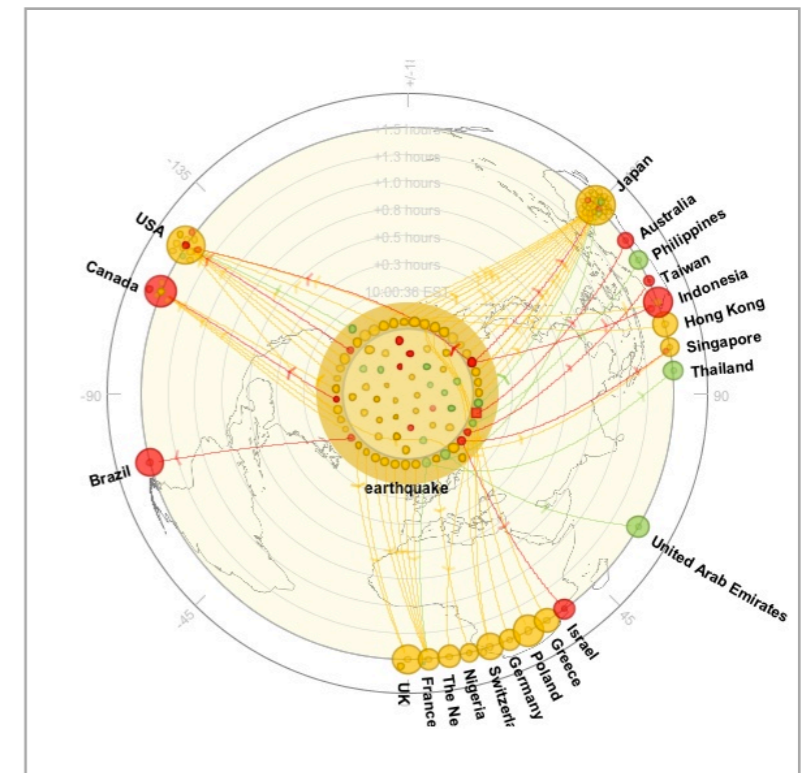
Current projects



social media



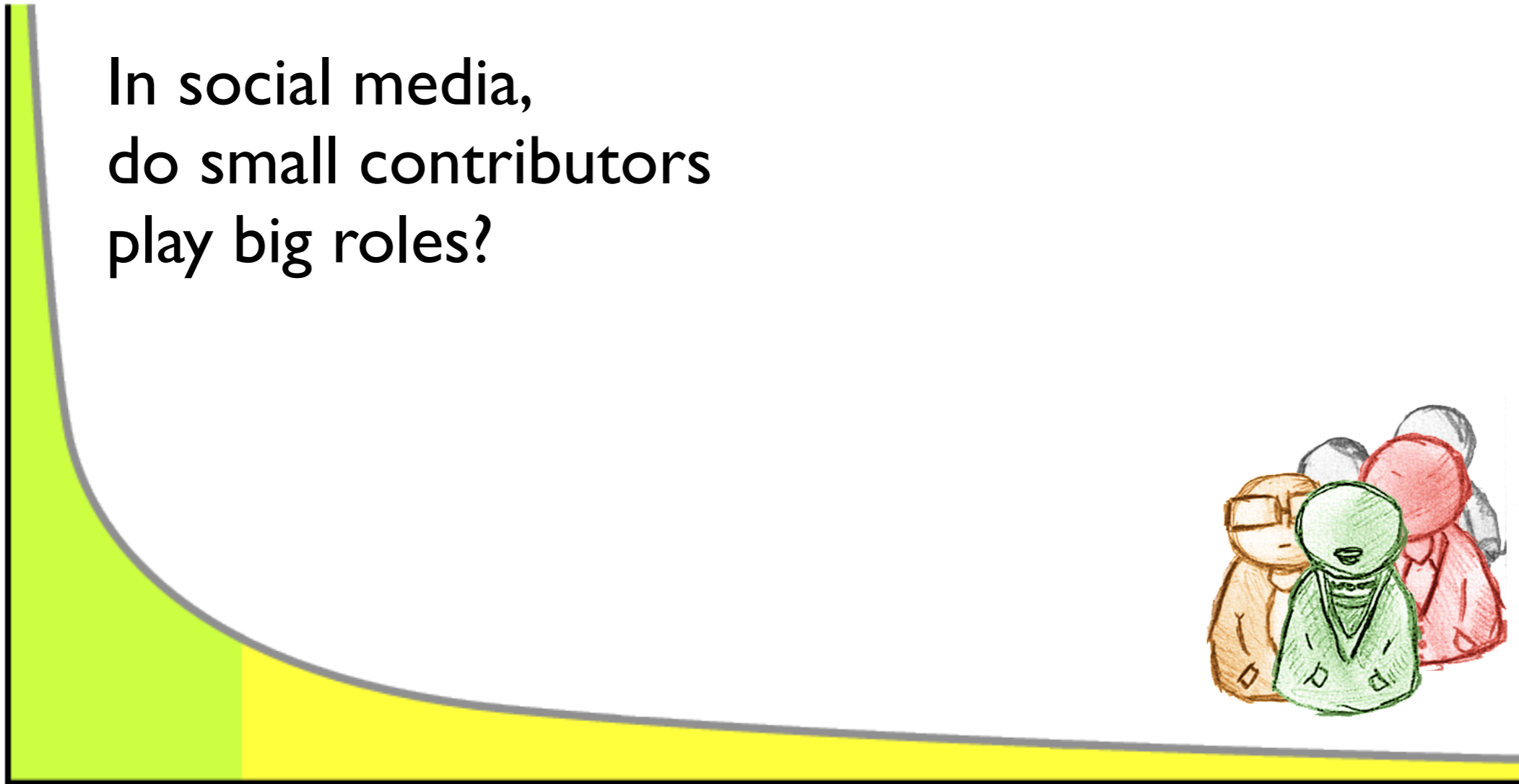
human mobility



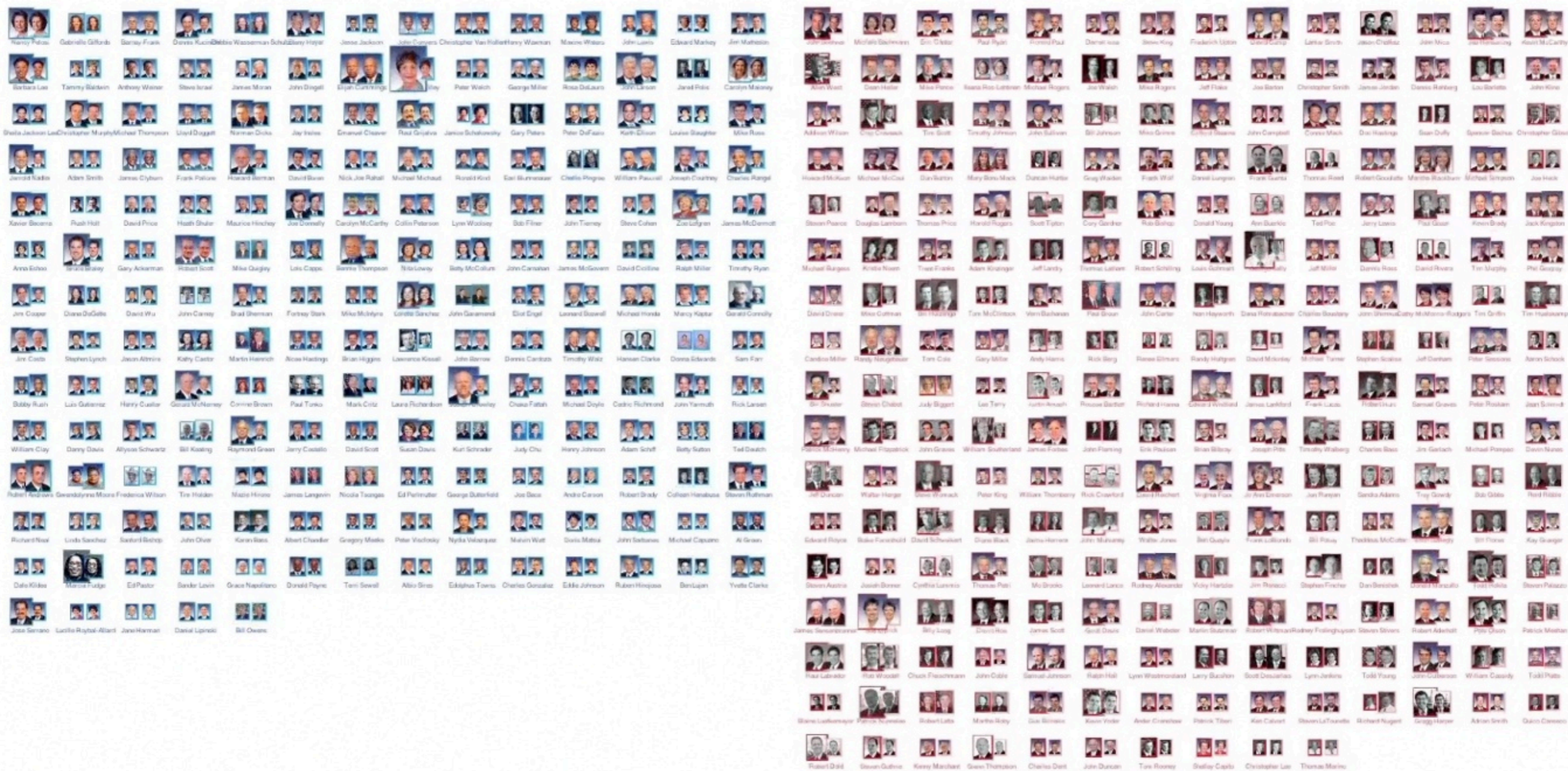
information
interface

How will a society be informed? How do people share opinions?

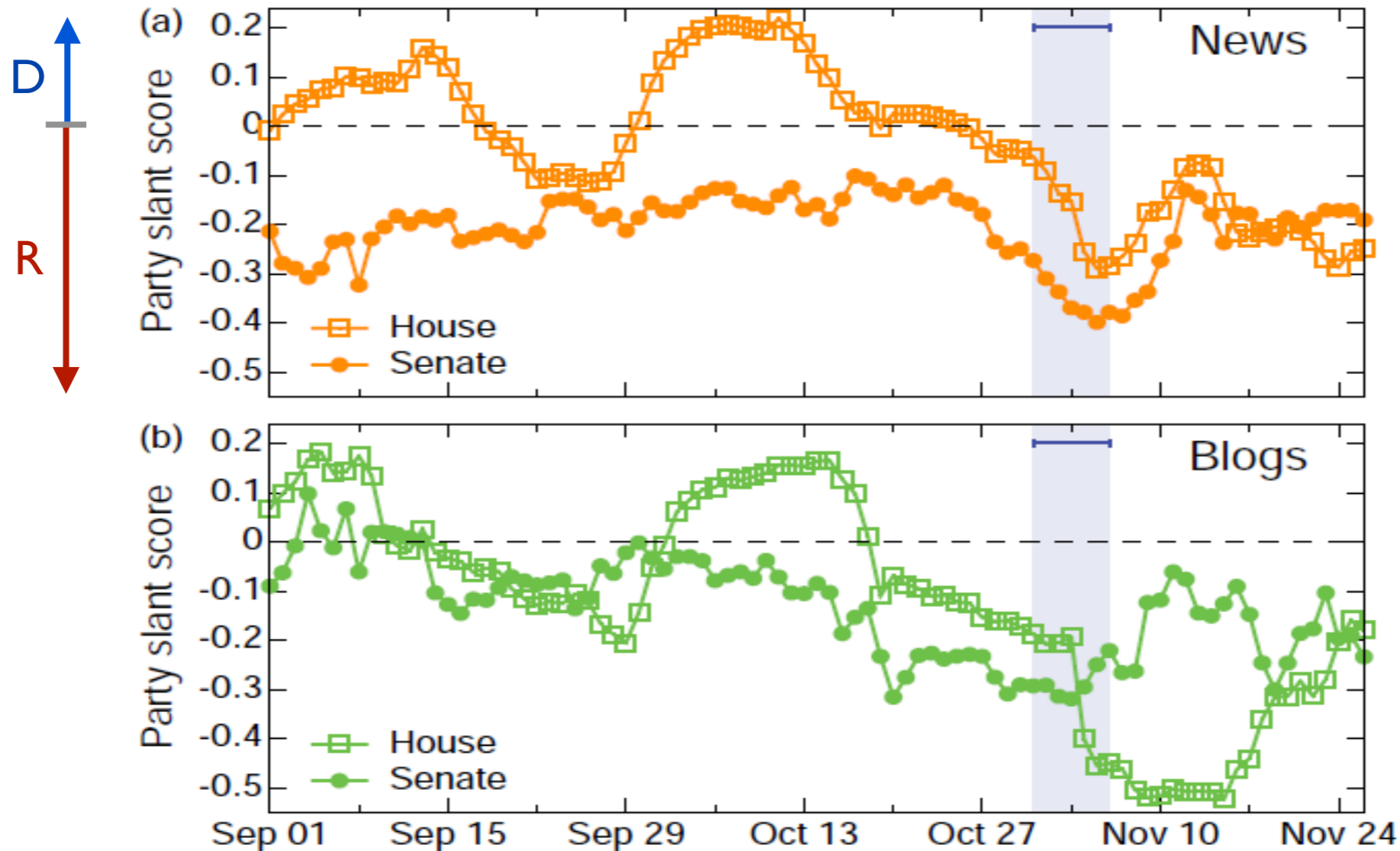
In social media,
do small contributors
play big roles?



Study social media bias via daily frequency of news/blog coverage on the U.S. Congress

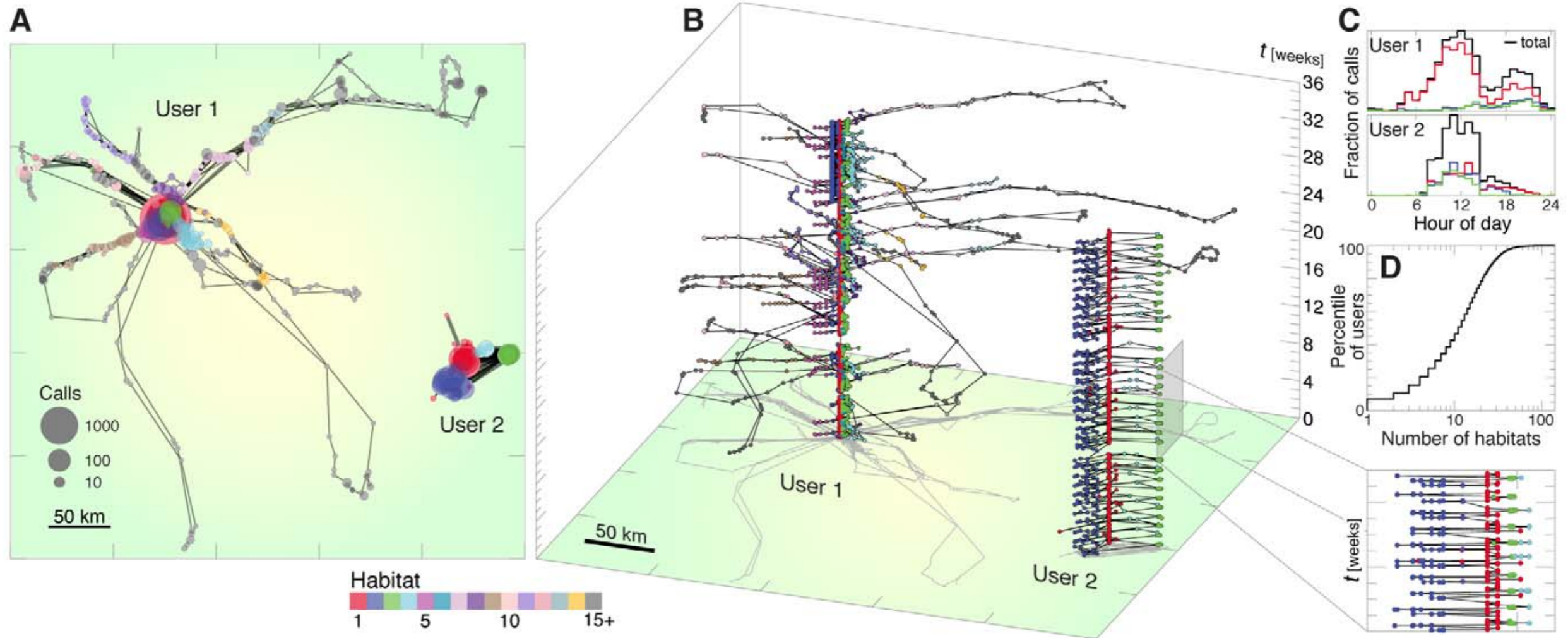


Social media bias

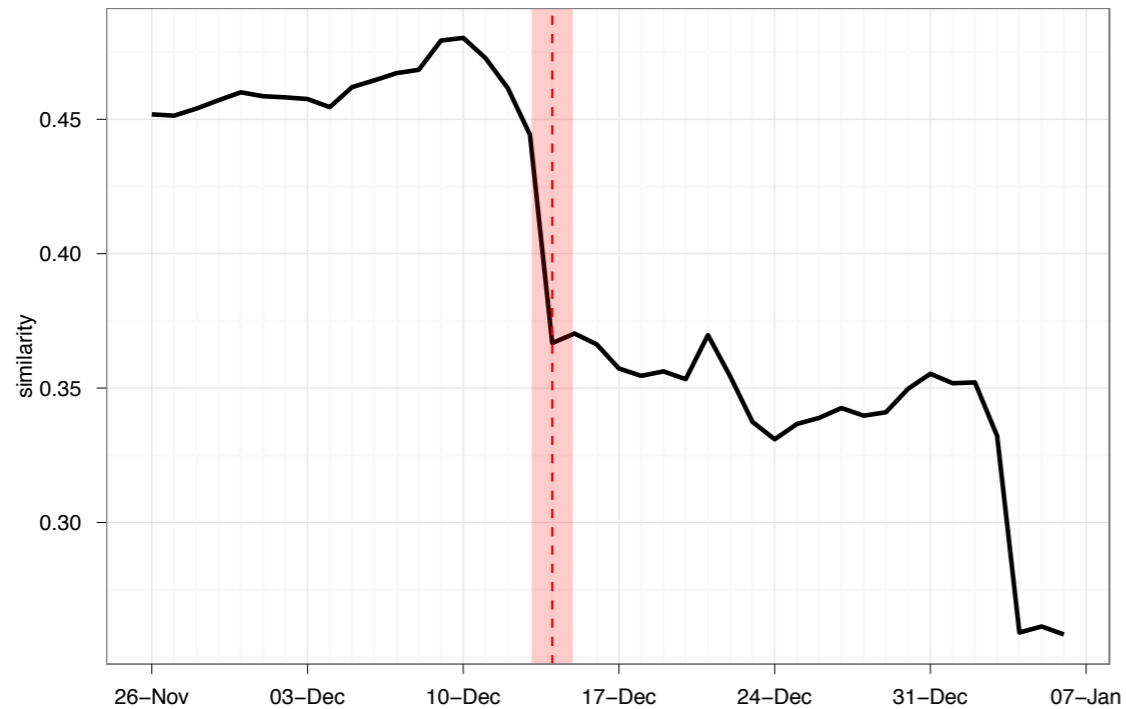


Distinct characteristics of how News and Blogs cover the US congress.

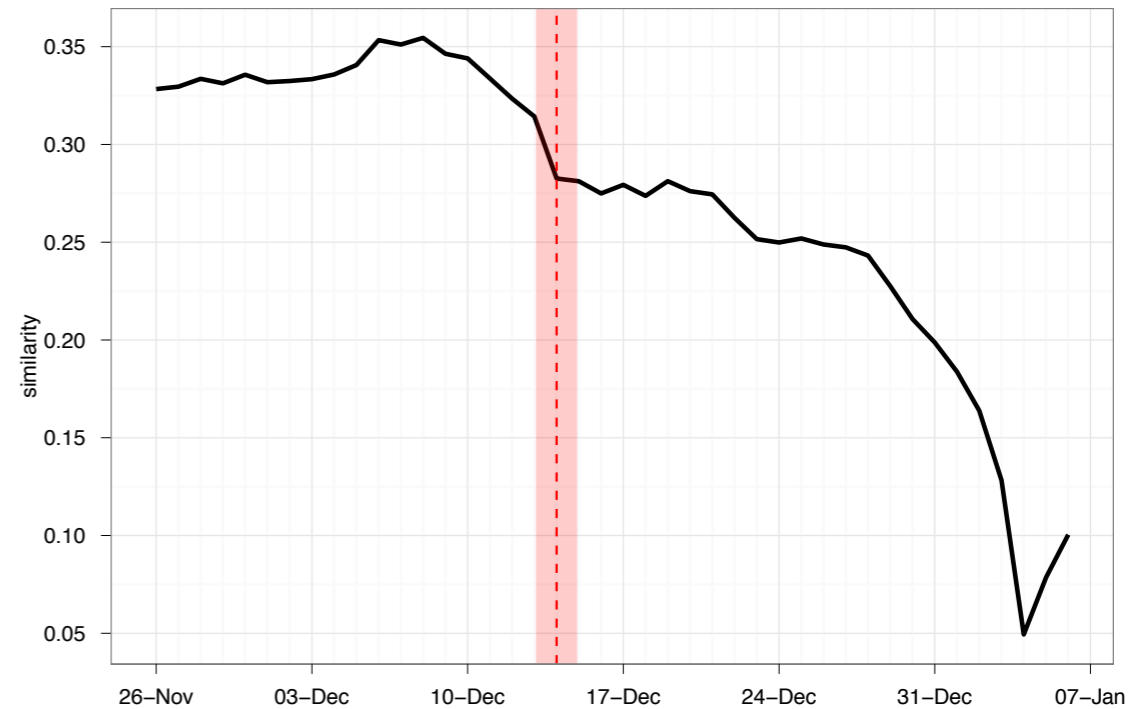
Human mobility



Habitats: characterize the regular spatiotemporal flows of human mobility using country-wide mobile phone call logs



movement



communication

Detecting changes in CDRs associated with **economic disruption** (layoff events)

Tools for observing

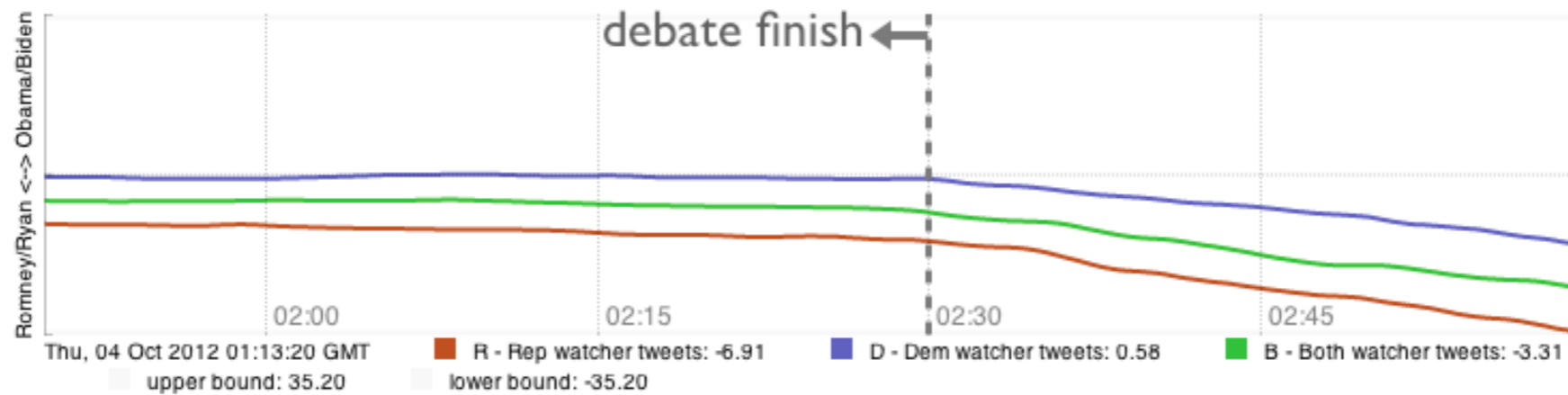
Real reaction

Real event

Real time

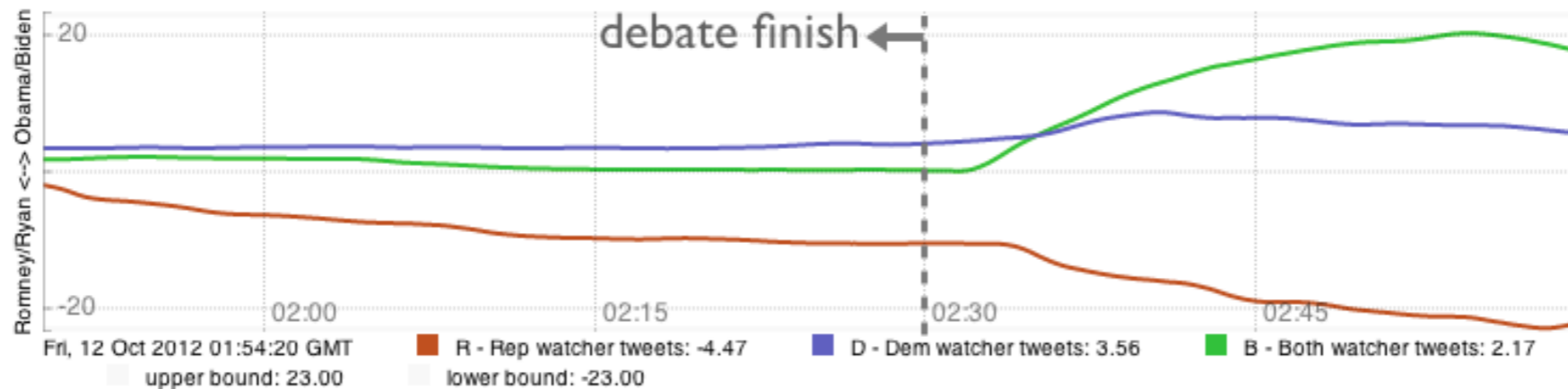
Real-time debate tweet meter

Winning index: Debate 1



Updated at: Wed Oct 03 2012 22:59:50 GMT-0400 (EDT)

Winning index: Debate 2

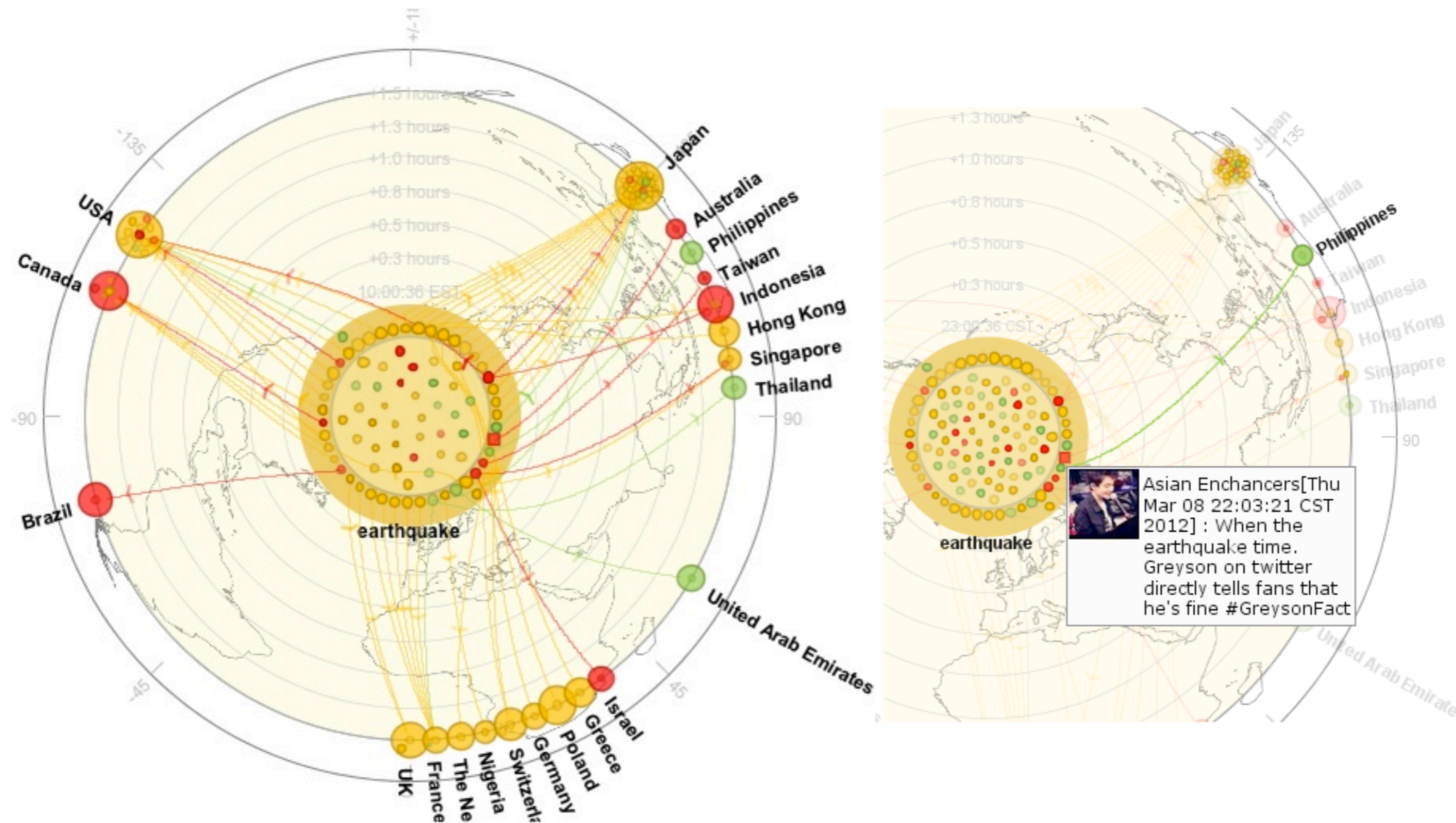


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<http://www.vispolitics.com/>

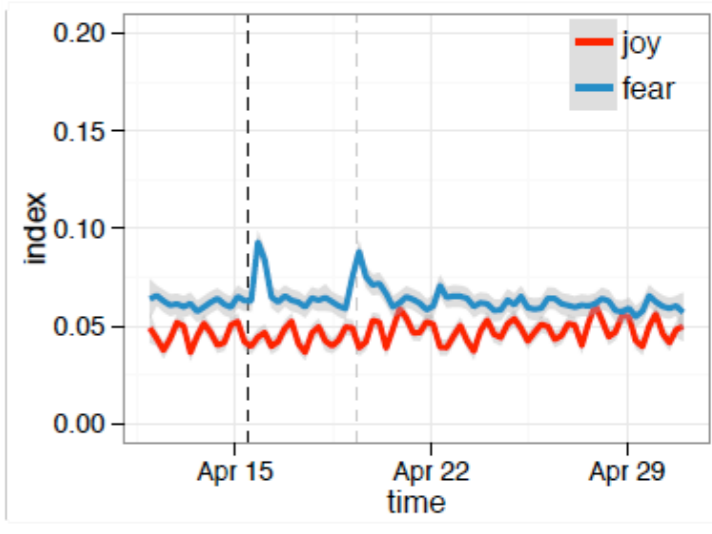
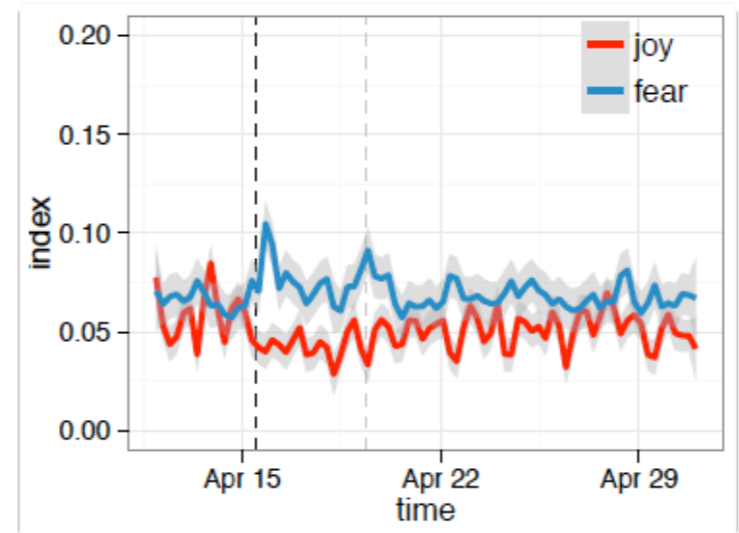
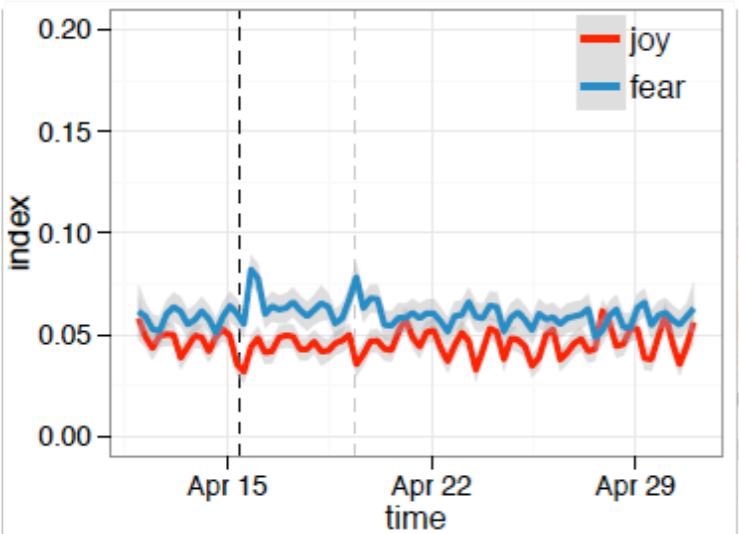
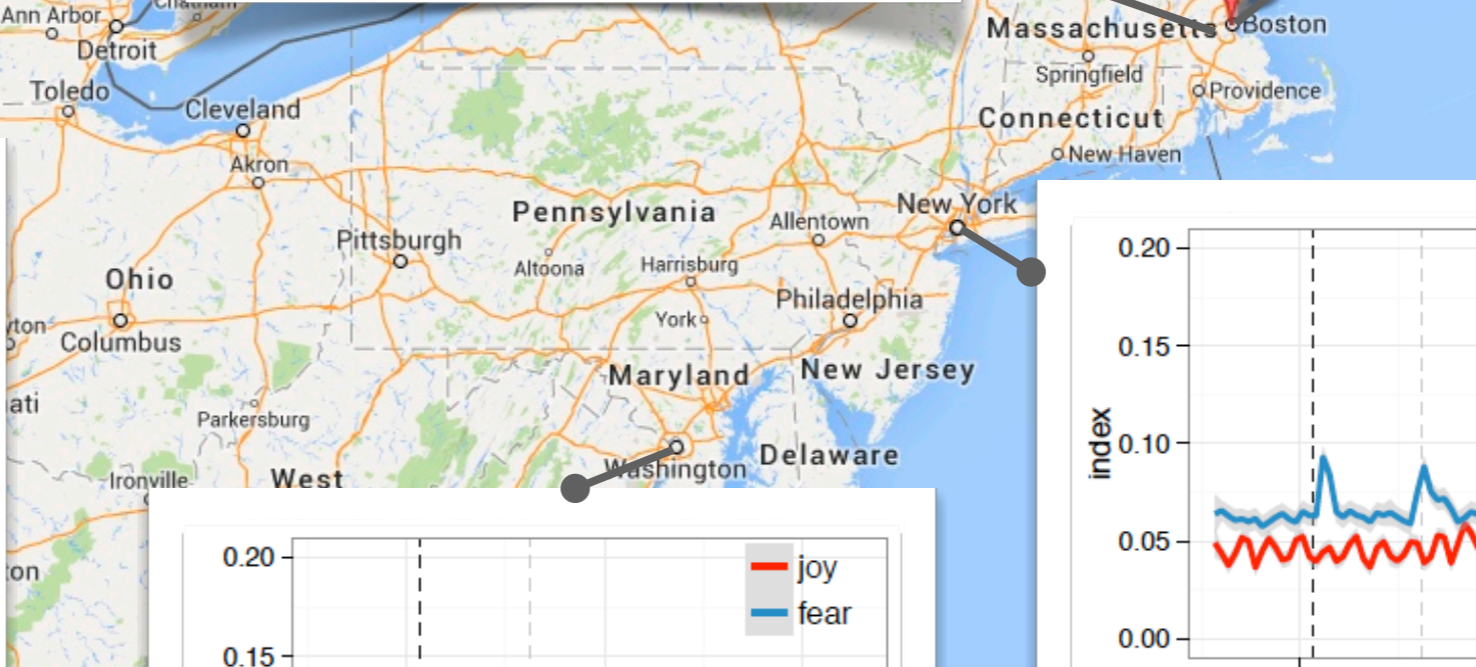
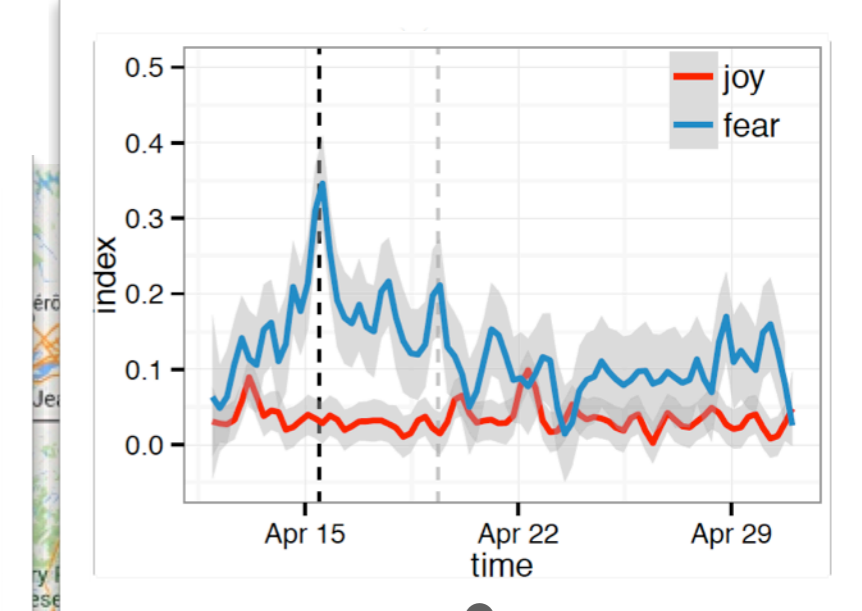
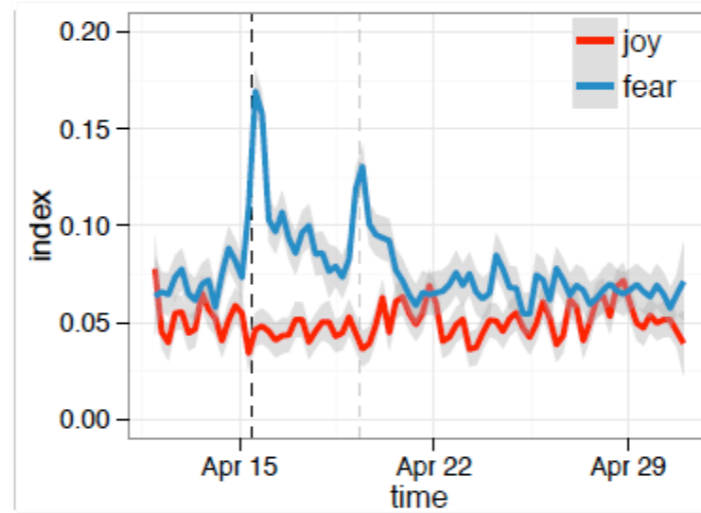
Whisper

when, where and how the ideas are dispersed



6.8 Magnitude Earthquake in Japan, March 2012

Detecting ripples of fears and comfort during Boston bombings



Teaching philosophy

- ▶ Cultivate students' critical thinking and practical skills in data analytics
- ▶ Course in Fall 2013: ***Data Mining*** (graduate course)
 - ▶ Critique the methods and results from a data mining practice
 - ▶ Design and implement data mining applications to solve real-world problems

Sample student projects

- ▶ Civic science
- ▶ User behavior analysis
- ▶ Economics
- ▶ Recommendation and sentiments
- ▶ Others

Sample student projects

- ▶ Discovering the demographic, political, and physiographic structure of Allegheny County, Pennsylvania
- ▶ From media reporting to international relations
- ▶ Sequence Mining and Feature Engineering in Predicting Student Learning Experience Patterns
- ▶ What Factors Affect the Performance of Online Q&A Communities? A Case Study in Stack Exchange
- ▶ How online reviews influence the movie box-office revenue
- ▶ Explore the spatial-temporal pattern for trending venues
- ▶ Identify keywords and tags from millions of text questions
- ▶ Personalize Expedia Hotel Search

Recent publications

- ▶ Lin, Y.-R., Margolin, D., Keegan, B., Baronchelli, A. and Lazer, D. (2013). #Bigbirds Never Die: Understanding Social Dynamics of Emergent Hashtag, Proceedings of the 7th International AAAI Conference on Weblogs and Social Media (ICWSM 2013)
- ▶ Lin, Y.-R., Margolin, D., Keegan, B. and Lazer, D. (2013). Voices of Victory: A Computational Focus Group Framework for Tracking Opinion Shift in Real Time, Proceeding of the 22th International Conference on World Wide Web (WWW 2013)
- ▶ Bagrow, J.P. and Lin, Y.-R. (2012) Mesoscopic Structure and Social Aspects of Human Mobility. PLoS ONE 7(5): e37676.
- ▶ Cao, N., Lin, Y.-R., Sun, X., Lazer, D., Liu, S. and Qu, H. (2012), Whisper: Tracing the Spatiotemporal Process of Information Diffusion in Real Time, IEEE Transactions on Visualization and Computer Graphics (also Proceedings of InfoVis 2012)
- ▶ Lin, Y.-R., Sundaram, H., Choudhury, M. D. and Kelliher, A. (2012). Discovery Multi-relational Structure in Social Media Streams. ACM Transactions on Multimedia Computing, Communications and Applications (TOMCCAP), Vol 8, Issue 1, Article 4

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Thanks!