Web Data – Twitter

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Why should we care about social media?

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- Instagram has 300+ million active users (26% of online adults in the US)

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Why should we care about social media?

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2. Social media usage is increasing

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- "Traditional" media outlets rely on social media to promote their content
- 50% of social media users in U.S. share information about news stories, images or videos about current events
- 46% have discussed a news issue or event on social media

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Social media as a new campaign tool:

> *"Let me tell you about Twitter. I think that maybe I wouldn't be here if it wasn't for Twitter. [...] Twitter is a wonderful thing for me, because I get the word out... I might not be here talking to you right now as president if I didn't have an honest way of getting the word out."*
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  - Affects how campaigns perceive voters (Hersh, 2015), but unclear if effective in mobilizing or persuading voters

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2. Social media usage is increasing
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4. Social media is a primary source of political information

Social media research

Two different approaches to the study of social media and politics:

1. Social media as a new source of information
   - Behavior, opinions, and latent traits
   - Interpersonal networks
   - Elite behavior
2. How social media usage affect social behavior
   - Mass protests
   - Political persuasion
   - Social capital
   - Political polarization

Social media as echo chambers?

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- ...increases political polarization (Sunstein, Prior)

Social media as echo chambers?

2013 SuperBowl

2012 Election

Barberá et al (2015) "Tweeting From Left to Right: Is Online Political Communication More Than an Echo Chamber?" *Psychological Science*

Social media as echo chambers?

Fig. 3. Cross-cutting content at each stage in the diffusion process. (**A**) Illustration of how algorithmic ranking and individual choice affect the proportion of ideologically cross-cutting content that individuals encounter. Gray circles illustrate the content present at each stage in the media exposure process. Red circles indicate conservatives, and blue circles indicate liberals. (**B**) Average ideological diversity of content (i) shared by random others (random), (ii) shared by friends (potential from network), (iii) actually appeared in users' News Feeds (exposed), and (iv) users clicked on (selected).

Bakshy, Messing, & Adamic (2015) "Exposure to ideologically diverse news and opinion on Facebook". *Science.*

Twitter data

Twitter APIs

Two different methods to collect Twitter data:

1. REST API:

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Important limitation: tweets can only be downloaded in real time (exception: user timelines, $\sim$ 3,200 most recent tweets are available)

Anatomy of a tweet

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Tweets are stored in JSON format:


```
{ "created_at": "Wed Nov 07 04:16:18 +0000 2012",
"id": 266031293945503744,
"text": "Four more years. http://t.co/bAJE6Vom",
"source": "web",
"user": {
"id": 813286,
"name": "Barack Obama",
"screen_name": "BarackObama",
"location": "Washington, DC",
"description": "This account is run by Organizing for Action staff.
Tweets from the President are signed -bo.",
"url": "http://t.co/8aJ56Jcemr",
"protected": false,
"followers_count": 54873124,
"friends_count": 654580,
"listed_count": 202495,
"created_at": "Mon Mar 05 22:08:25 +0000 2007",
"time_zone": "Eastern Time (US & Canada)",
"statuses_count": 10687,
"lang": "en" },
"coordinates": null,
"retweet_count": 756411,
"favorite_count": 288867,
"lang": "en"
}
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  - Save tweets in .json files, one per day.

Sampling bias?

Morstatter et al, 2013, *ICWSM*, "Is the Sample Good Enough? Comparing Data from Twitter's Streaming API with Twitter's Firehose":

- 1% random sample from Streaming API is not truly random
- Less popular hashtags, users, topics... less likely to be sampled
- But for keyword-based samples, bias is not as important

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González-Bailón et al, 2014, *Social Networks*, "Assessing the bias in samples of large online networks":

- Small samples collected by filtering with a subset of relevant hashtags can be biased
- Central, most active users are more likely to be sampled
- Data collected via search (REST) API more biased than those collected with Streaming API

Tweets from Korea: 40k tweets collected in 2014 (left)
Korean peninsula at night, 2003 (right). Source: NASA.

Who is tweeting from North Korea?

Twitter user: @uriminzok_engl

But remember...

PET PEEVE #208:
GEOGRAPHIC PROFILE MAPS WHICH ARE BASICALLY JUST POPULATION MAPS