Analyzing Twitter Data

ANALYZING SOCIAL MEDIA DATA IN PYTHON

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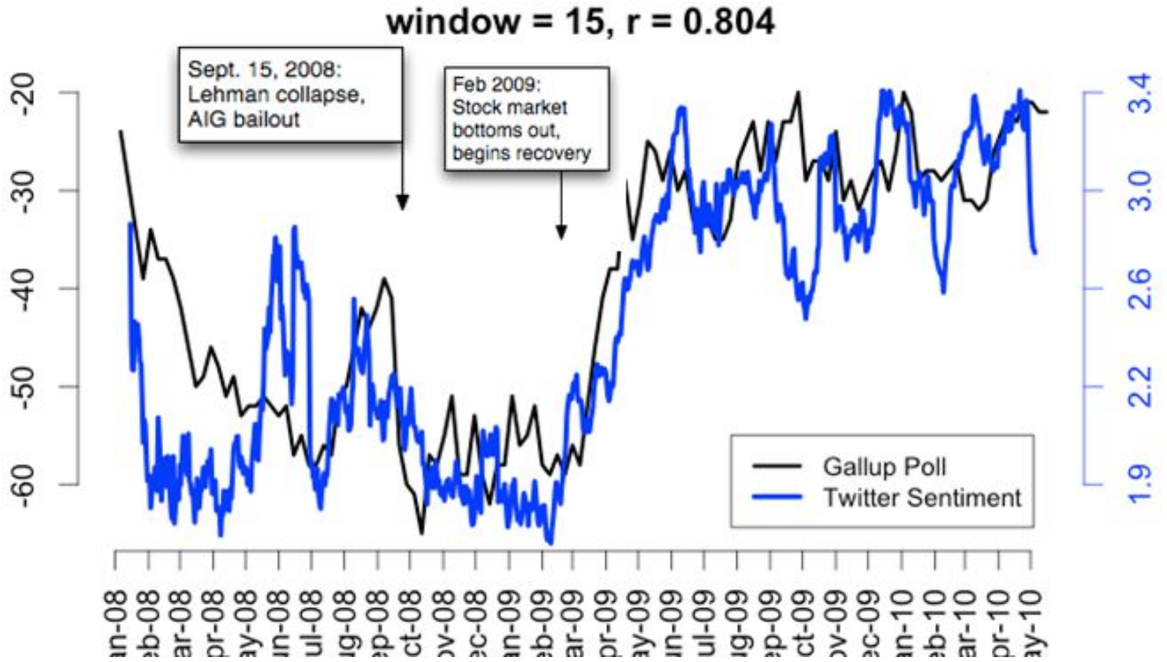
datacamp

Why Analyze Twitter Data?

Twitter sentiment versus Gallup Poll of Consumer Confidence

Brendan O'Connor, Ramnath Balasubramanyan, Bryan R. Routledge, and Noah A. Smith. 2010.
From Tweets to Polls: Linking Text Sentiment to Public Opinion Time Series. In ICWSM-2010



Why Analyze Twitter Data?

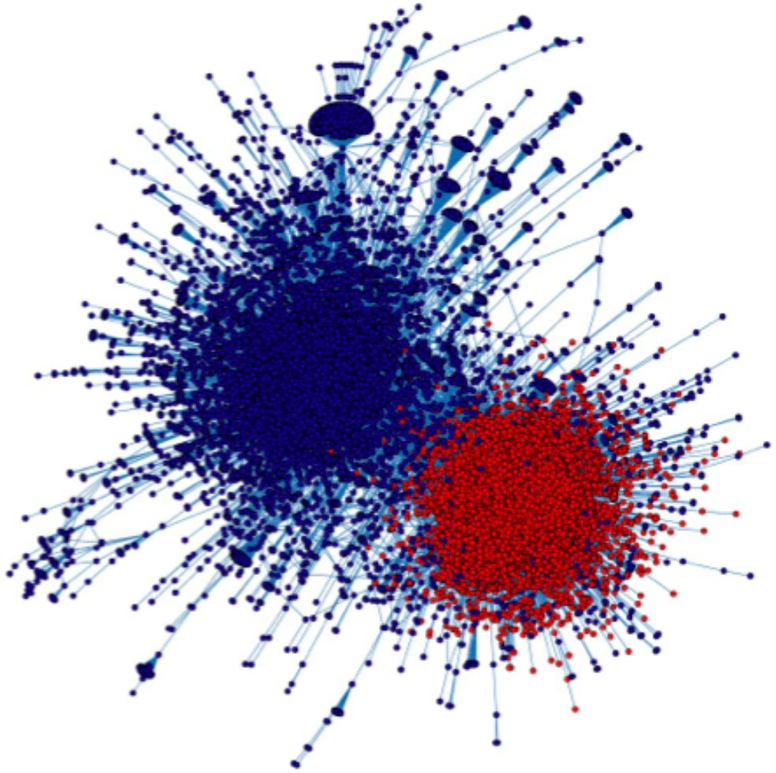


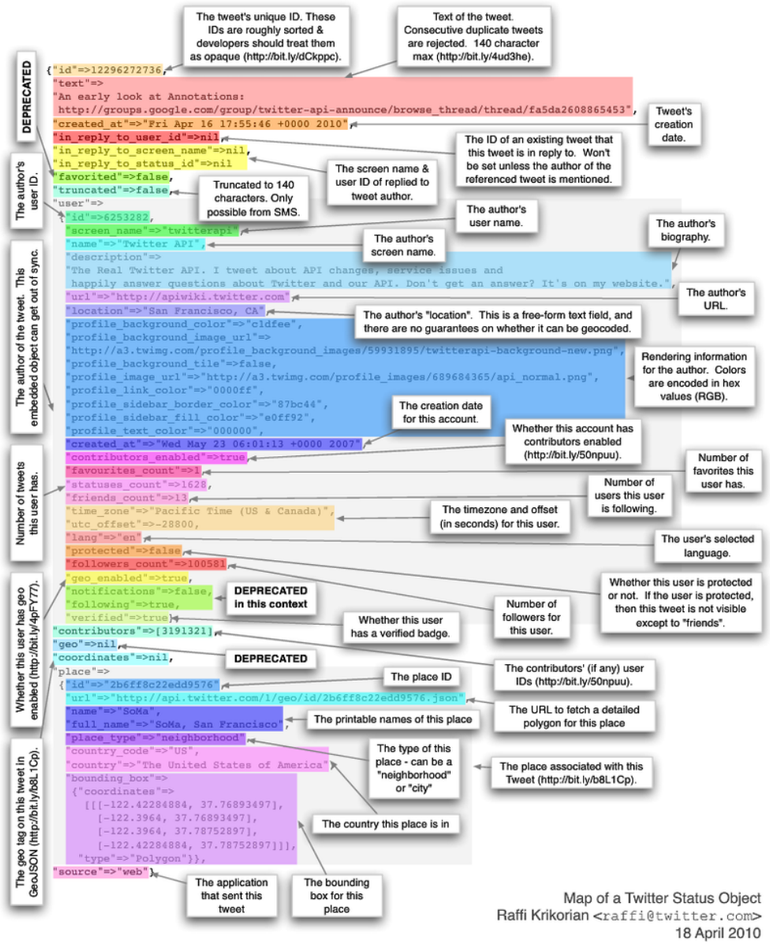
Fig. 2. The political retweet network, laid out using a force-directed algorithm. Node colors reflect cluster assignments (see text).

Source: Conover et al. (2011)

What you can't analyze

- Can't collect data on observers
- Free-level of access is restrictive
  - Can't collect historical data
  - Only a 1% (unverified) sample

What you can analyze



- 1% sample is still a few million tweets
- Within a tweet
  - Text
  - User profile information
  - Geolocation
  - Retweets and quoted tweets

Let's review!

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Collecting data through the Twitter API

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Twitter API

- API: Application Programming Interace
  - Method of accessing data
- Twitter APIs
  - Search API
  - Ads API
  - Streaming API

Streaming API

- Streaming API
  - Real-time tweets
- Filter endpoint
  - Keywords
  - User IDs
  - Locations
- Sample endpoint
  - Random sample

Using tweepy to collect data

- `tweepy`
  - Python package for accessing Streaming API

SListener

```
from tweepy.streaming import StreamListener
import time

class SListener(StreamListener):
    def __init__(self, api = None):
        self.output  = open('tweets_%s.json' %
            time.strftime('%Y%m%d-%H%M%S'), 'w')
        self.api = api or API()
    ...
```

tweepy authentication

```
from tweepy import OAuthHandler
from tweepy import API

auth = OAuthHandler(consumer_key, consumer_secret)
auth.set_access_token(access_token, access_token_secret)
api = API(auth)
```

Collecting data with tweepy

```
from tweepy import Stream


listen = SListener(api)
stream = Stream(auth, listen)
stream.sample()
```

Let's practice!

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Understanding Twitter JSON

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Contents of Twitter JSON

```
{  "created_at": "Thu Apr 19 14:25:04 +0000 2018",
   "id": 986973961295720449,
   "id_str": "986973961295720449",
   "text": "Writing out the script of my @DataCamp class
            and I can't help but mentally read it back to myself in
            @hugobowne's voice.",
   "retweet_count": 0,
   "favorite_count": 1,
      ...  }
```

- How many retweets, favorites
- Language
- Reply to which tweet
- Reply to which user

Child JSON objects

```
{
        "user": {
            "id": 661613,
            "name": "Alex Hanna, Data Witch",
            "screen_name": "alexhanna",
            "location": "Toronto, ON",
            ...
         }
}
```

Places, retweets/quoted tweets, and 140+ tweets

- `place` and `coordinate`
  - contain geolocation
- `extended_tweet`
  - tweets over 140 characters
- `retweeted_status` and `quoted_status`
  - contain all tweet information of retweets and quoted tweets

Accessing JSON

```
import json


tweet_json = open('tweet-example.json', 'r').read()
tweet = json.loads(tweet_json)
tweet['text']
```

Child tweet JSON

```
tweet['user']['screen_name']
tweet['user']['name']
tweet['user']['created_at']
```

Let's practice!

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