Misinformation on Twitter

CS315 – Web Search and Data Mining

Social Media in Search Results

- October 24, 2009: bing introduces real-time results inside search results
- Dec. 7, 2009: Google adopts real-time results in search results (usually third position)
- Twitter’s visibility grows dramatically
  - (reaching 6% of population, yet small compared to Google etc.)
- Information Web and Social Web start coming together

Interaction of Networks

- Late December 2009: The major search engines use real-time data in their search results
- The Jan 19, 2010: MA Special Elections
  - Martha Coakley (D) vs Scott Brown (R)
  - As elections near, people google for candidate names

Twitter Primer

- Twitter is a short message service
- It allows you to:
  - Tweet = send a message to those who follow what you say
  - Retweet = send to your followers something you received
  - Reply = send a specific user a message, also seen by your followers (@/user)
  - Direct-message = send a specific user a message, no one else sees it
  - hashtag = marks terms for easy search
Searching for Political Candidates

The Tweeter Corpus

- Over 200,000 Tweets from January 13-20, 2010
- “Coakley” and “Scott Brown”
- Surprisingly large number (41%) of retweets (RT). Why?
- Significant number (7%) of replies: Why?
- One in 3 tweets (32%) are repeating tweets: Why?

Huge number of retweets (RT). Why?

Hypothesis:
You retweet
agree with it

Indeed:
Retweets reveal communities
Behavioral another way
politic affiliation

32% are repeating tweets: Why?

Your followers (with who you greatly agree) will see your repeat, so why repeat?

You assume a leadership role in the campaign:
- Top200 group members were 70 times more likely to repeat a tweet.

You repeat to influence Google search
Twitter-enabled Google bomb
Significant number of replies. Why?

- **Hypothesis:**
  - You reply to engage in a dialog or fight with others
- **Not always**
- **But top200 users** were far less likely to reply, even though they spent a lot more time tweeting

**Except...**

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**The first Tweeter-bomb**

- Account creation and tweet bombs: signature of spamming
- 9 accounts sent 929 reply-tweets to 573 users in 138 min.

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**Where were the URLs linking?**

<table>
<thead>
<tr>
<th>Account</th>
<th>Message</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>@tweeter</td>
<td>AT Coakley thinks Catholic shouldn’t be in the ELL; take action now!</td>
<td><a href="http://bit.ly/16j8RgP">http://bit.ly/16j8RgP</a></td>
</tr>
<tr>
<td>@tweeter</td>
<td>Tell AG Coakley not to discriminate against Catholics in medicine!</td>
<td><a href="http://bit.ly/16j8RgP">http://bit.ly/16j8RgP</a></td>
</tr>
<tr>
<td>@tweeter</td>
<td>Catholics can practice medicine too! Tell AG Coakley today!</td>
<td><a href="http://bit.ly/16j8RgP">http://bit.ly/16j8RgP</a></td>
</tr>
<tr>
<td>@tweeter</td>
<td>Sign the petition to AG Coakley today. We won’t tolerate discrimination of any kind!</td>
<td><a href="http://bit.ly/16j8RgP">http://bit.ly/16j8RgP</a></td>
</tr>
<tr>
<td>@tweeter</td>
<td>Tell Attorney General Coakley We Won’t Tolerate Discrimination!</td>
<td>Name: [Your Name]; Phone: [Your Phone]; Email: [Your Email]; Comment: [Your Comment];</td>
</tr>
</tbody>
</table>

**Coakley SAID IT**

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Page 3
Who was behind the Tweeter-bomb?

Pre-Fabricated Tweet Factory targets News Media & Reporters

Take Action.
Sign The Petition.

The American Future Fund (AFF), operating out of the 527 ad firm, Palau, is sponsoring advocate advertisements in closely contested congressional races from New York to Louisiana. In Pennsylvania and Colorado, it is4
Also, the American Future Fund is fighting back. The independent expenditure groups are 30
targeting the Senate campaign of Scott Brown, as well as the Senate races in New York and other races.

DO YOUR JOB SHINE THE LIGHT ON ACORN
http://bit.ly/DoYourJob @ACORN Nat @SEIU @GlobeSenateRace @wwlp #masen

WE THE PEOPLE WANT A FAIR ELECTION
http://bit.ly/DoACORN @ACORN Nat @SEIU @GlobeSenateRace @wwlp #masen

Is THIS http://bit.ly/CoakleyTHUGS Why YOU"RE AFRAID to Investigate ACORN? @CBSEveningNews @katiecouric @ACORN Nat @ACORN

Copyright 2010 American Future Fund Reprinted with Permission.
Is there defense against false rumors?

- You hear a rumor on Twitter.
  - "A plane is spotted on the sea!" Should you retweet it?
  - "Two policemen are shot in Ferguson." How people react?
  - "Terrorist warnings of attacks on London Tubes." Is it true?

Stories Investigated (200+ so far)

- Fox News
- Abi Nelder
- "When will America learn??? Guns kill people. Alleged clue shut down Till.
  - Shutter "supposed to be" - BBC News
  - 2014-02-24, 15:14
  - 21 RETWEETS 57 FAVORITES

- Colorado City News
- "Radioactive material not a nuclear weapon - dispute internet rumors
  - 2014-10-16, 13:22
  - 2 RETWEETS 0 FAVORITES

What TwitterTrails.com can do for you?

- You hear a rumor on Twitter.
  - "A plane is spotted on the sea!" Should you retweet it?
  - "Two policemen are shot in Ferguson." How people react?
  - "Terrorist warnings of attacks on London Tubes." Is it true?

- What questions can TwitterTrails.com answer?
  - Rumor origin, spreading, crowd skepticism, polarization

- How does TwitterTrails.com work?
  - Collects data on demand: bit.ly/TTrequest
  - Provides cool visualizations and ML to respond within minutes
  - Based on "Retweeting indicates interest, agreement, trust"
  - Harnesses the power of crowdsourcing

Questions that TwitterTrails.com can answer

- ORIGINATOR, FIRST POSTER:
  - Who made the rumor known? Who posted the rumor first?

- TIMELINE OF SPREADING:
  - When and how did the story break?
  - Is the story still spreading?

- PROPAGATORS:
  - Who have been spreading the story through retweeting?
  - Do they form a dense group or are there disconnected networks?

- RUMOR NEGATION:
  - Are there any denials to the story?

- MAIN ACTORS:
  - Who are the most visible actors in the spreading, according to the audience?
Story Summary (Overview)

Claim: Putin's motorcade shape

@molodyko: Putin's motorcade shape. This claim is likely false.

Timeline of Spreading

TIME SERIES OF RELEVANT TWEETS

Retweet Network reveals PROPAGATORS

Visualization of Initial Spreading

PROPAGATION GRAPH

@112canarias now rep that the plane is a tug, not a crash

@112canarias posts image of plane in the sea

@112canarias confirms a plane spotted down off the coast of Gran Canaria

@112canarias now rep the plane is a tug, not a crash

TIME SERIES OF RELEVANT TWEETS

Retweet Network reveals PROPAGATORS

Visualization of Initial Spreading

PROPAGATION GRAPH
Most Visible Actors and Polarization

Co-REtweeted Network

Feature: Negation and keyword occurrence

Time Series of Relevant Tweets

Feature: Color indicates text similarity

Two Police Officers shot during Ferguson Protests: Observations through TwitterTrails

Two Day

Two St. Louis County police officers were shot in Ferguson overnight. For more: ow.ly/0rDgb http://twiщения

Propagation Graph

Color indicates text similarity

Twitter’s increasing doubts about the Germanwings cell phone video

blogs.wellesley.edu/twittertrails

Two Day

Two St. Louis County police officers were shot in Ferguson overnight. For more: ow.ly/0rDgb http://twiền

10:00 AM

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10:00 AM
Is it true? Is it false? Ask the crowd

SPREAD: Rate of all RTs
SKEPTICISM: negating RTs / promoting RTs

Claim: Video Shows Final Moments In Germanwings Cabin 04/02/2015
Report: Video shows final moments inside #Germanwings cabin. http://t.co/9qCO5SlbgEt http://t.co/4mDD9V7vAs

this claim is likely false

Claim: NYPD Edit Wikipedia Pages
Report: Wikipedia entry NYPD officer links to edit: Conc Garmir, Sedar Moon, Chumbawamba, Europe's age of consent, Playboy

http://t.co/9qCO5SlbgEt http://t.co/4mDD9V7vAs

this claim is likely true

Events & Memes: HT GilExit Gil accident 15 03 19
Report: for AT - 2 Mar 2015 a video

"Key: country leaving the awesome video spell the 'beginning of the end' of the European project" Prime Minister EU Commissioner - http://t.co/9qCO5SlbgEt http://t.co/4mDD9V7vAs

this claim has the potential to be true or false

Request an investigation: bit.ly/TTrequest

Twitter Trails - Request a story on Twitter Trails. An online tool allows members of the media to analyze the truthworthiness of claims made on Twitter. If you're not a member of the media, but have a claim, an event or meme, or story you'd like us to trial, please submit it here.

What are you investigating?

A CLAIM
AN EVENT OR MEME
SOMETHING ELSE

Claim
Briefly, what claim are you investigating in this story?

Search terms
What words, phrases or hashtags should we use as search terms for your story? By exploring Twitter's search results, test your search terms using Twitter's Search function. After entering your search, the results appear relevant to the claim you are researching.