eric gilbert  |  asst prof  |  georgia tech
TIE STRENGTH
Adj. $R^2 = 0.534$
MAE = 0.0994

INTIMACY
- last comm
- num friends
- intimacy words
32.8%

INTENSITY
- wall words
- outbound posts
- thread depth
19.7%

DURATION
- first comm
16.5%

SOCIAL DIST.
- educational diff
- political diff
- occupational diff
13.8%

SERVICES
- links shared
- apps shared
7.9%

EMO. SUPPORT
- inbox positive words
- wall positive words
4.8%

STRUCTURAL
- mutual strength
- interest overlap
- common groups
4.5%

[Gilbert & Karahalios. CHI 2009]
<table>
<thead>
<tr>
<th>Triad</th>
<th>Trait</th>
<th>Example design problem</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Triangle" /></td>
<td>Visibility</td>
<td>When chatting with A and C, how does B not highlight the “forbidden triad?”</td>
</tr>
<tr>
<td><img src="image" alt="Triangle" /></td>
<td>Visibility</td>
<td>B hears something from A relevant to C. How does B bring it to C’s attention?</td>
</tr>
<tr>
<td><img src="image" alt="Triangle" /></td>
<td>Awareness</td>
<td>Are A and C always aware that B hears everything they say to one another?</td>
</tr>
<tr>
<td><img src="image" alt="Triangle" /></td>
<td>Awareness</td>
<td>A can hear what B says to C, but not what C says back. <em>addressed by Twitter.</em></td>
</tr>
<tr>
<td><img src="image" alt="Triangle" /></td>
<td>Awareness</td>
<td>A followed C because B did. Now B severed the tie. Does A still want to follow?</td>
</tr>
<tr>
<td><img src="image" alt="Triangle" /></td>
<td>Accountability</td>
<td>B can take credit for what C says, since A only hears C through B.</td>
</tr>
</tbody>
</table>
**Link Different**


3,879 followers

2,190 saw it

**EARLIER**


3,879 followers

1,597 saw it

---

Stats from link different

**URL search**
- bit.ly
- tinyurl
- is.gd
- goo.gl

machine 1, actors: 512

**Text features**
- <title>...
- <h>...
- <meta>...
- Google corpus

machine 2, actors: 1,024

**Twitter search**
- first 10,000 people who reference URLs
  + search text

machine 3, actors: 1,024

**Triad cache**
- + MySQL

machine 4+5, actors: 1,024

---

Gilbert. CHI 2012
new & ongoing: modeling rumors

courtesy noaa
1 Streaming + preprocessing (MC)

- Streaming API: 1% sample

- Every 1M tweets

- Tweet lang code = English

- Remove Spam

- Tokenize Tweets

- Remove Stopwords

2 Online LDA (MC)

- Initialization
  - Initialize Parameters $\alpha$, $\beta$, $k$, $c$

- Load model $t_{i-1}$

- Update Parameters

- Run LDA for current time $t_i$

3 EventAssess (HC)

- Boolean AND top 3 words (per topic)

- Search query

- Send to Turkers for Event Assessment

4 CredAssess (HC)

- Send to Turkers for Credibility Assessment

5 SearchTwitter (MC)

- Search Tweets

- Search API

---

**Time Duration of Collection = 96 days**

**D_p: Processed Tweets**

<table>
<thead>
<tr>
<th>tweetID</th>
<th>tweet_post_time</th>
<th>tweet_json</th>
</tr>
</thead>
<tbody>
<tr>
<td>530884</td>
<td>2014-11-05 19:48:56</td>
<td>{text:..., author:...}</td>
</tr>
</tbody>
</table>

**T: Topics**

<table>
<thead>
<tr>
<th>topic#</th>
<th>word1, word2, word3, ..., word_i</th>
</tr>
</thead>
<tbody>
<tr>
<td>topic_j</td>
<td>$p(w_i</td>
</tr>
</tbody>
</table>

**E: Event_Annotations**

<table>
<thead>
<tr>
<th>topic#</th>
<th>Search Query</th>
<th>10-Turker Responses</th>
<th>Event Assessment</th>
<th>(if Event) Summarization</th>
</tr>
</thead>
<tbody>
<tr>
<td>topic_j</td>
<td>q=w_1&amp;w_2&amp;w_3</td>
<td>[1,0,-1,...,1]</td>
<td>1(Event)</td>
<td>[ Messi scored, ...]</td>
</tr>
</tbody>
</table>

**C: Credibility_Annotations**

<table>
<thead>
<tr>
<th>topic#</th>
<th>Search Query</th>
<th>10-Turker Responses</th>
<th>Turker Reasonings</th>
<th>Turker Response Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>topic_j</td>
<td>q=w_1&amp;w_2&amp;w_3</td>
<td>[2,2,...,1]</td>
<td>[News sources confirm, ...]</td>
<td>2014-11-05 19:48</td>
</tr>
</tbody>
</table>

**S: Searched_Tweets**

<table>
<thead>
<tr>
<th>topic#</th>
<th>Search Query</th>
<th>tweetID</th>
<th>tweet_post_time</th>
<th>tweet_json</th>
</tr>
</thead>
<tbody>
<tr>
<td>topic_j</td>
<td>q=w_1&amp;w_2&amp;w_3</td>
<td>530884</td>
<td>2014-11-05 19:48:56</td>
<td>{text:..., author:...}</td>
</tr>
</tbody>
</table>

---

[Mitra & Gilbert. ICWSM 2015]
new & ongoing: censorship on sina weibo

https://flic.kr/p/qE2UAj (cc by-sa)
zhèng fǔ (government)

zhèng fǔ (no meaning)

score(正夫) = 149.94
score(政夫) = 139.14
score(正夫) = 136.13
...
Q1: How do early design decisions affect future, systemic behavior?
Q2: How do you know whether a social system will work? Achieve critical mass?
1. Devise design goals
2. Choose existing site
3. Gauge critical mass
4. Build prototype on site
5. Deploy & manage prototype
6. Collect feedback & metrics

Decide on research and specify target population.
Study the API and figure out what data can be obtained.
Find if there are enough target users on the site.
Code social features and interactivity of the prototype.
Monitor user responses & follow ethical standards.
Send surveys, collect data, compile user reactions.

[Grevet & Gilbert. CHI 2015]
Q3: Can we get to interpretable models that are understandable by users and designers?
eric gilbert | @eegilbert | eegilbert.org