Social Spam

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Networks and Complex Systems Open House
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Outline

- Overview of social spam and motivations for spammers.
- The spam detection infrastructure at GiveALink.org
- Results from spam detection efforts at GiveALink.org
- Further questions and directions
Social Spam Overview

- Online social networks are vulnerable to spam
  - Network structure
  - The users are the primary producers of content
  - Users are allowed to share, comment, annotate, etc...
- Motivations
  - Ad revenue
  - Malware
- Spam infrastructure
Different projections yield different networks
Network structure is readily available
Textual content can be limited or expensive to get
Rewriting Individual Sentences

Please read all instructions carefully!

Your task is to rewrite the sentence indicated below. The goal is to create a sentence that is similar in meaning, but not change the meaning of the sentence. The sentence should still "fit in" with both the "Previous" and "Next" sentences.

Please follow these rules when rewriting the sentence (failure to do so will result in your HIT being rejected):

- DO NOT CHANGE any proper nouns, such as the names of persons, places, or important things.
- DO NOT CHANGE any of the following words, should they appear in the sentence to be rewritten:
  - Mitel 3300 Phone System
  - http://www.yahoo.com
- DO NOT CHANGE any URLs (e.g., http://www.yahoo.com) that may be present in the sentence.

EXAMPLE SENTENCE: Joe went to the ballpark Tuesday to play a game of baseball.

EXAMPLE REWRITE: On Tuesday, Joe made his way to the baseball field, eager to play.
GiveALink Spam Infrastructure

- Approaches
  - Prevention
  - Demotion
  - Detection
Spam Detection Features

- User features
- Resource features
- Network features

\[
f_{TagBlur}(u, r) = \frac{1}{Z} \sum_{t_1 \neq t_2 \in T(u, r)} \frac{1}{\sigma(t_1, t_2) + \epsilon} - \frac{1}{1 + \epsilon}
\]

\[
f_{TagSpam}(u, r) = \frac{1}{|T(u, r)|} \sum_{t \in T(u, r)} \Pr(t)
\]

Krause, B. et al., The Anti-Social Tagger - Detecting Spam in Social Bookmarking Systems, 2008
Markines, B. et al., Social spam detection, 2009
GiveALink Spam

- Network structure highly predictive of spammers
- System needs relatively little data to achieve high accuracy
Future Directions: Spam Granularity

• What or who constitutes spam?
  • A user? A resource? A triple?
  • Flexibility of spam definition

### Classifying users

**Posts by tufangcool607@gmail.com**

1249 triples total

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<th>URL</th>
<th>Tags</th>
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Future Directions: Content Farms

- What are content farms?

Tips From People Like You

How to Keep your cat off the counters

By braniac, eHow User

Keep your cat off the counters or tables.

Instructions

Difficulty: Easy

1. Catch the cat in action.

2. As soon as the cat jumps up on the counter, grab the squirt bottle, aim and fire.

3. Repeat until the cat learns not to be on the counter.

Things You'll Need

- A cat :
- A squirt bottle.

Related Ads

- Kitchen Counters
- Granite Counters
- Cat
- Stray Cat Trapping
- Cat Kitten Rescue
Thanks! Questions?

http://cnets.indiana.edu/groups/nan/givealink