Twitter, a Techno-Social Network

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Internet Science

http://www.universityofinternetscience.com
UK General Election 2010


Box-office takings in opening weekend for 24 movies

Sitaram Asur and Bernardo Huberman, “Predicting the future with social media” http://arxiv.org/abs/1003.5699v1
“It’s about humans connecting with each other, and often in ways that they couldn’t otherwise.”

Evan Harris, Twitter
BBC Newsnight interview 5/8/2009

Rise of the Twitter Bots

http://www.slideshare.net/hewlettpackard/twitter-cyborg

See also Alex Cheng & Mark Evans, “Inside Twitter: an in-depth look inside the Twitter world”, Sysomos white paper
http://www.sysomos.com/insidetwitter

% tweets from accounts tweeting ≥100 times/day

2009 2010

% tweets from accounts tweeting >= 100 times/day

0% 2% 4% 6% 8% 10% 12%

http://www.slideshare.net/hewlettpackard/twitter-cyborg
http://www.sysomos.com/insidetwitter
Techno-social network

A Bestiary of Twitter Bots
Marketing bots

Thomas Heginbotham (@tomheg), “Things Real People Don’t Say About Advertising”,

Kitchen Roll

Suma Ecoleaf Kitchen Roll/Towels twin pack: <br>Suma launched the UK’s first 100% Recycled Paper Toilet Tissue... http://bit.ly/bvBHUU8
The Internet of Toasters

Also shoes, ovens, dogs, plants, power meters, weather stations, a Christmas tree, a bed, a chair, a table, lavatories, a coffee machine...

Catflap

Penny is out to find someone to spoil her immaculate being. http://twitpic.com/2asics

GusAndPenny  Out and Penny
Fanbot

See also Jacob Ratkiewicz et al, “Truthy: Mapping the spread of astroturf in microblogging streams”, WWW 2011

Ideological bot

@ModdityDodds Douglass & Christy:
Bad science; disingenuous commentary
http://to.ly/9Bm4 #ClimateChange #Climategate #Green #Cop16 #AGW #Eco

AI_AGW Climate Denier
Twitter Werewolf

See also Chris Grier, Kurt Thomas, Vern Paxson & Michael Zhang, "@spam: the underground in 140 characters or less", CCS 2010

Bot or Not?
Coconutsfine’s friends

@faithkaren

Video marketing online

Name Faith Karen
Location California
Web http://www.imadog.com
Bio Living, living, learning & growing everyday I like learning and using technology for network marketing and internet marketing.
30,798 28,006 361
following followers latest
Tweets 44,952
Bot profiles
Profile types in sample of 727 bots

Followers

Bot-like | Ambiguous | Human-like
Followers
From number 650 onwards

Source: Tweepi.com
CAPTCHA-solving

Picture via Trend Micro
http://www.trendmicro.com/vinfo/images/Captcha_A-1.gif

$2 for 1000 solutions
Marti Motoyama et al, Re: Captchas: understanding captcha-solving services in an economic context. USENIX Security'10
http://cseweb.ucsd.edu/~klevchen/mlkmvs-usesec10.pdf

Targeting social contacts
In Facebook

Yazan Boshmaf, Ildar Muslukhov, Konstantin Beznosov, and Matei Ripeanu
On the Penetration of Online Social Networks: Exploiting the Social Structure
http://iersse-dl.ece.ubc.ca/record/256

Success probability given number of mutual friends

10% 20% 30% 40% 50% 60% 70% 80% 90%
0 1 2 3 4 5 6 7 8 9 10 11

Success probability
There’s hope

- Friend acquisition dynamics
- Bayesian filtering of direct messages
- Timing regularities
- App certification
- Crowd-sourced ratings
- TunkRank or Passivity
- User education

Thank you