Privacy and Security in Online Social Media

Course on NPTEL

Week 1.3

Ponnurangam Kumaraguru (“PK”)
Full Professor
ACM Distinguished Speaker
fb/ponnurangam.kumaraguru, @ponguru

2009

jkrums
Follow
http://twitpic.com/135xa – There's a plane in the Hudson. I'm on the ferry going to pick up the people. Crazy.
US AIRWAYS

Social media turns a blessing: Avani's missing photo goes viral, and she gets her mother back in 20 minutes

The photo showed the girl holding a lady railway police official's hand.

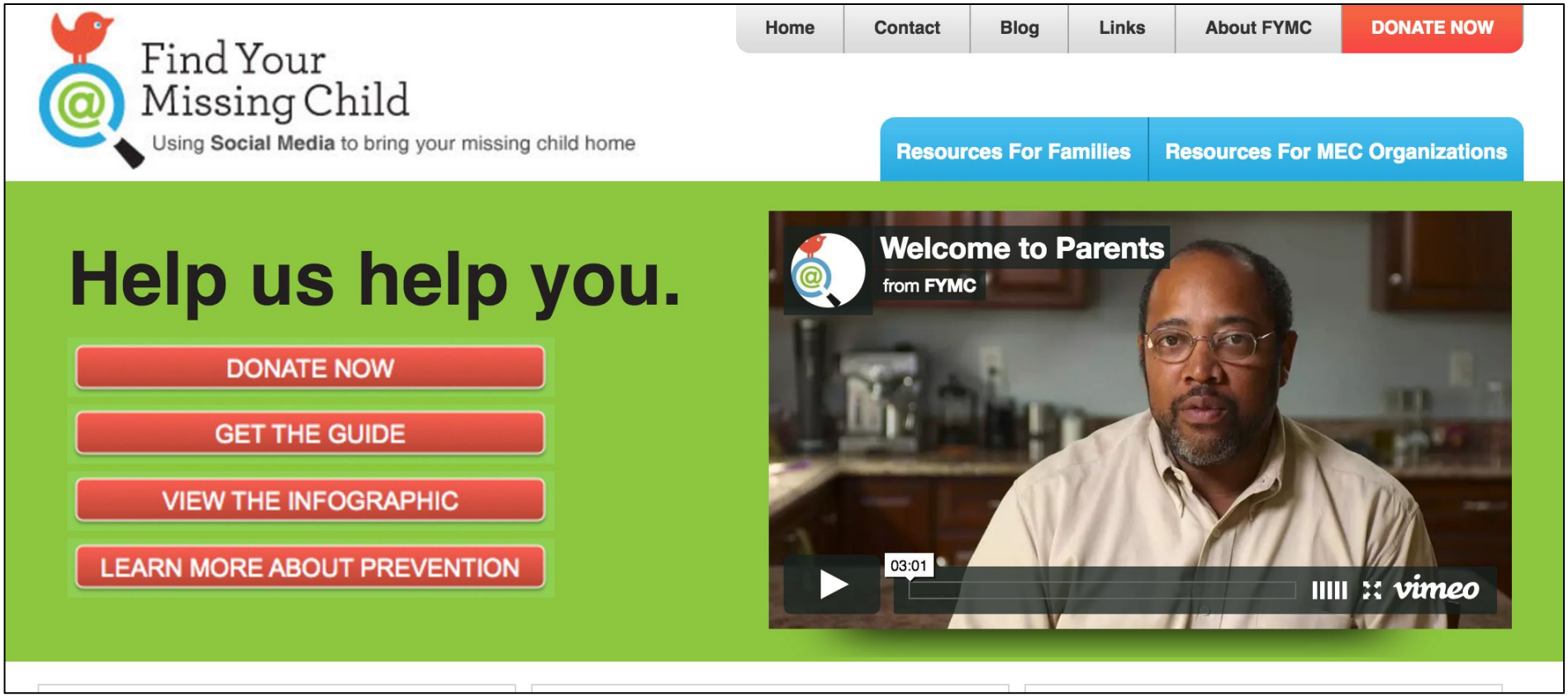
Share 559 Tweet 28 Google + 1

Written by **Nisha Nambiar** | Pune | Updated: May 17, 2016 2:04 am

BEST OF EXPRESS

India

Pakistan covets territory of others and uses terrorism as state


Find Your Missing Child
Using Social Media to bring your missing child home
Home
Contact
Blog
Links
About FYMC
DONATE NOW
Resources For Families
Resources For MEC Organizations
Help us help you.
DONATE NOW
GET THE GUIDE
VIEW THE INFOGRAPHIC
LEARN MORE ABOUT PREVENTION
Welcome to Parents
from FYMC
03:01
vimeo

Social media turns a blessing: Avani's missing photo goes viral, and she gets her mother back in 20 minutes

The photo showed the girl holding a lady railway police official's hand.

Share 559 Tweet 28 Google + 1

Written by **Nisha Nambiar** | Pune | Updated: May 17, 2016 2:04 am

BEST OF EXPRESS

India

Pakistan covets territory of others and uses terrorism as state

A teenage girl was found dead just days after posting a haunting message online about the cyber bullying she was suffering.

Britney Mazzoncini has been described by her grieving grandmother as a 'beautiful' girl who was 'loved by all'.

Arsonists set fire to eastern European shop in Norwich »

The 16-year-old died after she was rushed to hospital from her home in Glasgow, **the Daily Record reported.**

She had been tormented on social media by bullies, and complained about the abuse in a Facebook post days before her death.

She wrote: 'Starting to get sick of wee lassies calling me a riddy and this and that.

'As I've said, if you have a problem with me then delete me and if you're being cheeky then you will just be blocked.

Role of OSN in global events: UK Riots

theguardian

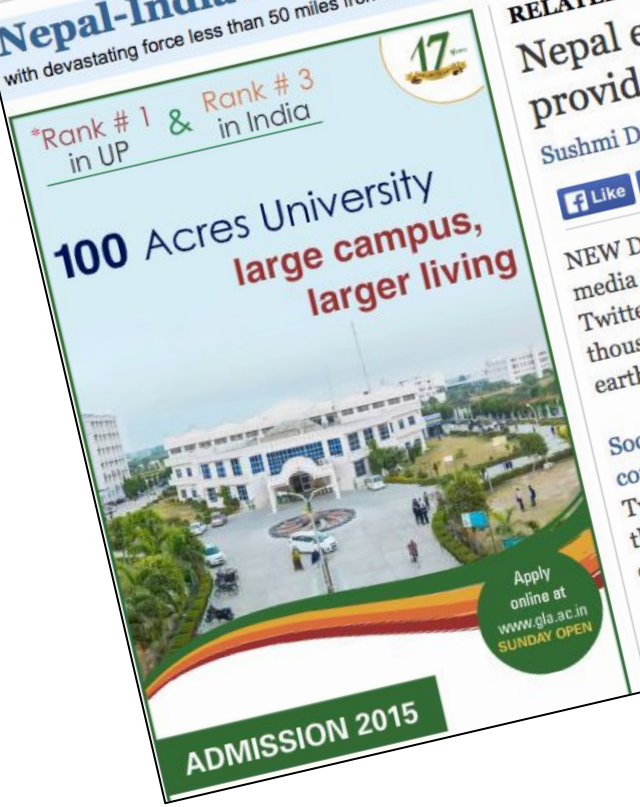
UK riots 'made worse' by rolling news, BBM, Twitter and Facebook

Government panel says disorder was fuelled by TV and social media but warns against closing social networks during unrest

Josh Halliday
guardian.co.uk, Wednesday 28 March 2012 11.16 BST

Viral violence: Facebook and other social media blamed for inciting unrest during the UK riots. Photograph: Matthew

Nepal-India earthquake A massive earthquake killed thousands in Nepal and India on 25 April. The massive 7.9 magnitude earthquake hit Nepal with devastating force less than 50 miles from the capital, Kathmandu causing tremors in northern India as well.



RELATED KEYWORDS: Twitter | Social-Media | Nepal-Earthquake | Facebook

Nepal earthquake: Govt using social media to connect and provide relief

Sushmi Dey, TNN | Apr 28, 2015, 01.34AM IST

Like Share 19 Tweet 157 +1 1 Share 10

NEW DELHI: Social media appear to have beaten the traditional media with governments, various agencies and individuals using Twitter and Facebook to connect, rescue and provide relief to the thousands of people stuck in Nepal since a devastating earthquake struck the Himalayan country on Saturday.

Social media platforms emerged as the key means of communication for both official as well as personal messages. Twitter alone has registered over 4.1 million tweets in the last three days since the first shocks of the quake hit Nepal and parts of India.

Social media platforms emerged as the key means of communication for both official as well as personal messages.

Times cares: Reach out, aid Nepal

WIRED

Social Media Sparked, Accelerated Egypt's Revolutionary Fire

SHARE

SHARE 28

TWEET 44

PIN 1

COMMENT 0

EMAIL

SOCIAL MEDIA SPARKED, ACCELERATED EGYPT'S REVOLUTIONARY FIRE

aiting for archive.wired.com...

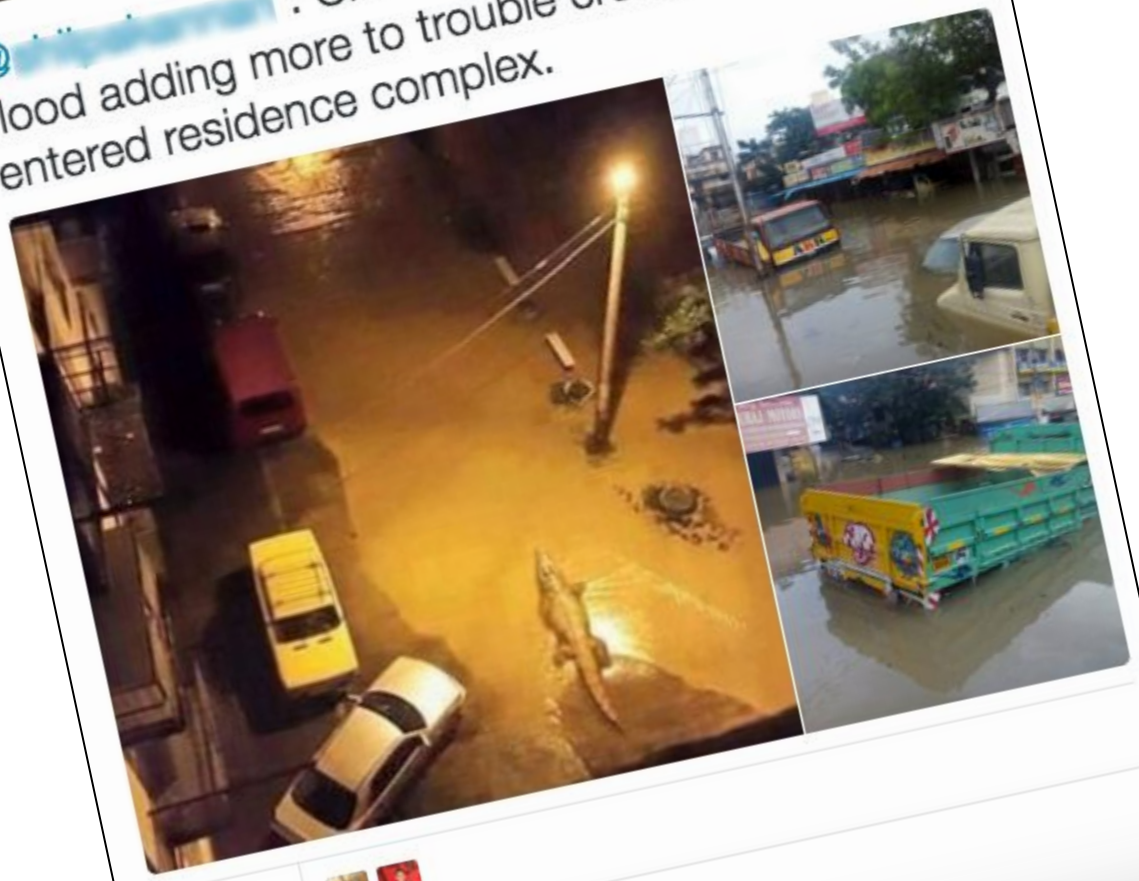
s celebrate in Tahrir Square in downtown Cairo Friday. Fireworks

Boston Bombing Facebook And Twitter Page 'Fakes' Set Up To Capitalise On Tragedy
Huffington Post UK | By Felicity Morse
Posted: 16/04/2013 09:34 BST | Updated: 16/04/2013 16:36 BST
Like
2,240 people like this. Be the first of your friends.
1,175
share
266
tweet
21
+1
4
email
120
comment
FOLLOW: Facebook, Twitter, Video, Boston, Boston Bombing Fakes, Boston Marathon, Boston Marathon Bombing, Boston Usa, Fake Boston Marathon, Marathons, UK NEWS, UK News
GET UK ALERTS:
Enter email
SIGN UP
A number of fake charity Twitter accounts and Facebook pages have been set up in the wake of the Boston marathon bombings in an attempt to capitalise on the tragedy.
Pictures of 'child runners' who had supposedly died in the blasts were tweeted from a 'Hope for Boston' account begging for retweets to "show respect".
PRAY FOR BOSTON
@HopeForBoston
HOPE FOR BOSTON
Follow @HopeForBoston
R.I.P. to the 8 year-old boy who died in Boston's explosions, while running for the Sandy Hook kids. #prayforboston http://t.co/Xmv2E81Lsb
April 16, 2013 12:18 am via web
Reply
Retweet
Favorite

AP
The Associated Press
@AP
Following
Breaking: Two Explosions in the White House and Barack Obama is injured
Reply
Retweet
Favorite
More
3,063
RETWEETS
144
FAVORITES
12:07 PM - 23 Apr 13

Follow

[redacted] : Chennai going down in horrible flood adding more to trouble crocodile has entered residence complex.



RETWEETS
2

1:28 PM - 4 Dec 2015

Facebook
Share on Facebook
Share on your timeline
Say something about this...
ROBIN WILLIAMS SAYS GOODBYE WITH HIS PHONE VIDEO
28,545,981 COMMENTS - 24,684,843 SHARED THIS
COM
Friends
Cancel
Share Link

Hurricane Sandy: Fake Images

Other implications

MI6 chief blows his cover as wife's Facebook account reveals family holidays, showbiz friends and links to David Irving

By JASON LEWIS
Last updated at 7:14 PM on 5th July 2009

Other implications

Other implications

Using too much Facebook and Twitter may cost you your job

Sun, Oct 10 10:50 AM

London, Oct 10 (ANI): Government and council employees in the UK using social networking sites at work or posting inappropriate comments from home are likely to face serious action, which includes being sacked.

Police censured eight employees last year after they found using police computers to chat with their friends online.

Takeaways Week 1

- Growth of Online Social Media
- 4 / 5 Vs of OSM
- Different OSMs
- Use of OSM
  - Positive
  - Negative

Tutorials online

- Linux
- Python

https://www.facebook.com/PreCog.IIITD/

http://precog.iiitd.edu.in/

Home Research People Publications Resources Teaching Events News Blog

Like You and 568 others like this.

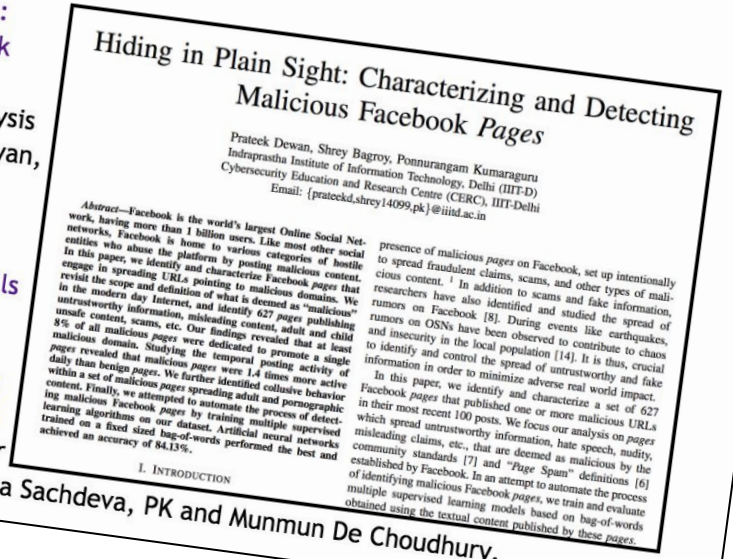
Precog @IIITD is a group of researchers who study, analyze, and build different aspects of social systems (e.g. social web systems like Twitter, Facebook), including their security and privacy. By understanding and measuring complex networks, we try and build solutions for social good. Our work primarily derives from Data Science, Computational Social Science, Social Computing, Machine Learning, and Natural Language Processing.

What's New!

New! July, 2016: Our paper Hiding in Plain Sight: Characterizing and Detecting Malicious Facebook Pages accepted at IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM) 2016. Authors: Prateek Dewan, Shrey Bagroy and PK.

New! June, 2016: PK's Keynote Address on Online Social Media: Opportunities, Challenges, and Pitfalls at IGDTUW.

New! June, 2016: Our paper Social Media for Safety: Characterizing Online Interactions between Citizens and Police accepted at 30th British Human Computer Interaction Conference (BHCI) 2016. Authors: Niharika Sachdeva, PK and Munmun De Choudhury.



Hiding in Plain Sight: Characterizing and Detecting Malicious Facebook *Pages*

Prateek Dewan, Shrey Bagroy, Ponnurangam Kumaraguru
Indraprastha Institute of Information Technology, Delhi (IIIT-D)
Cybersecurity Education and Research Centre (CERC), IIIT-Delhi
Email: {prateekd,shrey14099,pk}@iiitd.ac.in

Abstract—Facebook is the world's largest Online Social Network, having more than 1 billion users. Like most other social networks, Facebook is home to various categories of hostile entities who abuse the platform by posting malicious content. In this paper, we identify and characterize Facebook *pages* that engage in spreading URLs pointing to malicious domains. We revisit the scope and definition of what is deemed as "malicious" in the modern day Internet, and identify 627 *pages* publishing unsafe content, scams, etc. Our findings revealed that at least 8% of all malicious *pages* were dedicated to promote a single malicious domain. Studying the temporal posting activity of *pages* revealed that malicious *pages* were 1.4 times more active daily than benign *pages*. We further identified collusive behavior within a set of malicious *pages* spreading adult and pornographic content. Finally, we attempted to automate the process of detecting malicious Facebook *pages* by training multiple supervised learning algorithms on our dataset. Artificial neural networks trained on a fixed sized bag-of-words performed the best and achieved an accuracy of 84.13%.

I. Introduction

presence of malicious *pages* on Facebook, set up intentionally to spread fraudulent claims, scams, and other types of malicious content. [1] In addition to scams and fake information, researchers have also identified and studied the spread of rumors on Facebook [8]. During events like earthquakes, rumors on OSNs have been observed to contribute to chaos and insecurity in the local population [14]. It is thus, crucial to identify and control the spread of untrustworthy and fake information in order to minimize adverse real world impact.

In this paper, we identify and characterize a set of 627 Facebook *pages* that published one or more malicious URLs in their most recent 100 posts. We focus our analysis on *pages* which spread untrustworthy information, hate speech, nudity, misleading claims, etc., that are deemed as malicious by the community standards [7] and "*Page* Spam" definitions [6] established by Facebook. In an attempt to automate the process of identifying malicious Facebook *pages*, we train and evaluate multiple supervised learning models based on bag-of-words obtained using the textual content published by these *pages*.

Thank you

pk@iiitd.ac.in
precog.iiitd.edu.in
fb/ponnurangam.kumaraguru