

Privacy and Security in Online Social Media

Course on NPTEL

NOC21-CS28

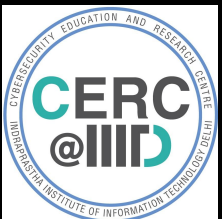
Week 3.1

Ponnurangam Kumaraguru (“PK”)

Full Professor

ACM Distinguished Speaker

fb/ponnurangam.kumaraguru, @ponguru



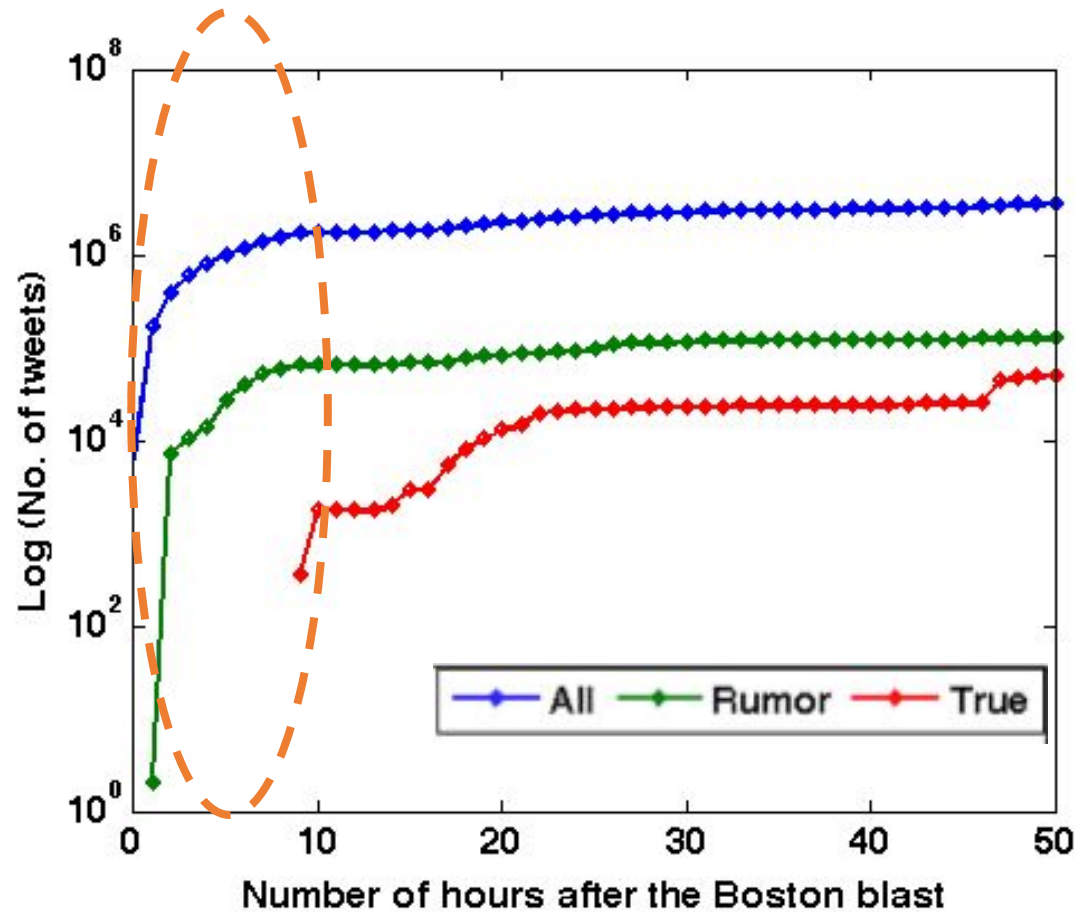
Frameworks / Platforms to know

- APIs of OSM (e.g. Facebook / Twitter API)
- A programming language to write code to extract data (e.g. Python / RoR)
- A database to store data (e.g. MySQL / MongoDB)
- A visualization tool to query and analyze data (e.g. PhpMyAdmin / RoboMongo)

Tutorials for this week

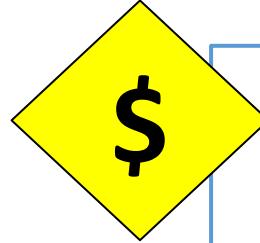
● ~~Facebook API~~ Reddit API

Temporal Patterns



Fake content / rumors becomes viral in first 7-8 hours just after the event.

Misinformation Tweets



DMV DC Maryland Virginia
@DMVFollowers

McDonalds in Virginia Beach flooded.
pic.twitter.com/FZBoCydM

Reply Retweet Favorite



FAKE

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

RUMORS



#LondonRiots hearing reports that london zoo was broken into and a large amount of animals have escaped. Too far! Thats not cool :-)

@Twiggy_Garcia, 5,178 followers

Fake Image Tweets

DMV DC Maryland Virginia
@DMVFollowers

Follow

McDonalds in Virginia Beach flooded.
pic.twitter.com/FZBoCydM

Reply Retweet Favorite



Katina
@kdekrans9

Follow

I TOLD Y'ALL! Shark on the highway in New Jersey!!!!
@maxthewanted would appreciate this. #HurricaneSandy
pic.twitter.com/kaYMjWzT

1:09 AM - 30 Oct 2012



Jamster
@jamster83

Follow

Amazing picture of hurricane #Sandy descending in New York
pic.twitter.com/3mMhCbNq

4:21 PM - 29 Oct 2012



5 RETWEETS 586 FAVORITES



Analysis

- Who
- When
- Where
- What
- Why
- How



Classification

User Features [F1]
Number of Friends
Number of Followers
Follower-Friend Ratio
Number of times listed
User has a URL
User is a verified user
Age of user account

Tweet Features [F2]
Length of Tweet
Number of Words
Contains Question Mark?
Contains Exclamation Mark?
Number of Question Marks
Number of Exclamation Marks
Contains Happy Emoticon
Contains Sad Emoticon
Contains First Order Pronoun
Contains Second Order Pronoun
Contains Third Order Pronoun
Number of uppercase characters
Number of negative sentiment words
Number of positive sentiment words
Number of mentions
Number of hashtags
Number of URLs
Retweet count

Sample Fake Tweets



> 30,000 RTs

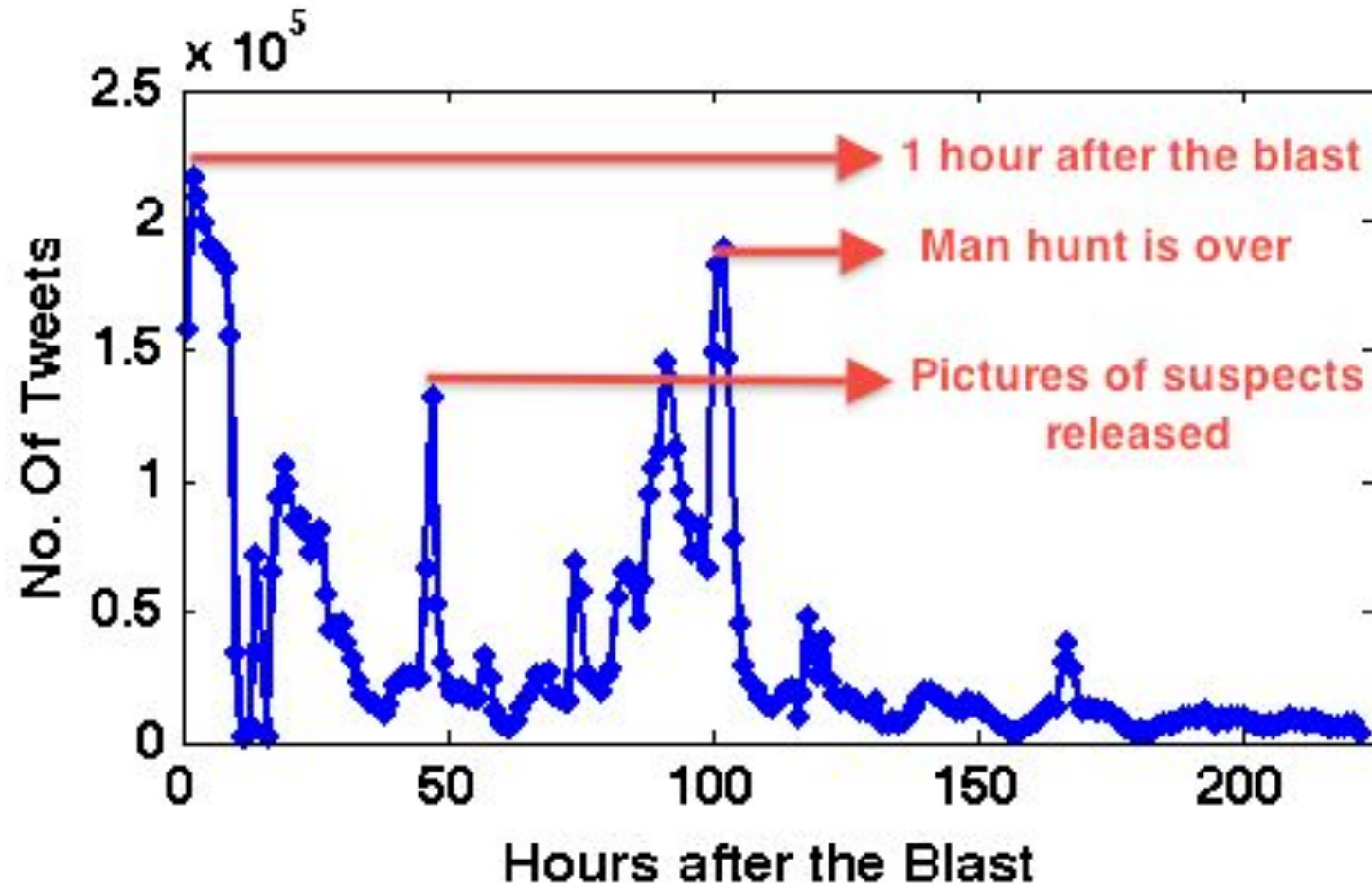


> 50,000 RTs

Data Description

Total tweets	7,888,374
Total users	3,677,531
Tweets with URLs	3,420,228
Tweets with Geo-tag	62,629
Retweets	4,464,201
Replies	260,627
Time of the blast	Mon Apr 15 18:50 2013
Time of first tweet	Mon Apr 15 18:53 2013
Time of first image	Mon Apr 15 18:54 2013
Time of last tweet	Thu Apr 25 01:23 2013

Data Description

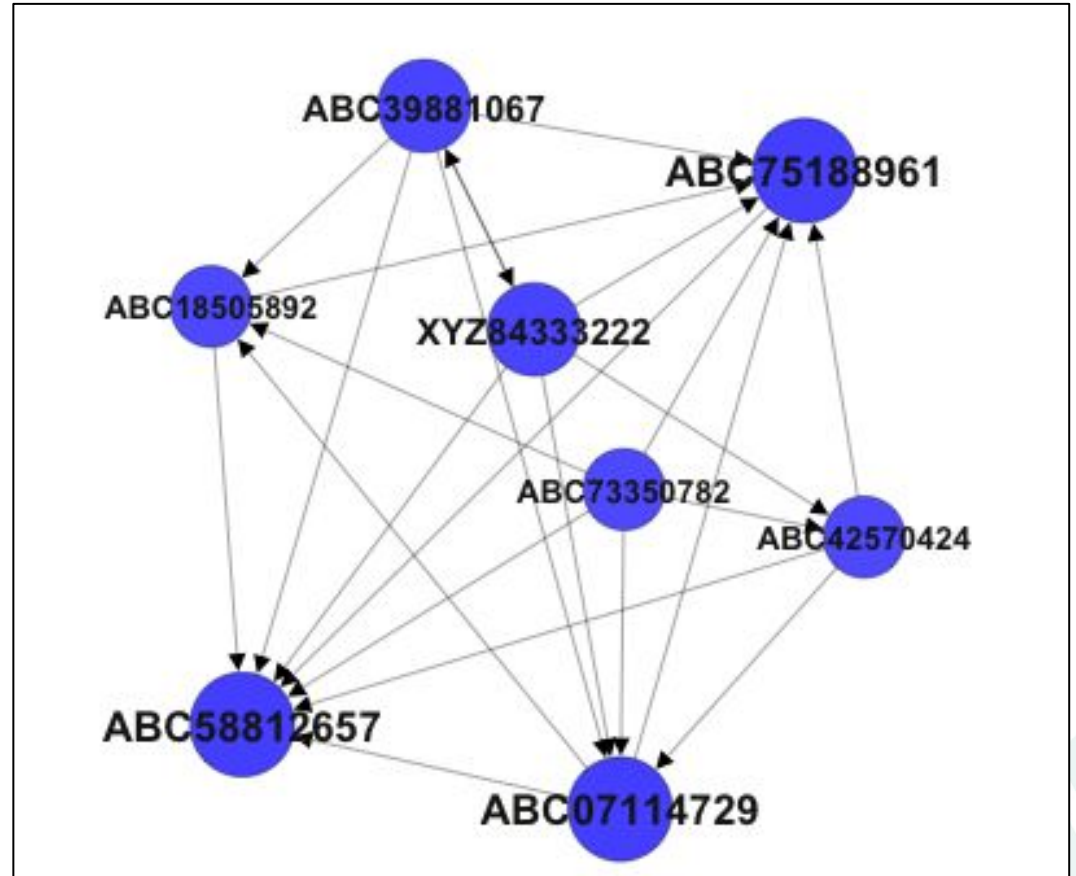


Geo-Located Tweets

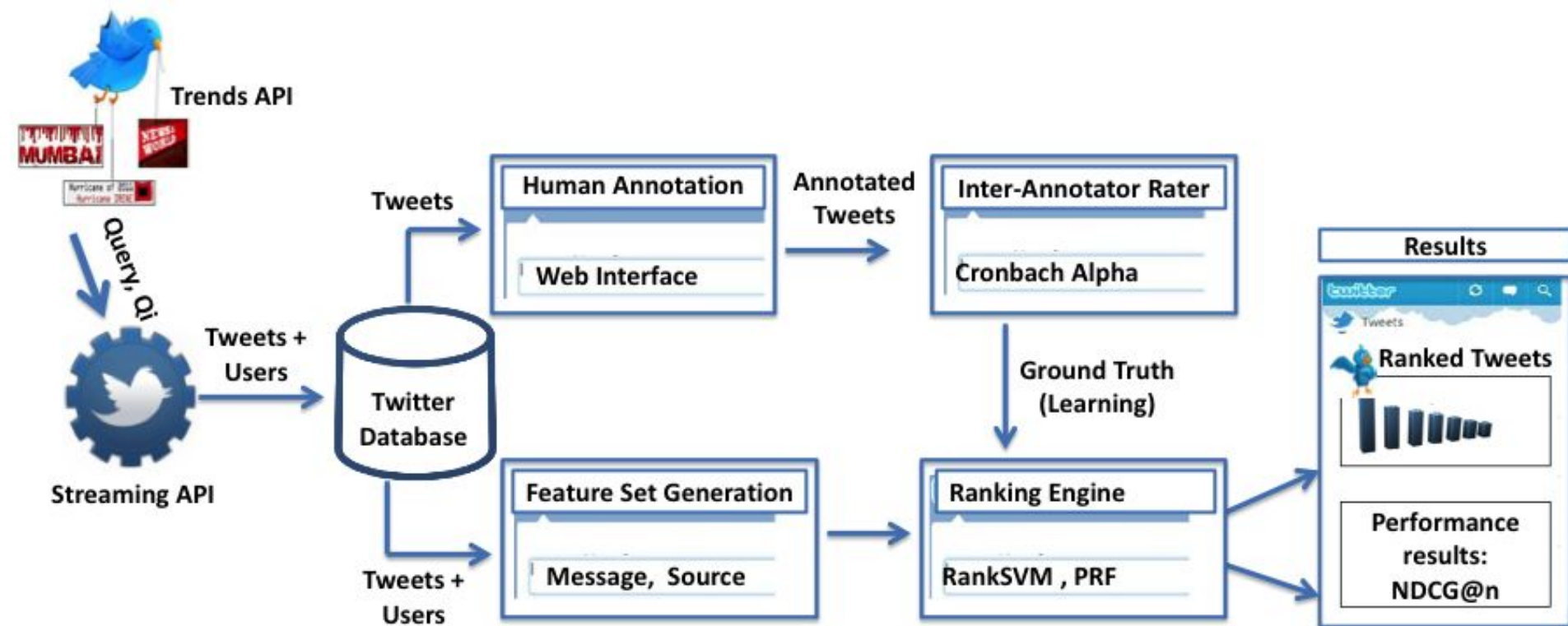


Network Analysis of Fake Accounts

Closed community

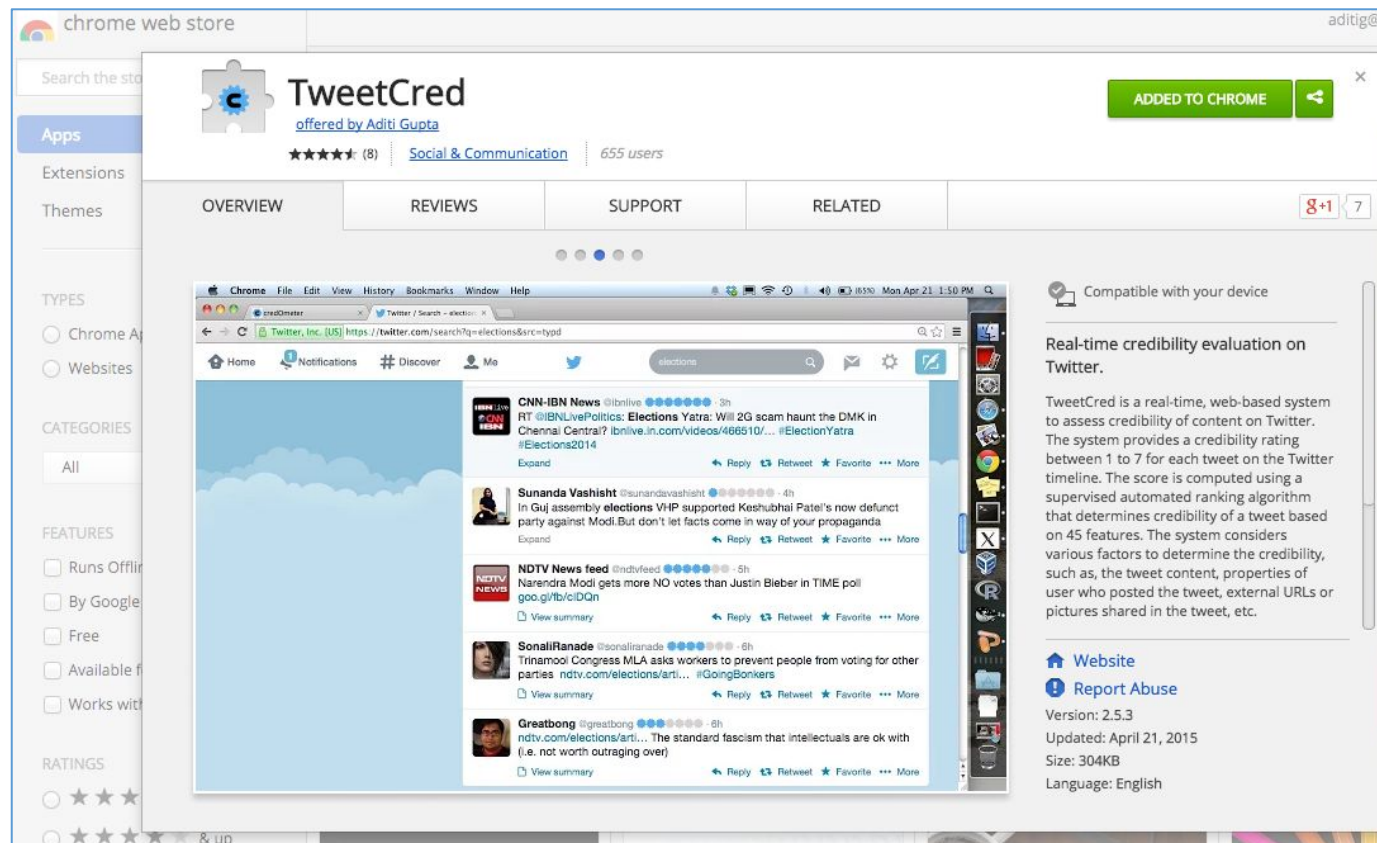


Architecture



TweetCred

● Available as a Chrome Extension



The screenshot shows the Chrome Web Store page for the TweetCred extension. The page is titled "TweetCred" and is offered by Aditi Gupta. It has a 5-star rating from 8 reviews and 655 users. The extension is categorized under "Social & Communication". The page includes tabs for Overview, Reviews, Support, and Related. A green button indicates "ADDED TO CHROME".

The extension's description is as follows:

Real-time credibility evaluation on Twitter.

TweetCred is a real-time, web-based system to assess credibility of content on Twitter. The system provides a credibility rating between 1 to 7 for each tweet on the Twitter timeline. The score is computed using a supervised automated ranking algorithm that determines credibility of a tweet based on 45 features. The system considers various factors to determine the credibility, such as, the tweet content, properties of user who posted the tweet, external URLs or pictures shared in the tweet, etc.

[Website](#)
[Report Abuse](#)

Version: 2.5.3
Updated: April 21, 2015
Size: 304KB
Language: English

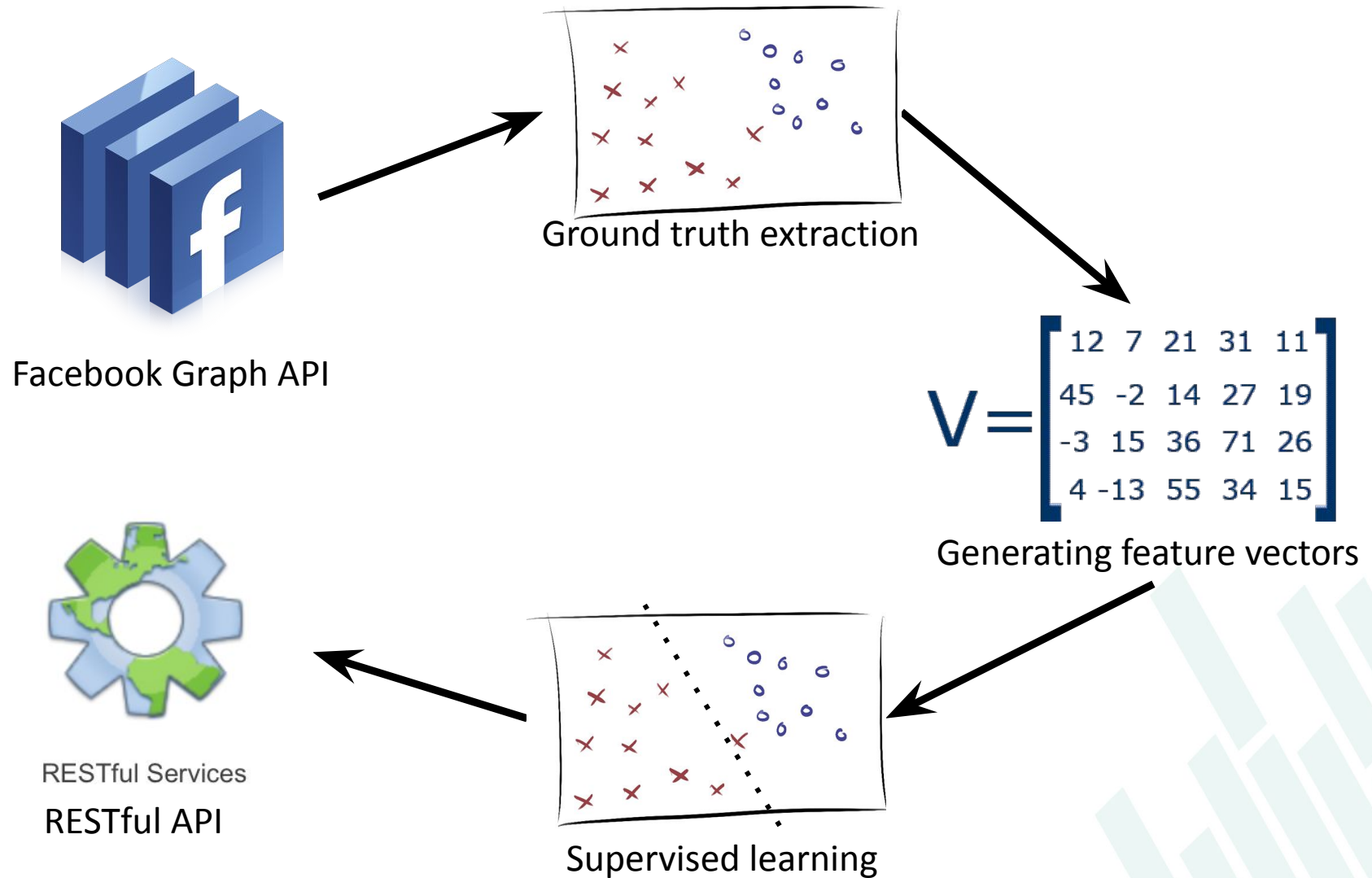
The background of the slide features a stylized graphic of a city skyline with green and blue geometric shapes.

Facebook

- Features are different
- Different network structure
 - Friendship



FBI: Methodology



Web of Trust scores

<http://www.domain.com>



Reputation: Unsatisfactory / Poor / Very poor (less than 60)

Confidence: High (greater than 10)

OR

Category: Negative



Malicious

Plugin

- <https://chrome.google.com/webstore/detail/facebook-inspector/jlhjfkmlnknokgkhhbghbnmiejokohmlfc>
- <https://addons.mozilla.org/en-US/firefox/addon/fbi-facebook-inspector/>

Demo



Thank you

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