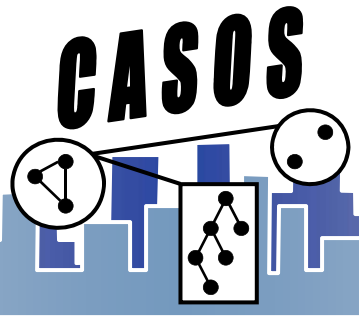

From Tweets to Intelligence:

Understanding The Islamic Jihad Supporting Community on Twitter

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Definition of Terms

- **Online Extremist Communities (OEC)** - A social network of users who interact within social media in support of an extremist group or groups.
- **Extremist Group** – a group advocating actions that pose a threat to national security or human rights.
- **Online Extremist Community Member** - Social media users who unambiguously affirm the leadership, ideology, or fighters of an extremist organization.
- The role of "**passive sympathizers**" who merely share or re-post content has been shown to be in increasingly important component of extremist propaganda dissemination in social networks. Veilleux-Lepage (2015)

Note: It is important to emphasize that a member's "support" is relative and in many cases not in violation of local law or a social media platform's terms of use.

Goals

- Online Extremist Communities can be detected and analyzed for novel intelligence insights
- Analysis of online extremist communities offers potential for both researchers and practitioners
- Transdisciplinary collaboration is needed at "both ends of the spear"

Relevance

"So we need to, candidly, stop tweeting at terrorists. I think we need to focus on exposing the true nature of what Daesh is."

Mr. Michael Lumpkin
Director, Global Engagement Center

Organizational Charter: coordinate, integrate and synchronize messaging to foreign audiences that undermines the disinformation espoused by violent extremist groups, including ISIL and al-Qaeda, and that offers positive alternatives.


Pentagon: We don't have enough people tweeting against Isis to win online propaganda war

By Mary-Ann Russon
October 23, 2015 19:00 BST

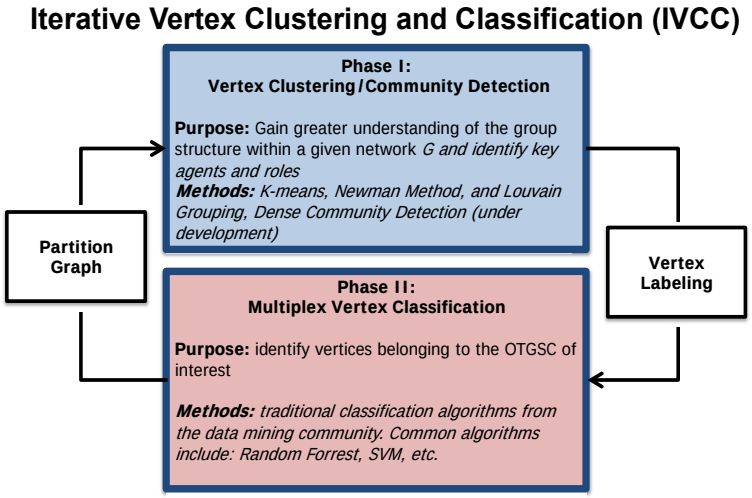
Michael Lumpkin, Assistant Defense Secretary for Special Operations/Low-Intensity Conflict, has told the US Congress that there are not enough people working to combat Isis messages on social media (Reuters)

- Countering extremist social media campaigns will require
  - An understanding of the populations most susceptible to radicalization
  - An understanding of the online community's topology
- Current practices attempts to identify OECs through
  - Researchers
    - Community detection (poor precision)
  - Practitioners
    - Bounded searches (poor precision)
    - Manual Construction (poor recall)

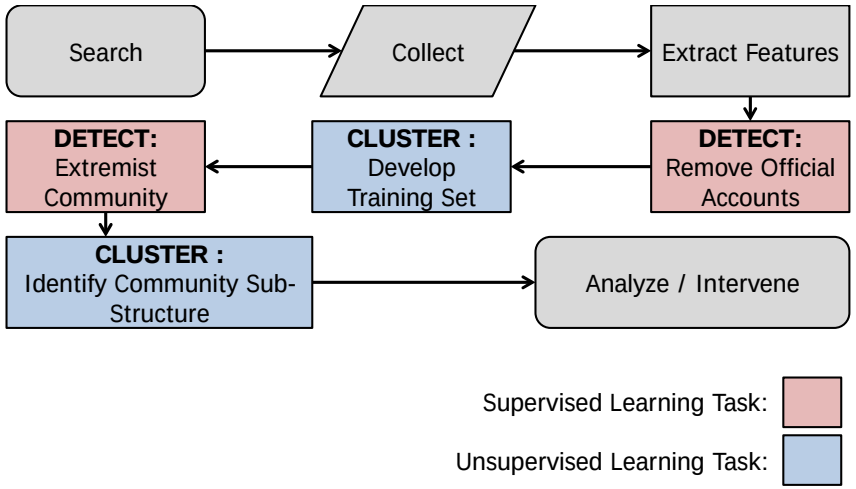
Iterative Vertex Clustering and Classification

Iterative Vertex Clustering and Classification

Methodology

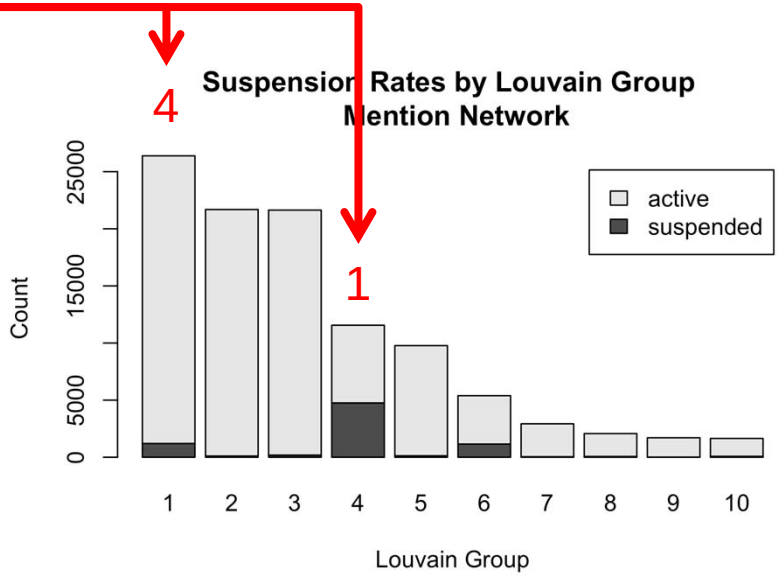


Case Study Work Flow



- Clustering methods are used to label data
- Detection requires a heterogeneous network depiction is needed to achieve acceptable levels of precision
- Community centrality and global centrality are difficult to differentiate and complicate both detection and analysis

Iterative Vertex Clustering and Classification

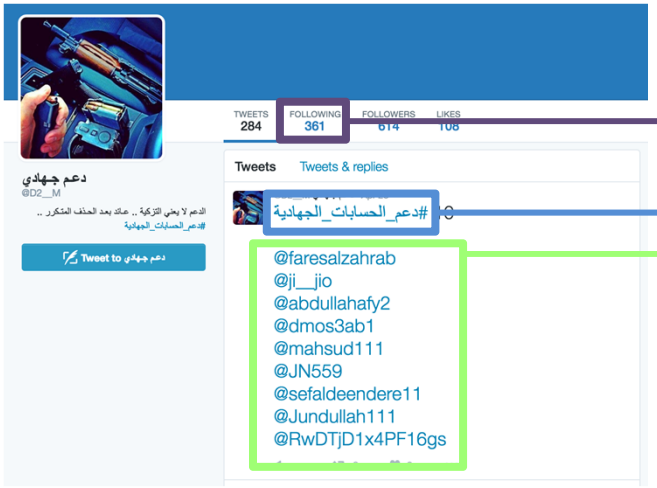


Joseph A. Carter, Shiraz Maher, and Peter R. Neumann, "#Greenbirds: Measuring Importance and Influence in Syrian Foreign Fighter Networks," *International Centre for the Study of Radicalization Report*, April 1, 2014.

- In NOV 2014 Collected 119k Twitter User Accounts using a 2-step snowball search of 5 prominent ISIS supporters'$_1$ following ties.
- Standard community detection methods fail to identify extremist clusters with adequate precision
- Twitter suspension rates indicate ISIS membership within specific Louvain groups and could be used to detect members as a classification problem

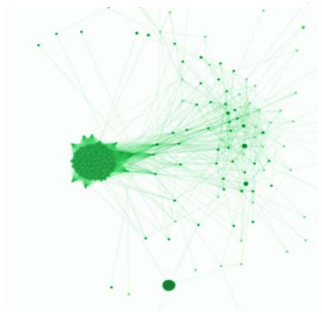
Iterative Vertex Clustering and Classification

Social Media Feature Integration

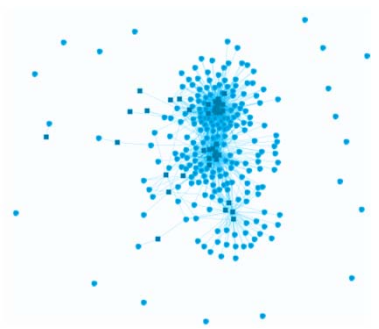


Following Graph

Mention Graph



Hash Tag Graph

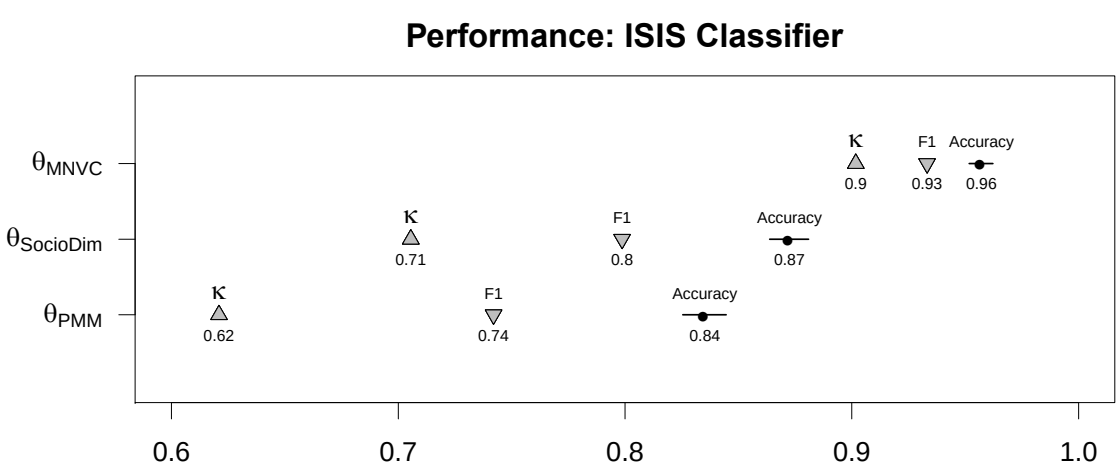


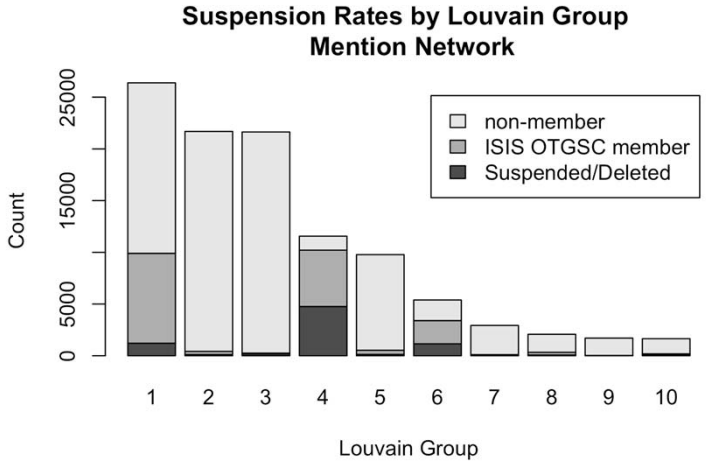
Dimensional reduction through extraction of the **k** lead Eigenvectors of each graph

$$Z = A \ldots F \ldots M \ldots H$$

$n \times (m+4k)$ $\quad$ $n \times m$ $\quad$ $n \times k$ $\quad$ $n \times k$ $\quad$ $n \times k$

Performance





Strengths

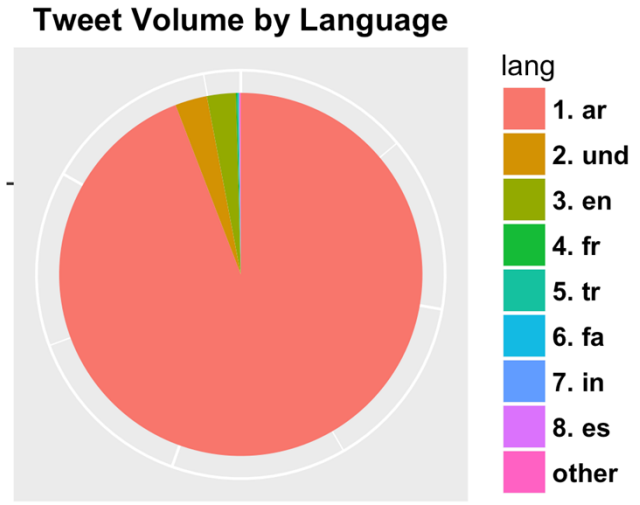
- High accuracy (with large training set)
- Scales well
- Computationally efficient

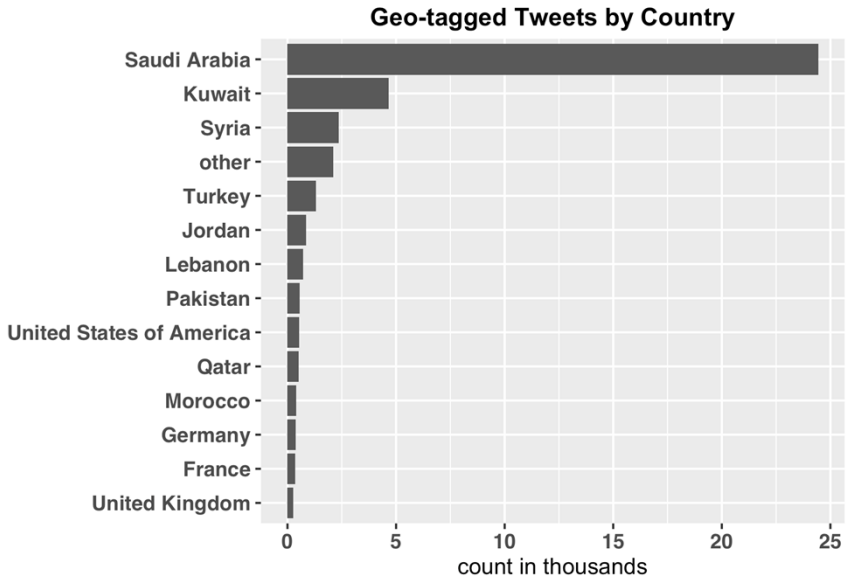
Limitations

- Large training sets needed to attain high recall
- Classifiers sensitive to false positives in the training set

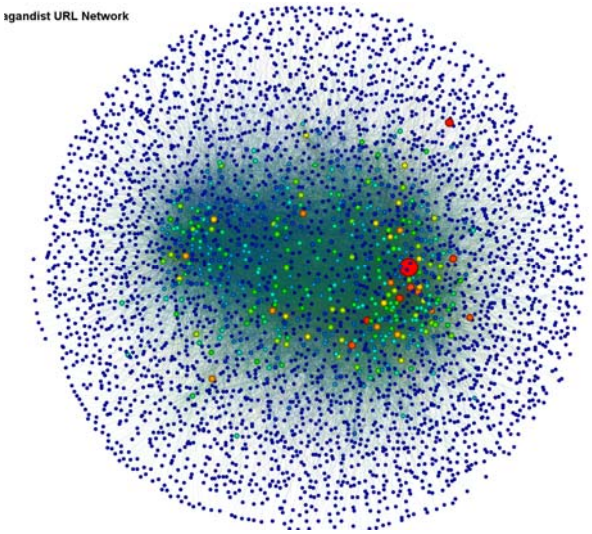
Sunni Extremist Twitter Community

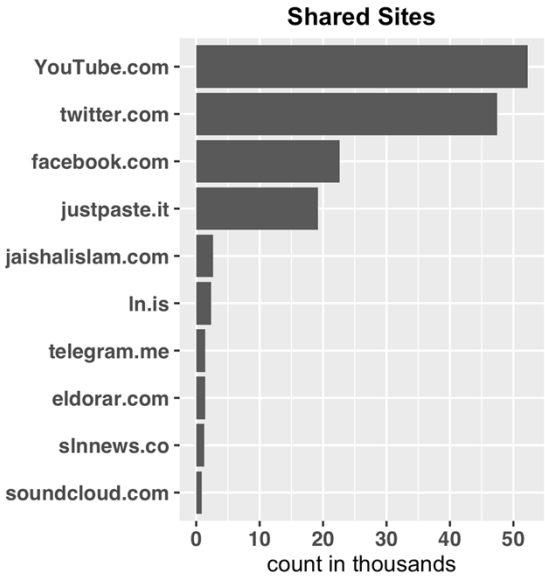
- 10,530 Active Users
- 18M Tweets
- Each user shows some level of support to one or more of the Sunni extremist groups currently engaged in operations in Syria opposing the Assad Regime.
- Some users appear interested in Yemen and Iraq as well.





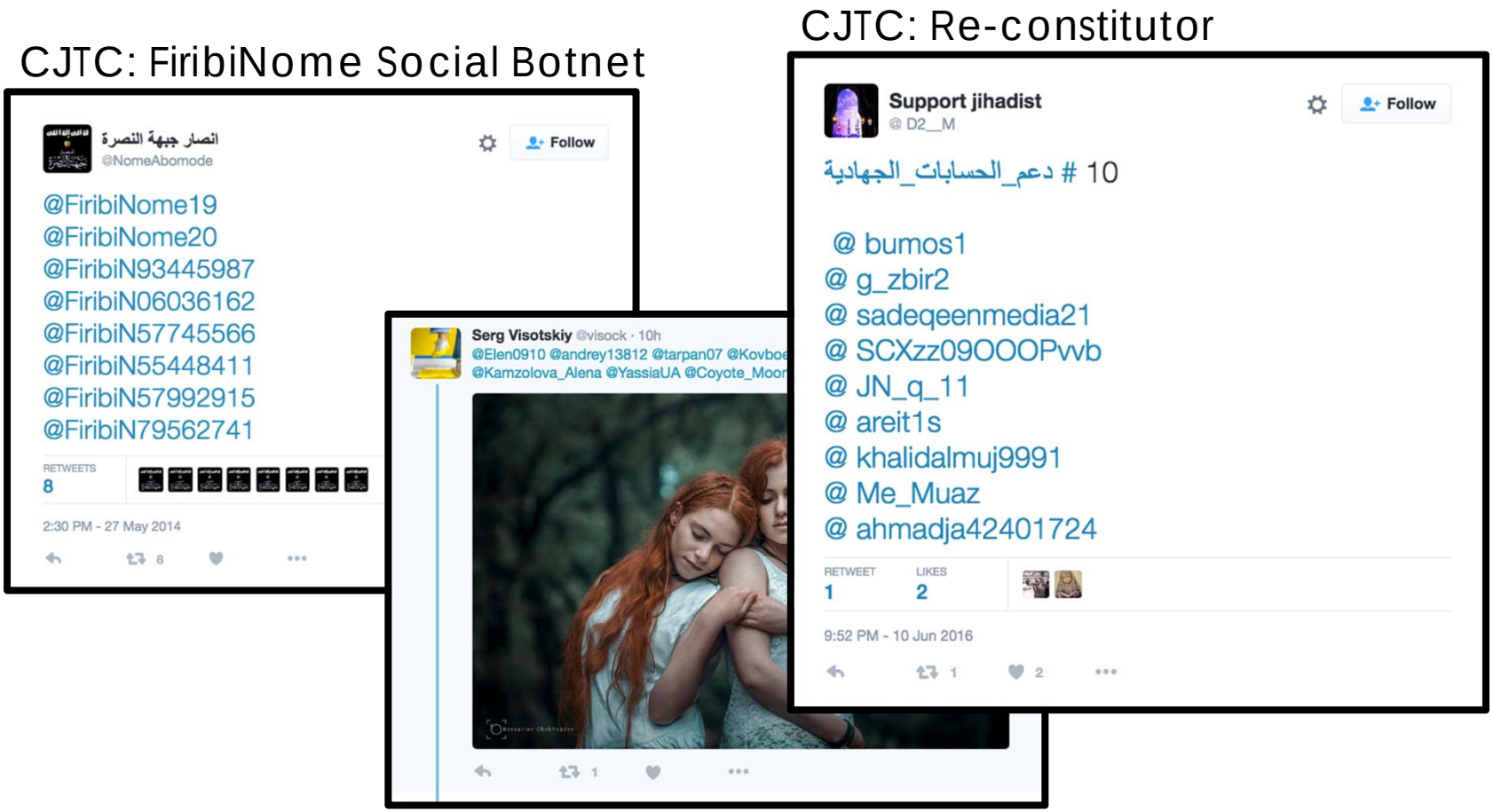
Analysis: Radicalization





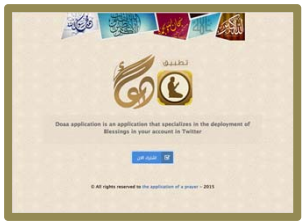
- Targeted grooming and recruiting require peer to peer messaging via the @mention and often use URLs to highlight propaganda or move conversations to a more secure site.
- Vertex color and size on the left plot indicates a the volume of tweets mentioning other members of the community and sharing URLs. We hypothesize blue vertices are recruitment targets. The right panel highlights shortened URLs most commonly used.
- Tweets sharing a peer to peer URL typically contain an userID as well.

Analysis: Gaining Influence



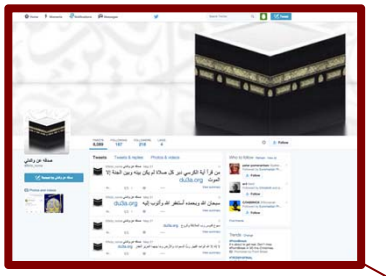
Account's tweets contain multiple mentions of accounts with similar behavior

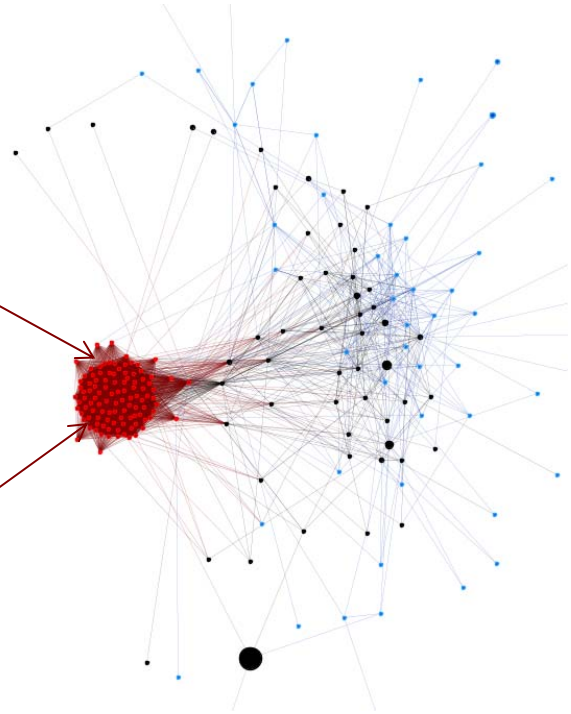
Analysis: Gaining Influence



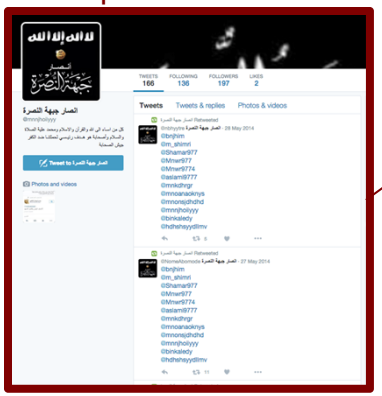
App Sign Up, solicits donations for children of Syria

Example: Firibi Spokesman





Example: Core Firibi Bot



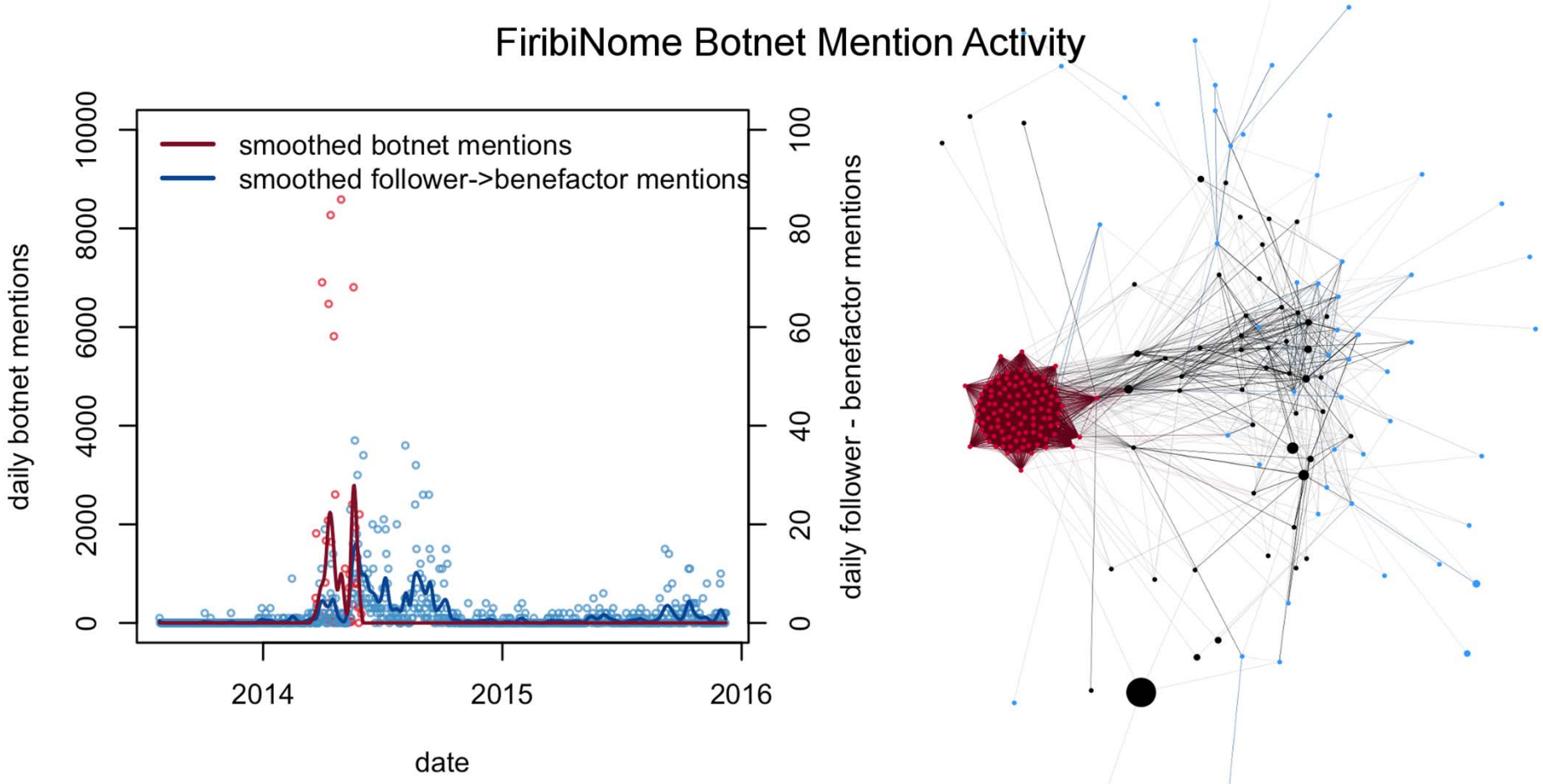
Botnet Promotion:

- **Core Firibi Bot** tweet 100-200 times over a 30-100 day time period mentioning other core members, bot spokesmen, and clients

Step 2: by mentioning **Firibi Spokesmen**, other **Core Bots**, and **highly central members of the OEC**, the botnet gains **followers** from within the OEC and is able to promote the **Spokesmen** accounts.

Example: Firibi Follower

Analysis: Gaining Influence



Mention activity appears to generate follower discussion about Spokesmen and highly central accounts

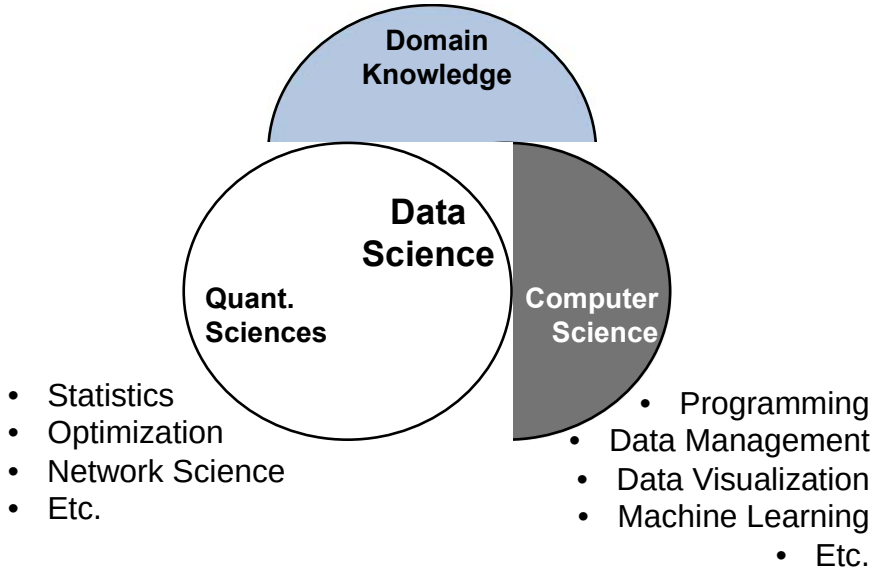
SOCMINT, Big Data, and Data Science

Data Science: an interdisciplinary field about processes and systems to extract knowledge or insights from data in various forms, …

- Data Science is more of a concept than a defined field at the moment
- methodological tool chains are often domain and problem specific.

SOCMINT, Big Data, and Data Science

Data Science: an interdisciplinary field about processes and systems to **extract knowledge or insights from data in various forms**



Generating Intelligence from data requires:

- Uniformed service members with understanding of quantitative sciences and computer science
- Habitual collaboration between government, researchers and industry

Conclusion

- Online Extremist Communities can be detected and analyzed for novel intelligence insights
- Analysis of online extremist communities offers potential for both researchers and practitioners
- Transdisciplinary collaboration is needed at "both ends of the spear"