



Automated Discovery and Visualization of Communication Networks from Social Media

Anatoliy Gruzd @gruzd
gruzd@dal.ca

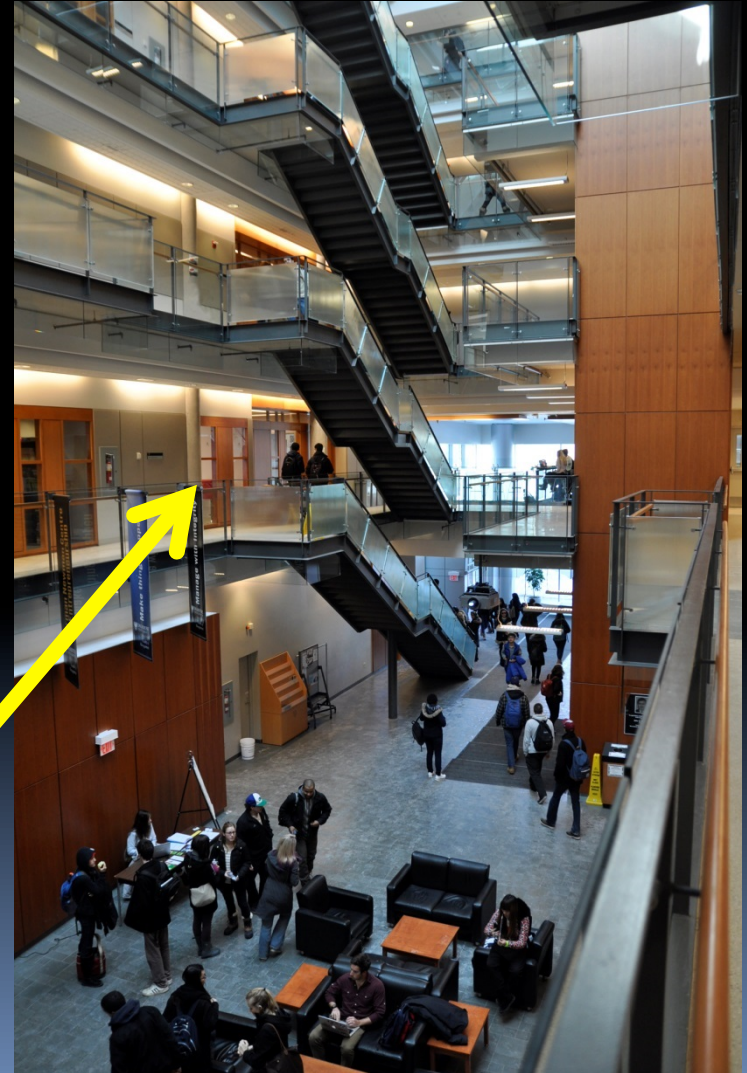
Associate Professor, School of Information Management
Director, Social Media Lab
Faculty of Management / Faculty of Computer Science
Dalhousie University

Slides available at <http://slideshare.net/primath>

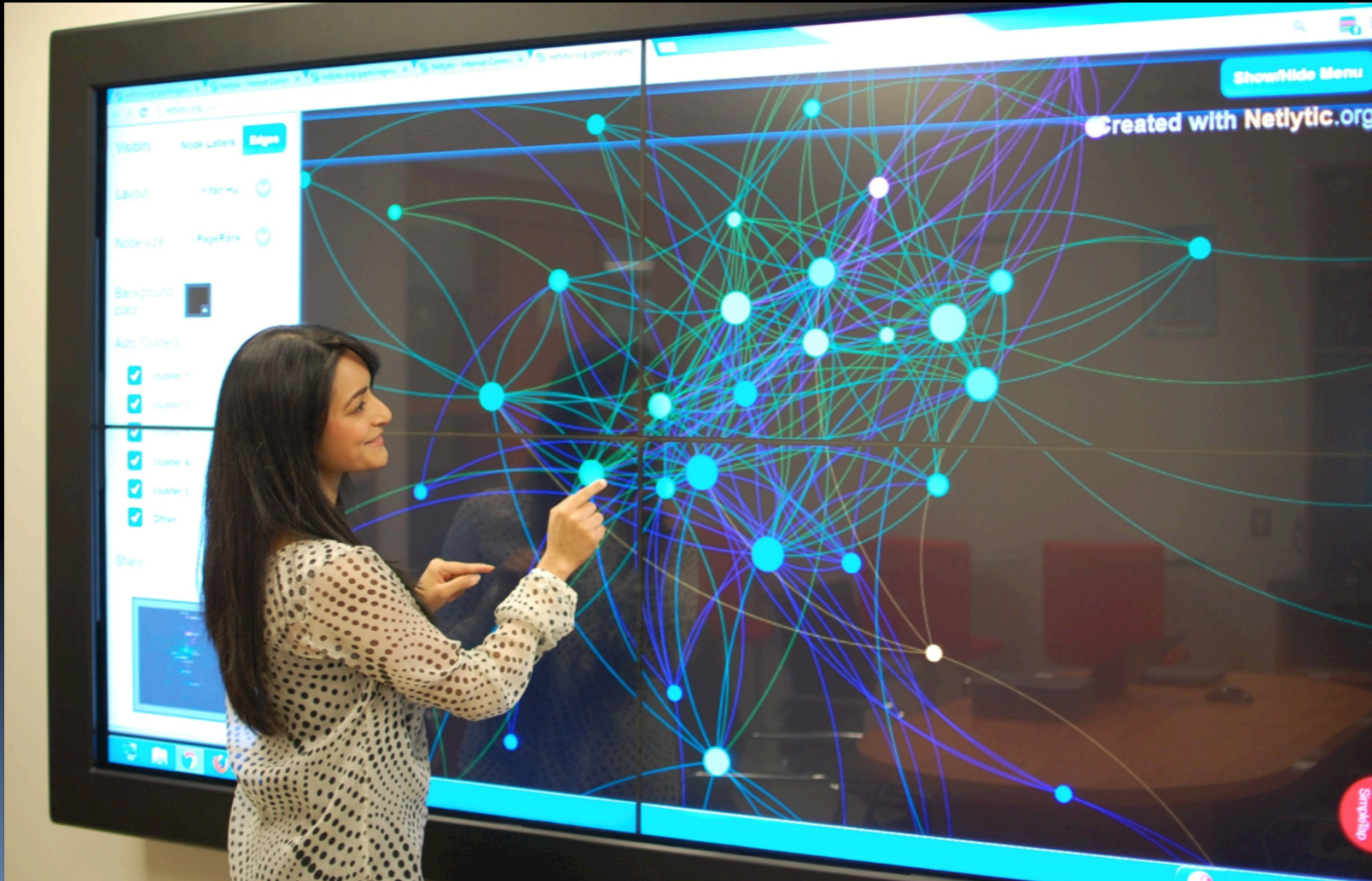
Dalhousie University (Part of U15 in Canada)
Faculty of Management
School of Information Management



Social Media Lab



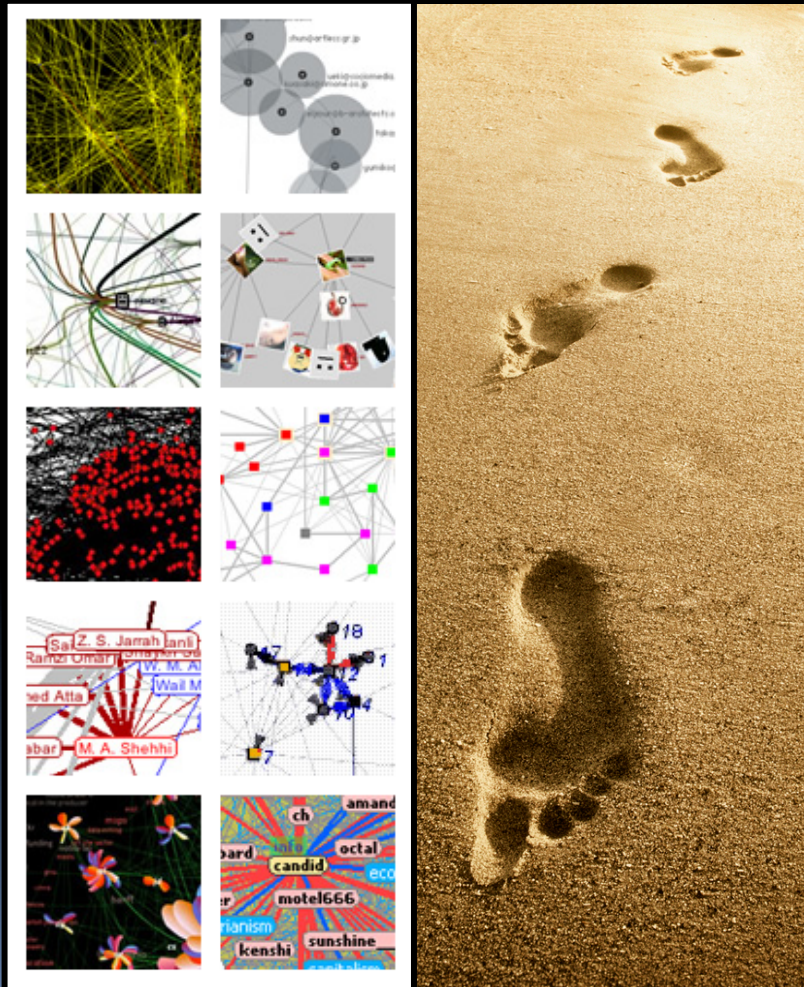
Social Media Lab



Growth of Social Media and Social Networks Data



Studying Online Social Networks



<http://www.visualcomplexity.com/vc>

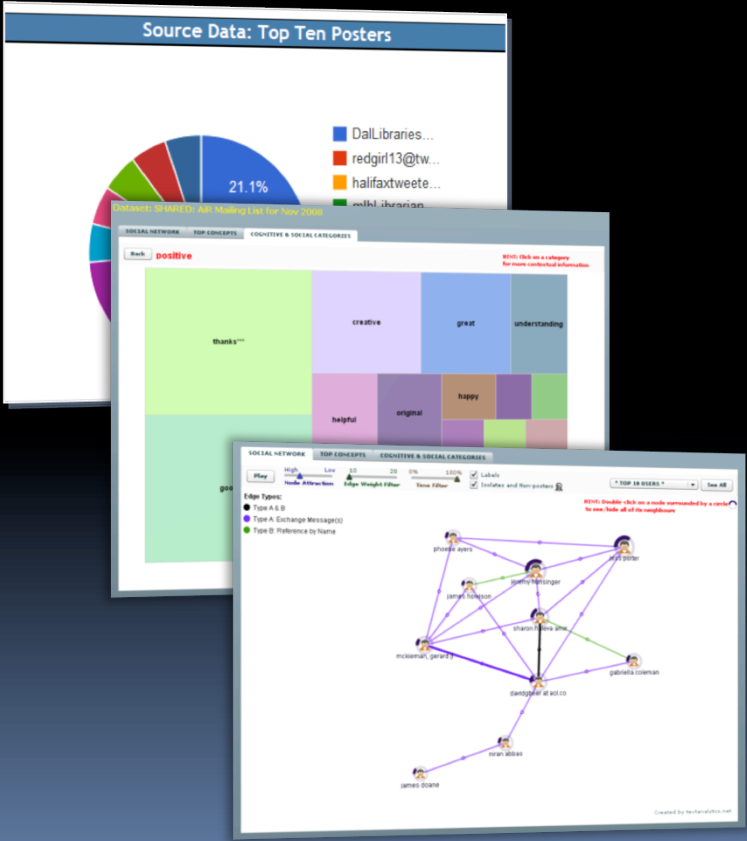
- Forum networks
- Blog networks
- Friends' networks (Facebook, Twitter, Google+, etc...)
- Networks of like-minded people (YouTube, Flickr, etc...)

How to Make Sense of Social Big Data?



How to Make Sense of Social Big Data?

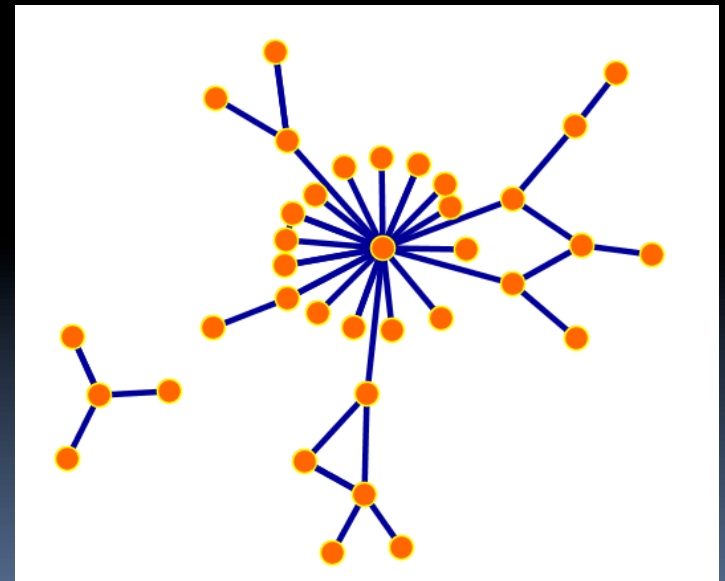
Social Big Data -> Visualizations -> Understanding
(Development, Application & Validation)



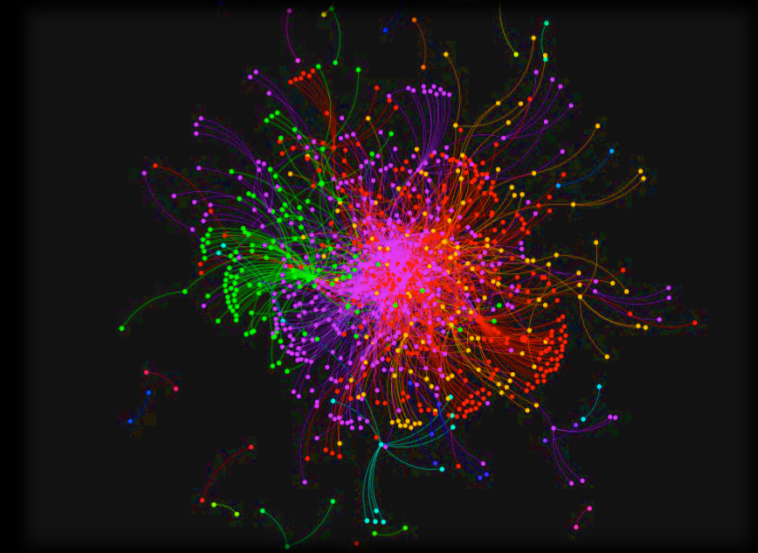
How to Make Sense of Social Big Data?

Social Network Analysis (SNA)

- **Nodes** = People
- **Edges /Ties (lines)** = Relations/ “Who retweeted/ replied/ mentioned whom”



Advantages of Social Network Analysis



- Reduce the large quantity of data into a more concise representation
- Makes it much easier to understand what is going on in a group

Once the network is discovered, we can find out:

- How do people interact with each other,
- Who are the most/least active members of a group,
- Who is influential in a group,
- Who is susceptible to being influenced, etc...

How Do We Collect Information About Online Social Networks?

Common approach for collecting social network data:

- Self-reported social network data may not be available/accurate
- Surveys or interviews

Problems with surveys or interviews

- Time-consuming
- Questions can be too sensitive
- Answers are subjective or incomplete
- Participant can forget people and interactions
- Different people perceive events and relationships differently



How Do We Collect Information About Social Networks?

- Common approach: surveys or interviews
- A sample question about students' perceived social structures

Please indicate on a scale from [1] to [5],

YOUR FRIENDSHIP RELATIONSHIP WITH EACH STUDENT IN THE CLASS

- [1] - don't know this person
- [2] - just another member of class
- [3] - a slight friendship
- [4] - a friend
- [5] - a close friend

Alice D. [1] [2] [3] [4] [5]

...

Richard S. [1] [2] [3] [4] [5]

Source: C. Haythornthwaite, 1999

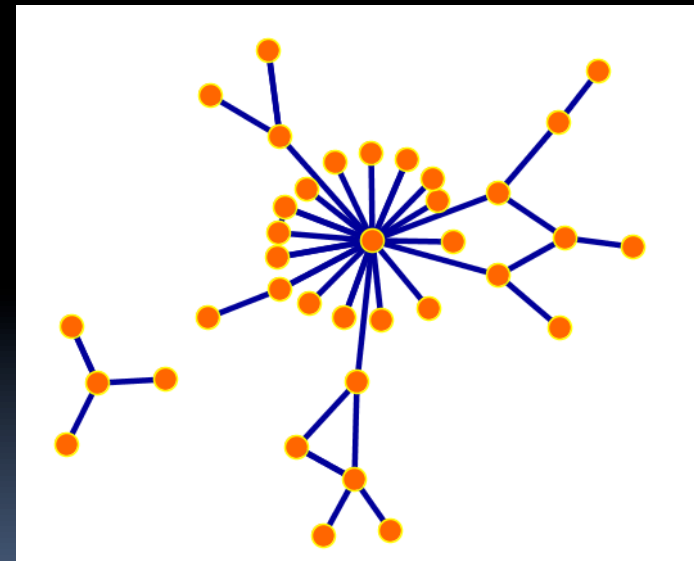
How Do We Collect Information About Online Social Networks?

Goal: Automated Networks Discovery

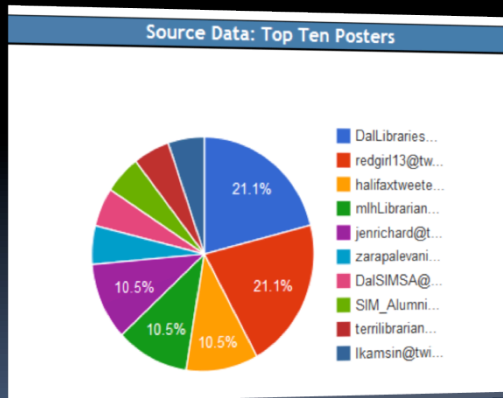
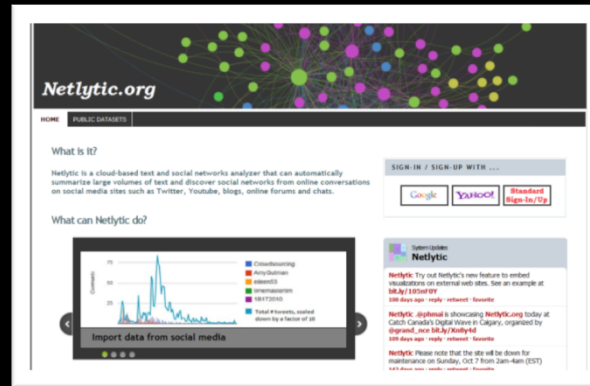
Challenge: Figuring out what content-based features of online interactions can help to uncover nodes and ties between group members



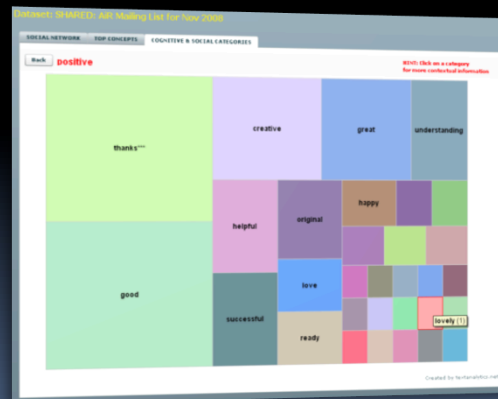
A screenshot of a YouTube comment thread. The top comment is from 'fouseyTUBE' (2 days ago) with 926 replies, describing a prank on Valentine's Day. Below it are several other comments from users like 'Shangori', 'Shorty Garza', 'SoulSurvivorX2', 'Socks170', 'PalestineATW', 'ZzBiohazzardZ', and 'mms47', each with their respective reply counts. The comments discuss the prank, the relationship between the individuals involved, and the authenticity of the video.



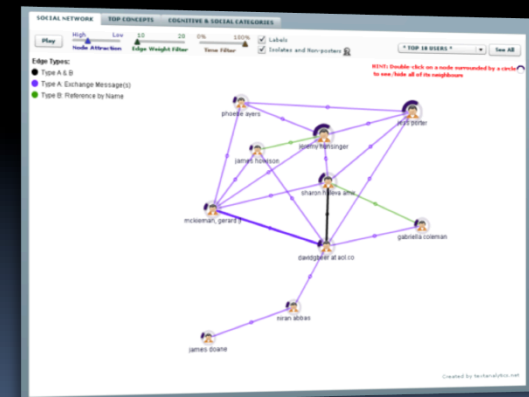
Netlytic.org - a cloud-based analytic tool for automated text analysis & discovery of social networks from online communication



Stats



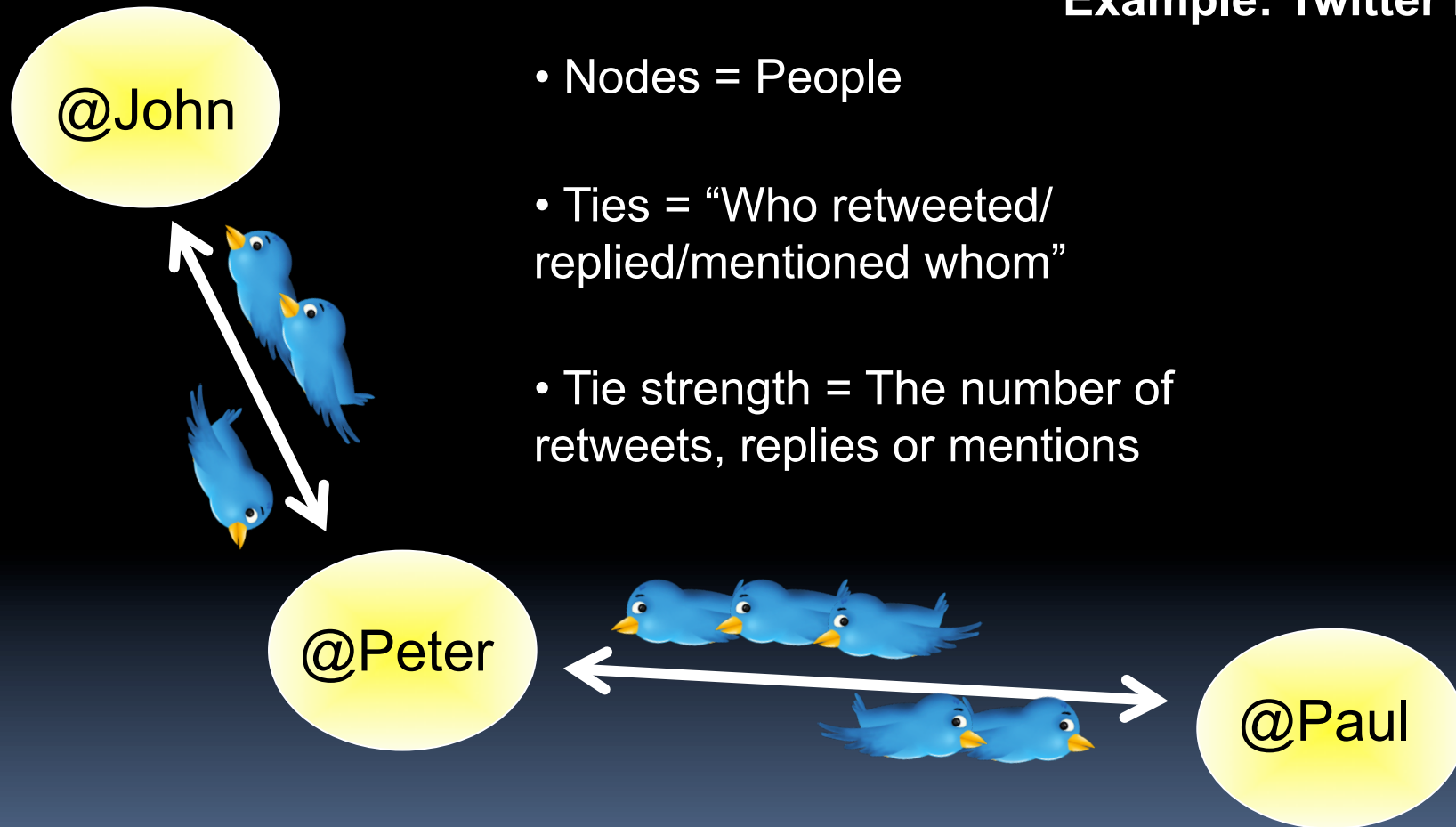
Content



Networks

How to Make Sense of Social Media Data?

Example: Twitter Network

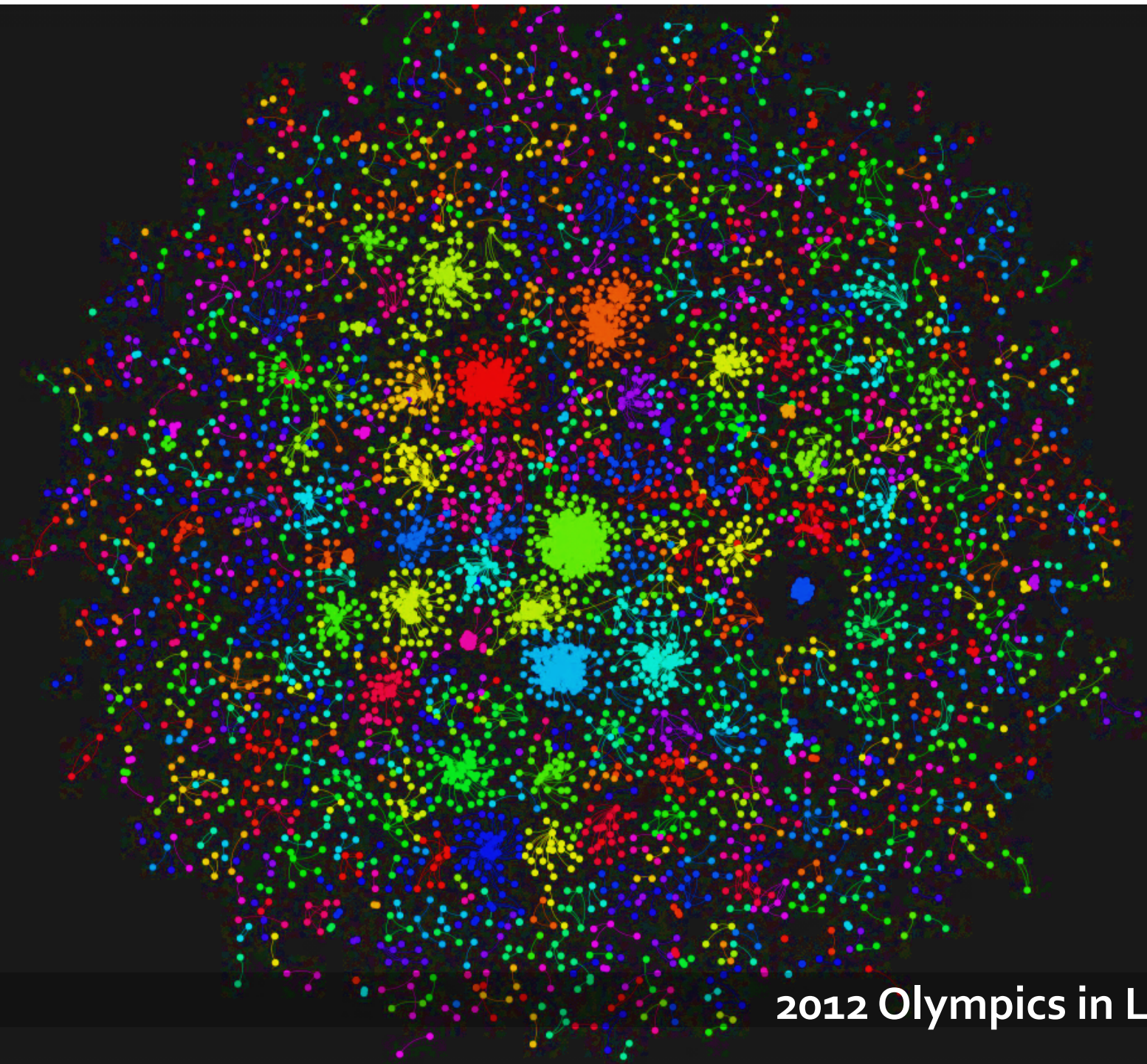


- Nodes = People
- Ties = “Who retweeted/ replied/mentioned whom”
- Tie strength = The number of retweets, replies or mentions

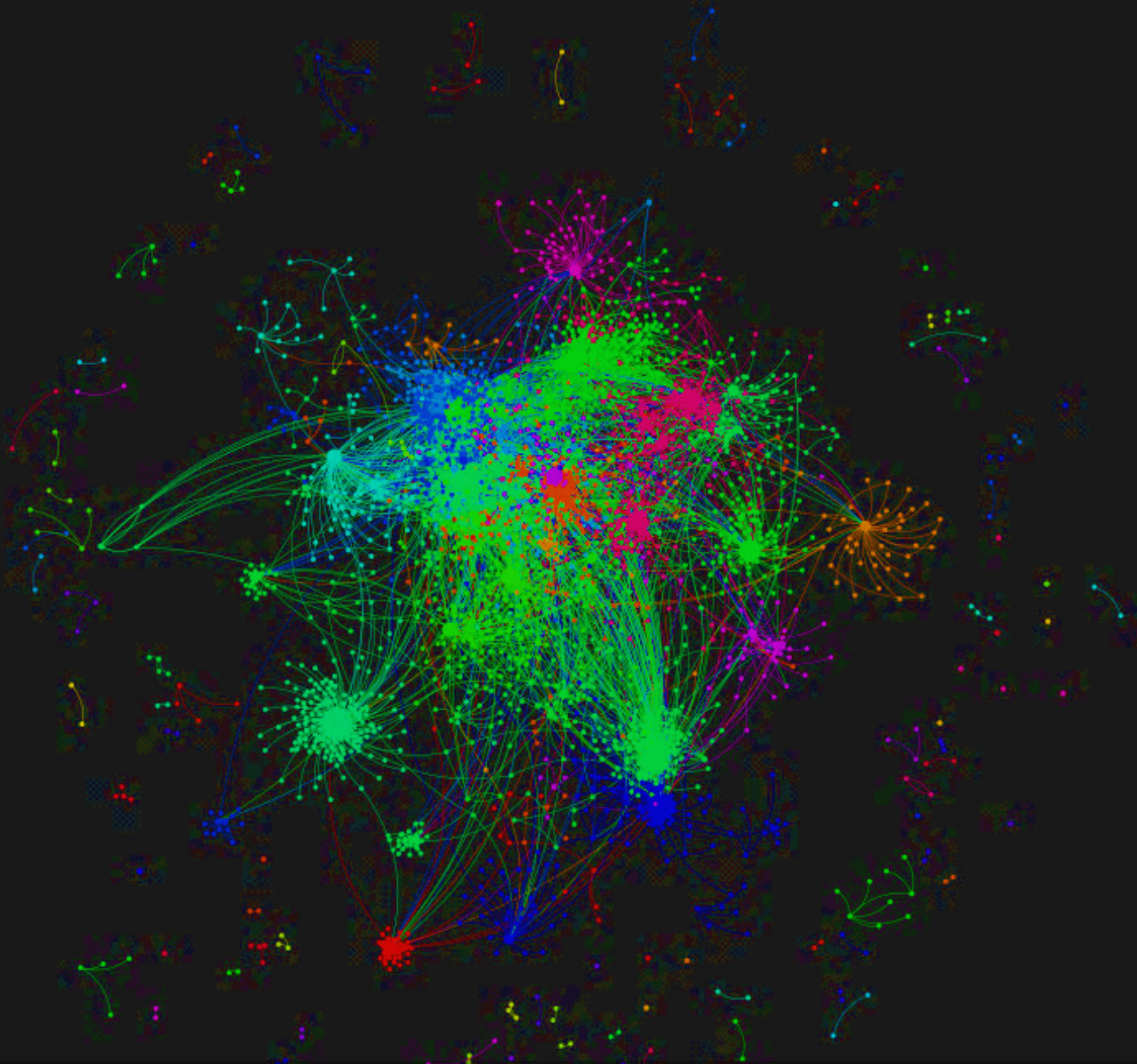
Created with Netlytic.org



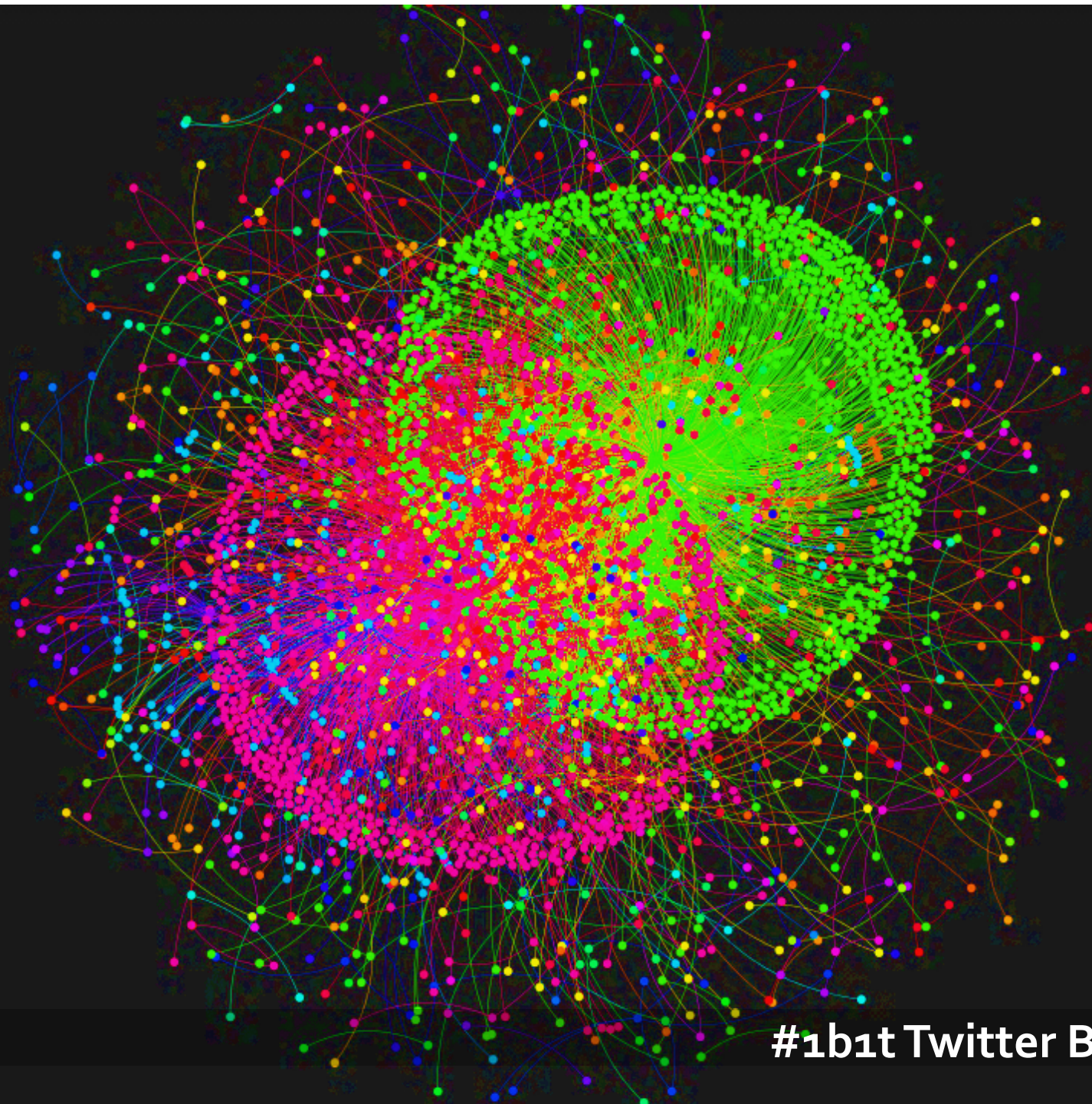
STRATFORD Shakespeare FESTIVAL 



2012 Olympics in London

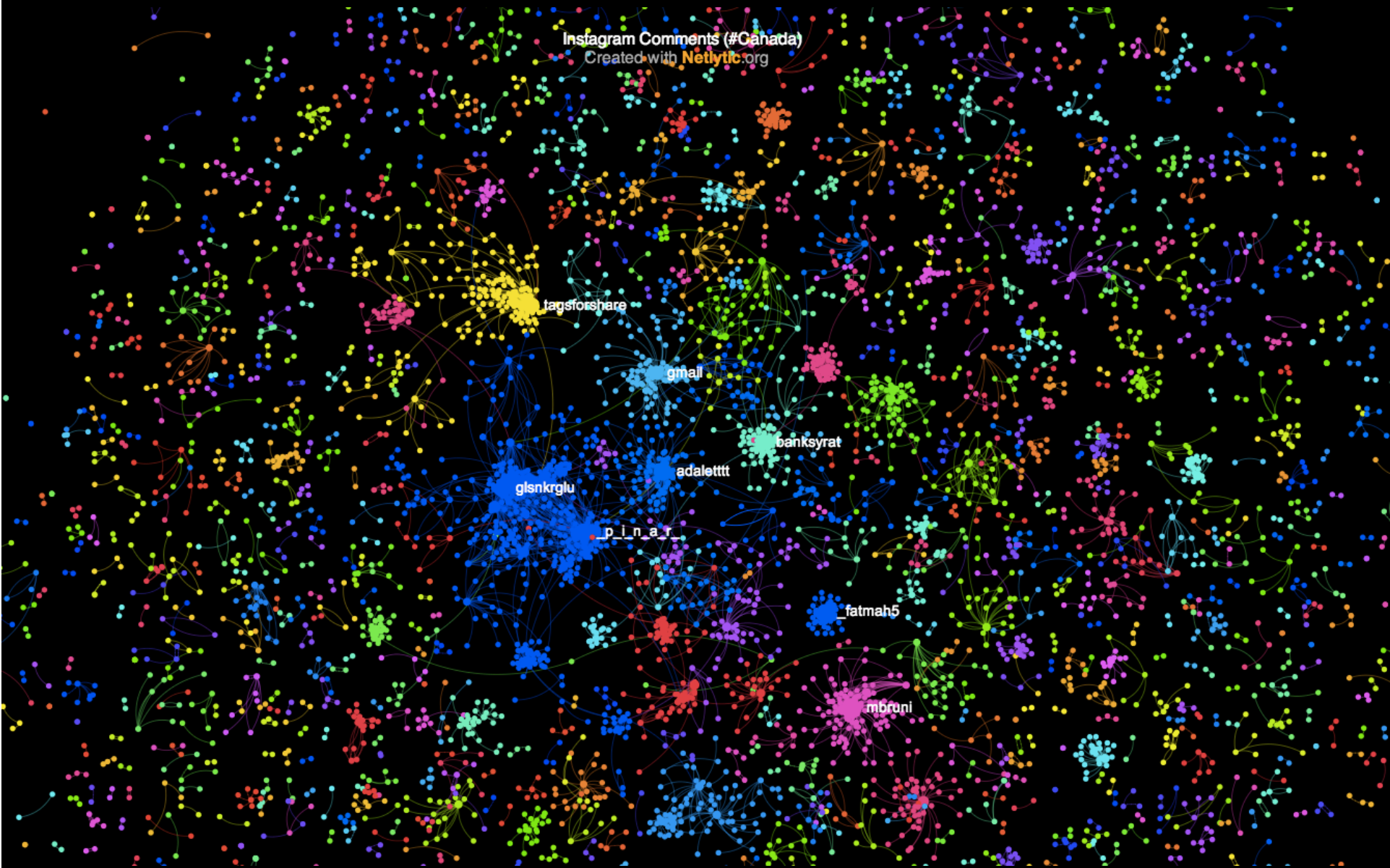


#tarsand Twitter Community



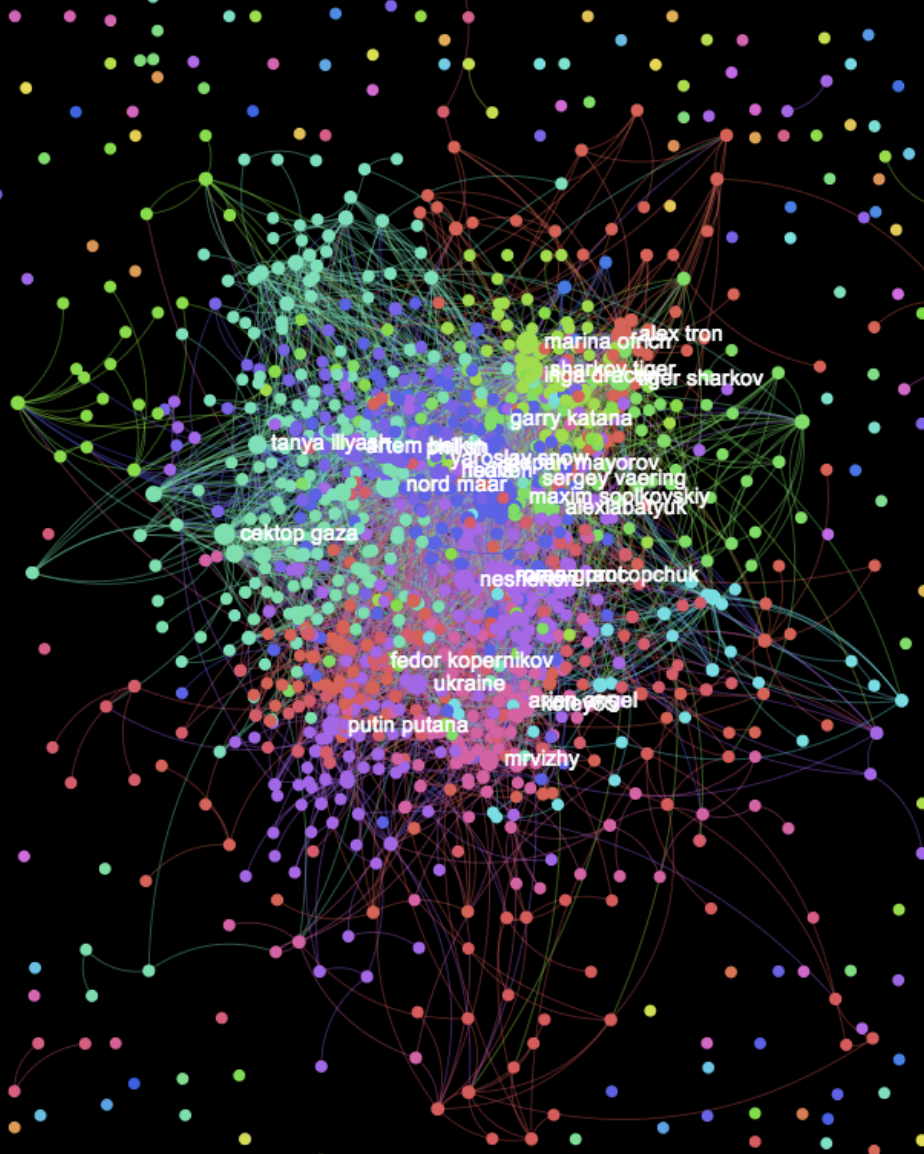
#1b1t Twitter Book Club

Instagram Comments (#Canada)
Created with [Netlytic.org](https://www.netlytic.org)



Comments on Instagram: #Canada

24 News Channel (Youtube)
Created with [Netlytic.org](https://www.netlytic.org)



Comments on Youtube: Ukrainian news channel

SocialMediaLab.ca

The screenshot shows the homepage of the Social Media Lab website. At the top left is the Social Media Lab logo with the tagline "Making sense of a networked world". To the right is the Dalhousie University logo with the tagline "Inspiring Minds". Below the logos is a banner image of people working at computers. A navigation menu includes Home, About, People, Research, Web Apps, Events, Publications, and Press. A search bar is located on the right. The main content area features a featured article titled "Sharing Biodiversity Heritage through Social Media: Mining Biodiversity's 'Big-Data'" by Dr. Anatoliy Gruzd. Below the article is a "View full post" button. At the bottom, there are two promotional boxes: one for the new journal "SAGE Big Data & Society (BD&S)" and another for the "Social Media & Society Conference, Toronto, Canada September 27-28, 2014".

Social Media Lab
"Making sense of a networked world"

DALHOUSIE UNIVERSITY
Inspiring Minds

Home About People Research Web Apps Events Publications Press Search

Sharing Biodiversity Heritage through Social Media: Mining Biodiversity's "Big-Data"

Dr. Anatoliy Gruzd of the School of Information Management and Director of the Social Media Lab at Dalhousie University is the co-lead on one of 14 teams of international researchers that will receive funding from the Digging into Data Challenge, an international competition designed to challenge the research community to investigate how new computational techniques ...

[View full post](#)

JAN 29 **New Year, New Journal: SAGE Big Data & Society (BD&S)**
Academic, Announcements, Publishing, Research by Philip Mai

We are excited to announce the launch of the new SAGE Big Data & Society Journal (BD&S). BD&S is an open access peer-reviewed scholarly journal that publishes interdisciplinary work principally in the social sciences, humanities and computing and their intersections with the arts and natural sciences about the implications of Big Data for societies. The Journal's key purpose is to ...

Join Us! Social Media & Society Conference, Toronto, Canada September 27-28, 2014



SocialMediaAndSociety.com



The screenshot shows the homepage of the Social Media & Society website. At the top left is the logo, which consists of the letters 'SM' stacked above '&S' in a colorful, blocky font. To the right of the logo, the text 'Social Media & Society' is written in a large, elegant serif font. Below this, it says '2014 International Conference (September 27-28, Toronto)'. In the top right corner, there are three circular icons: a Twitter bird, the YouTube logo, and a generic social media icon. Below these icons is a search bar with the placeholder text 'Search the site' and a black 'Search!' button. A horizontal navigation menu is located below the search bar, with buttons for 'About', 'Keynote', 'Program Committee', 'Submission', 'Registration', 'Venue', 'Past Conferences', and 'Contact'. The main content area features a large photograph of a conference room filled with people seated at long tables, many with laptops open. A person is standing at the front of the room near a large projection screen. Below the photograph is a set of four small, light-gray circular dots, with the first one on the left being filled in black, indicating the current slide in a sequence.



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