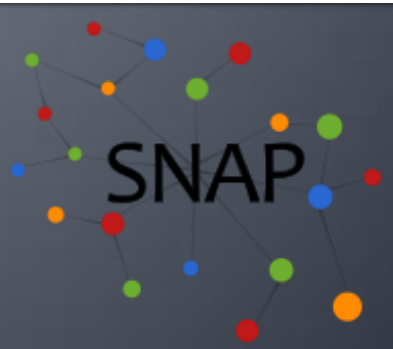
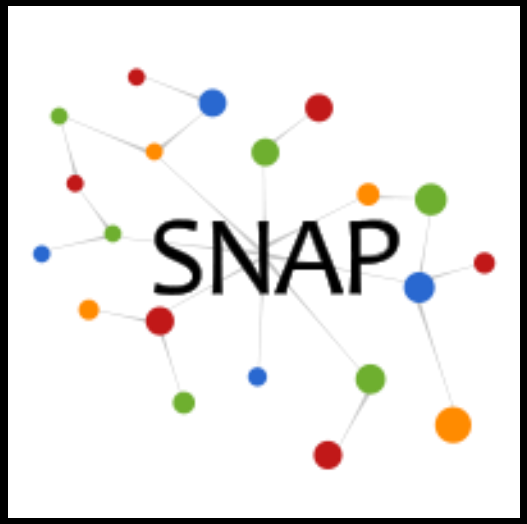
Tutorial: Large Scale Network Analytics with SNAP

http://snap.stanford.edu/proj/snap-www

Rok Sosič, Jure Leskovec
Stanford University



WWW-15, Florence, Italy **May, 2015**



SNAP Network Datasets

Rok Sosič, Jure Leskovec
Stanford University

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SNAP Network Datasets

- http://snap.stanford.edu/data/
- **Public collection of large network datasets**
  - Over 15 network types
  - Over 70 datasets
  - Varying sizes from 20K up to 1.8B edges
- **Popular resource for network scientists**
  - Method development, study, benchmarking
- **Contribute your dataset**
  - We welcome new additions
- **SNAP Dataset Users mailing list**
  http://groups.google.com/group/snap-datasets

Datasets in SNAP (1)

- **Social networks**
  - Online social networks, edges represent interactions between users
- **Location-based online social networks**
  - Social networks with geographic check-ins
- **Online communities**
  - Data from online communities such as Reddit and Flickr
- **Networks with ground-truth communities**
  - Ground-truth network communities in social/information networks
- **Online reviews**
  - Data from online review systems such as Amazon
- **Amazon networks**
  - Nodes represent products, edges link co-purchased products
- **http://snap.stanford.edu/data/**

Datasets in SNAP (2)

- **Twitter and Memetracker**
  - Memetracker phrases, links and 467 million Tweets
- **Signed networks**
  - Networks with positive and negative edges (friend/foe, trust/distrust)
- **Communication networks**
  - Email communication networks with edges representing emails
- **Wikipedia networks and metadata**
  - Talk, editing and voting data from Wikipedia
- **Citation networks**
  - Nodes represent papers, edges represent citations
- **Collaboration networks**
  - Nodes represent scientists, edges represent collaboration (paper co-authoring)

- **http://snap.stanford.edu/data/**

Datasets in SNAP (3)

- **Web graphs**
  - Nodes represent webpages and edges are hyperlinks
- **Internet networks**
  - Nodes represent computers and edges communication
- **Autonomous systems**
  - Graphs of the internet
- **Road networks**
  - Nodes represent intersections and edges roads connecting the intersections
- **http://snap.stanford.edu/data/**

Social Circles from Facebook

- **Friends lists from Facebook**
  - Includes user profiles, circles, ego networks
  - Collected via Social Circles App on Facebook
    - **Contribute your own social circles:** http://snap.stanford.edu/socialcircles/
  - **Social circle detection Kaggle competition:**
    - https://www.kaggle.com/c/learning-social-circles

Dataset statistics	
Nodes	4039
Edges	88234
Nodes in largest WCC	4039 (1.000)
Edges in largest WCC	88234 (1.000)
Nodes in largest SCC	4039 (1.000)
Edges in largest SCC	88234 (1.000)
Average clustering coefficient	0.6055
Number of triangles	1612010
Fraction of closed triangles	0.2647
Diameter (longest shortest path)	8
90-percentile effective diameter	4.7

http://snap.stanford.edu/data/egonets-Facebook.html

Location Based Social Networks

Friendship network and check-ins in Gowalla location-based social network

Dataset statistics	
Nodes	196591
Edges	950327
Nodes in largest WCC	196591 (1.000)
Edges in largest WCC	950327 (1.000)
Nodes in largest SCC	196591 (1.000)
Edges in largest SCC	950327 (1.000)
Average clustering coefficient	0.2367
Number of triangles	2273138
Fraction of closed triangles	0.007952
Diameter (longest shortest path)	14
90-percentile effective diameter	5.7
Check-ins	6,442,890

http://snap.stanford.edu/data/loc-gowalla.html

Online Communities: Reddit

- **Post submissions to Reddit**
  - Includes an image with multiple submissions
  - **Features per posts:** number of ratings, the title, number of comments

Dataset statistics	
Number of submissions	132,308
Number of unique images	16,736
Average number of times an image is resubmitted	7.9
Timespan	July 2008 - Jan 2013

http://snap.stanford.edu/data/web-Reddit.html

Online Reviews: Amazon

- **18 years of Amazon reviews up to March 2013**
  - Product and user information, ratings, review text

Dataset statistics	
Number of reviews	34,686,770
Number of users	6,643,669
Number of products	2,441,053
Users with > 50 reviews	56,772
Median no. of words per review	82
Timespan	Jun 1995 - Mar 2013

http://snap.stanford.edu/data/web-Amazon.html