Tutorial: Large Scale Network Analytics with SNAP

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

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What is SNAP?

- **S**tanford **N**etwork **A**nalysis **P**latform (SNAP) is a general purpose, high-performance system for analysis and manipulation of large networks
  - http://snap.stanford.edu
  - Scales to massive networks with hundreds of millions of nodes and billions of edges
- **SNAP software**
  - Snap.py for Python, SNAP C++
- **SNAP datasets**
  - Over 70 network datasets

SNAP Tutorial: Content

- Motivation
- Introduction to SNAP
- Snap.py for Python
- Network analytics
- SNAP network datasets
- SNAP for C++
- Hands-on exercise

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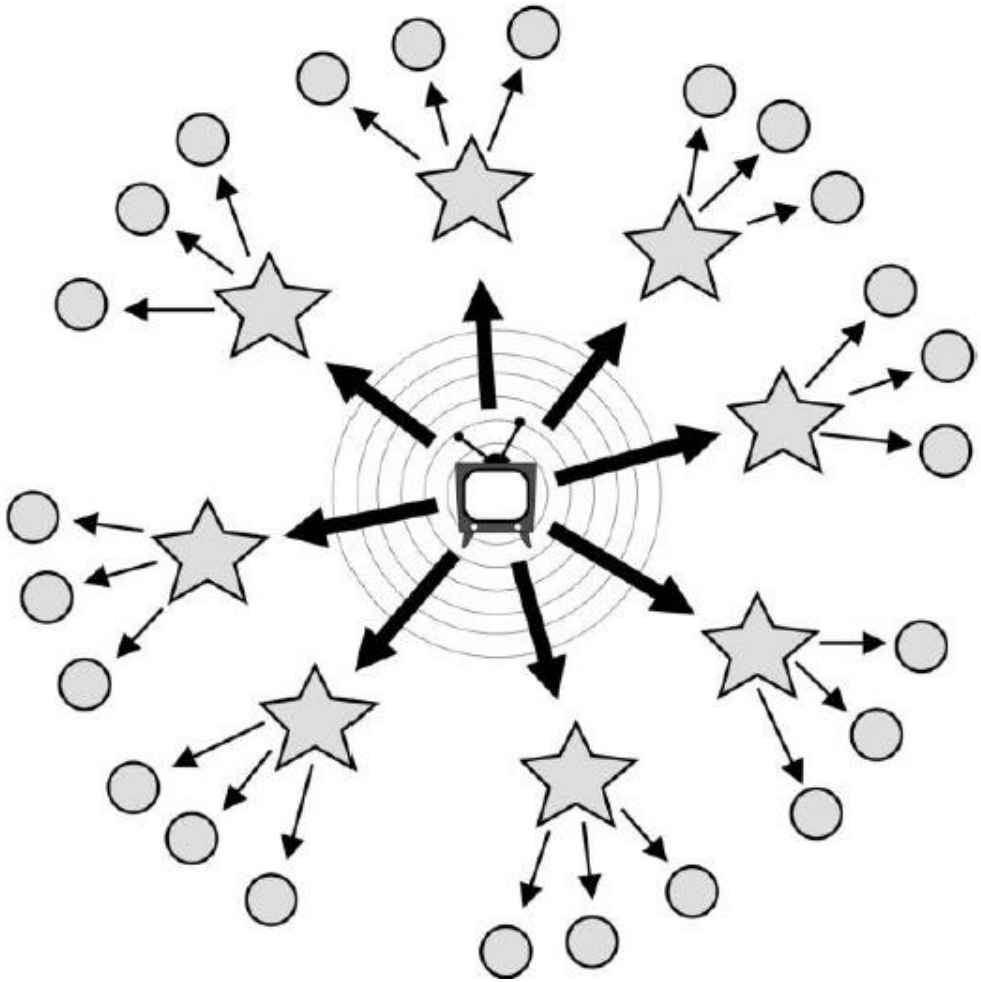
Slides available at:
http://snap.stanford.edu/proj/snap-icwsm

Why Networks?

Networks are a general language for describing complex systems

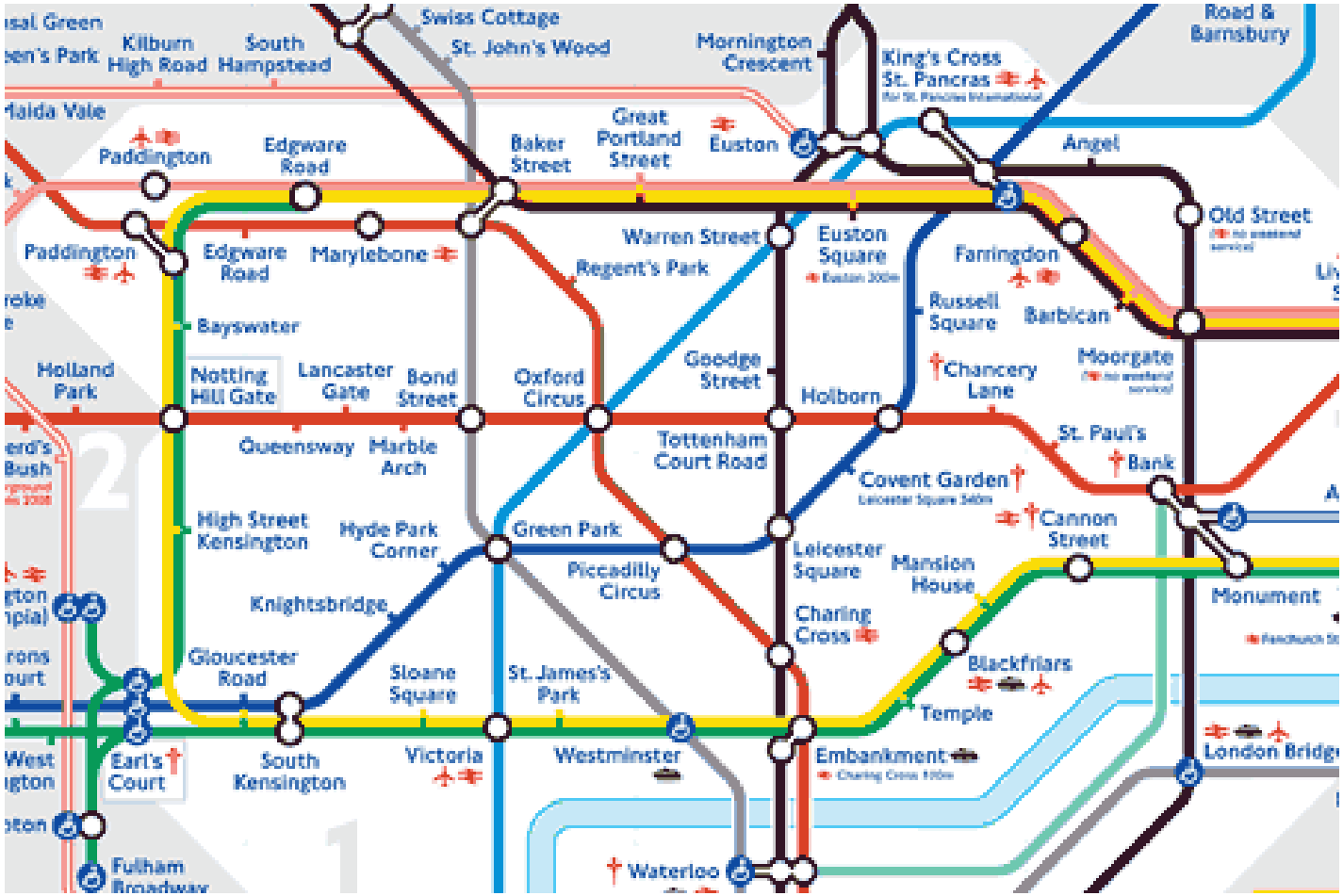
Friends & Family

Society

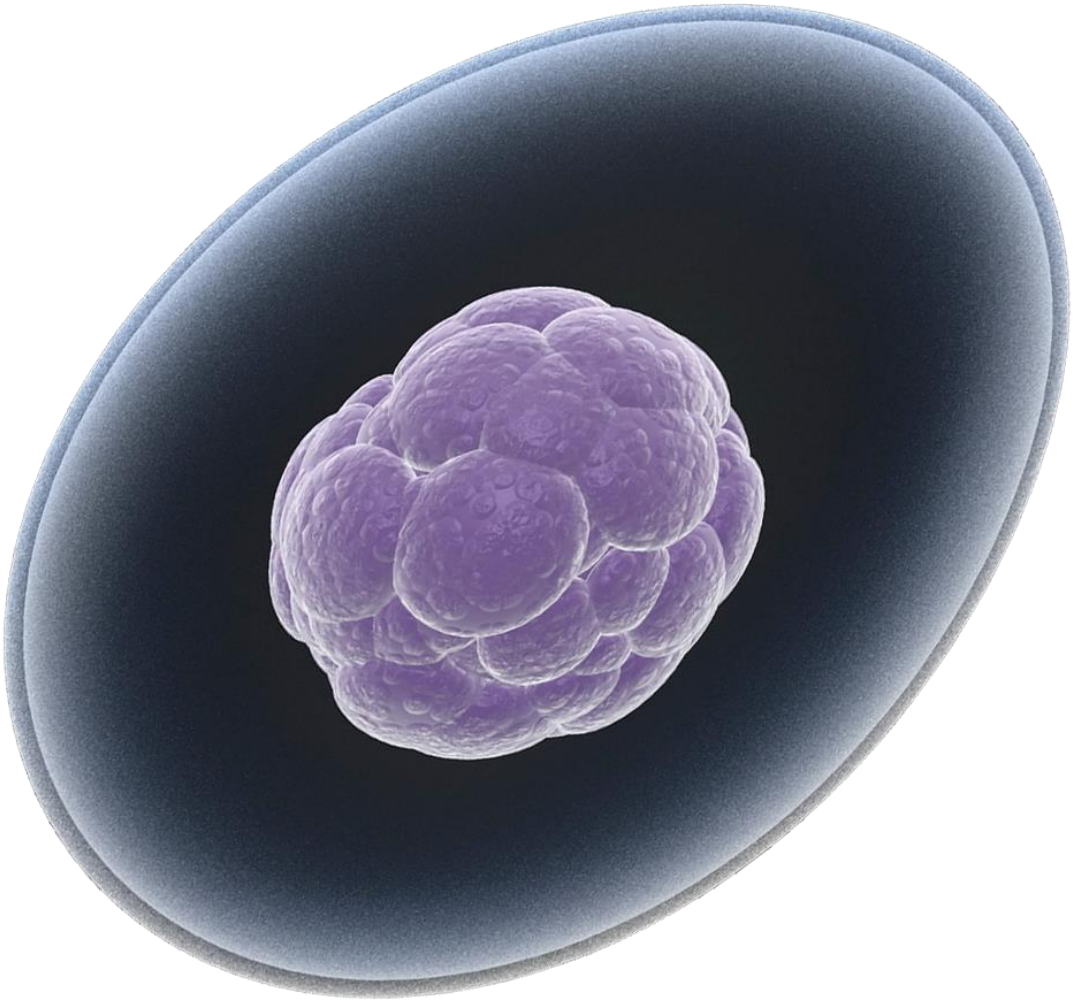


Media & Information

World economy

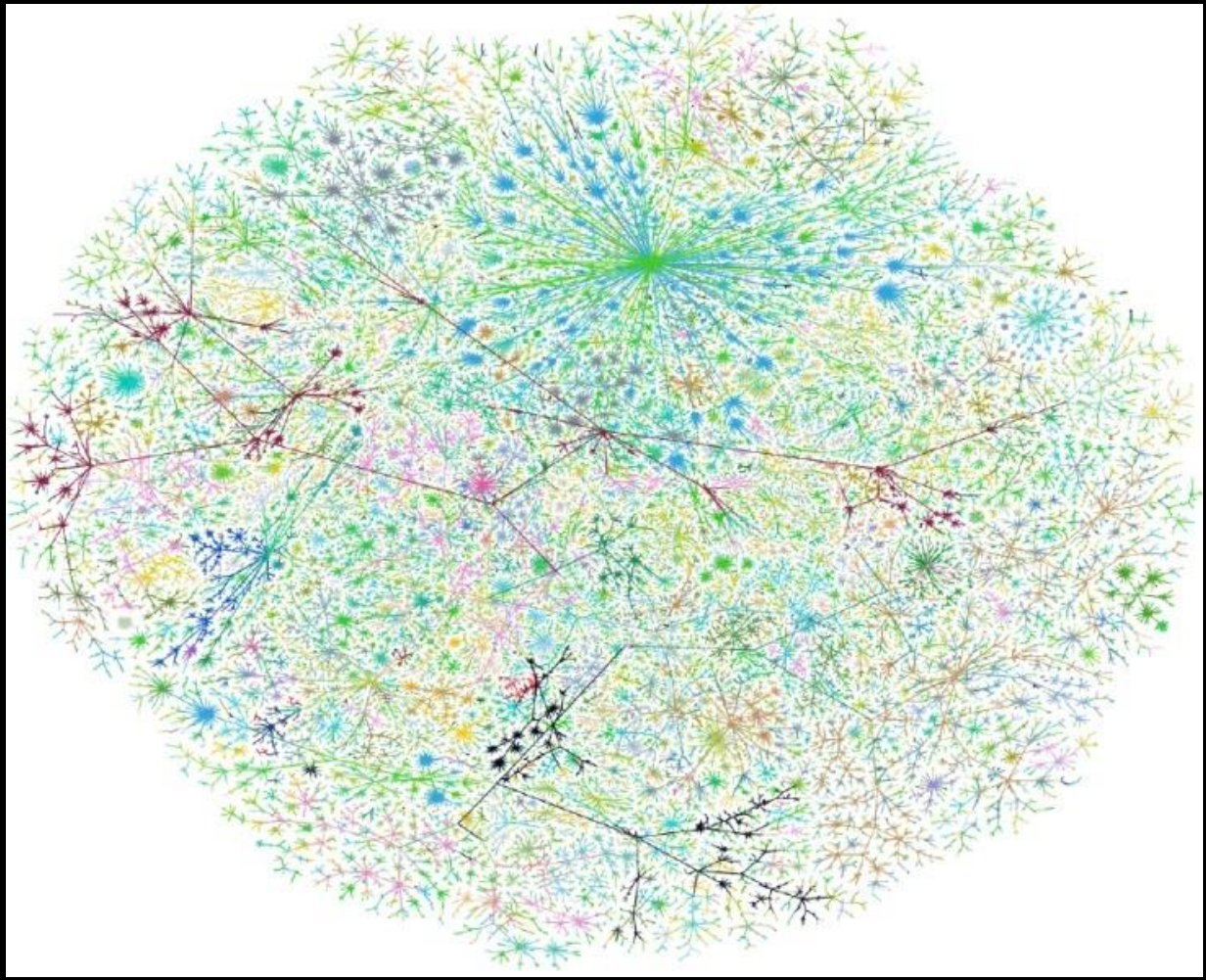

Kilburn High Road
South Hampstead
Swiss Cottage
St. John's Wood
Mornington Crescent
King's Cross St. Pancras
Road & Barnsbury
Paddington
Edgware Road
Baker Street
Great Portland Street
Euston
Angel
Old Street
Paddington
Edgware Road
Marylebone
Warren Street
Euston Square
Farringdon
Regent's Park
Russell Square
Barbican
Bayswater
Holland Park
Notting Hill Gate
Lancaster Gate
Bond Street
Oxford Circus
Goodge Street
Holborn
Chancery Lane
Moorgate
Queensway
Marble Arch
Tottenham Court Road
St. Paul's
Bank
Covent Garden
Cannon Street
High Street Kensington
Hyde Park Corner
Green Park
Leicester Square
Mansion House
Piccadilly Circus
Knightsbridge
Charing Cross
Monument
Gloucester Road
Sloane Square
St. James's Park
Blackfriars
Temple
Earl's Court
South Kensington
Victoria
Westminster
Embankment
London Bridge
Waterloo
Fulham Broadway

Roads



Human cell

Brain



Networks!

SNAP Resources

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Snap.py Resources

- **Prebuilt packages** available for Mac OS X, Windows, Linux
  http://snap.stanford.edu/snappy/index.html
- **Snap.py documentation**:
  http://snap.stanford.edu/snappy/doc/index.html
  - Quick Introduction, Tutorial, Reference Manual
- **SNAP user mailing list**
  http://groups.google.com/group/snap-discuss
- **Developer resources**
  - Software available as open source under BSD license
  - GitHub repository
    https://github.com/snap-stanford/snap-python

SNAP C++ Resources

- **Source code** available for Mac OS X, Windows, Linux
  http://snap.stanford.edu/snap/download.html
- **SNAP documentation**
  http://snap.stanford.edu/snap/doc.html
  - Quick Introduction, User Reference Manual
  - Source code, see **tutorials**
- **SNAP user mailing list**
  http://groups.google.com/group/snap-discuss
- **Developer resources**
  - Software available as open source under BSD license
  - GitHub repository
    https://github.com/snap-stanford/snap
  - SNAP C++ Programming Guide

SNAP Network Datasets

Collection of over 70 social network datasets: http://snap.stanford.edu/data

Mailing list: http://groups.google.com/group/snap-datasets

- **Social networks:** online social networks, edges represent interactions between people
- **Twitter and Memetracker :** Memetracker phrases, links and 467 million Tweets
- **Citation networks:** nodes represent papers, edges represent citations
- **Collaboration networks:** nodes represent scientists, edges represent collaborations (co-authoring a paper)
- **Amazon networks :** nodes represent products and edges link commonly co-purchased products