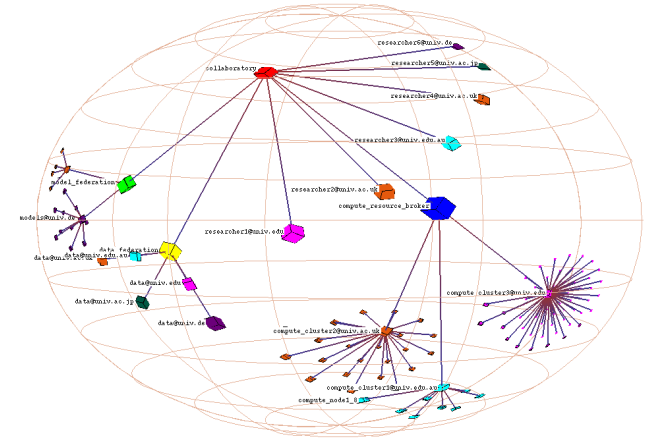
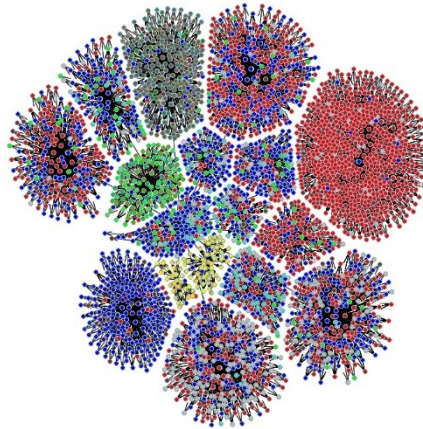
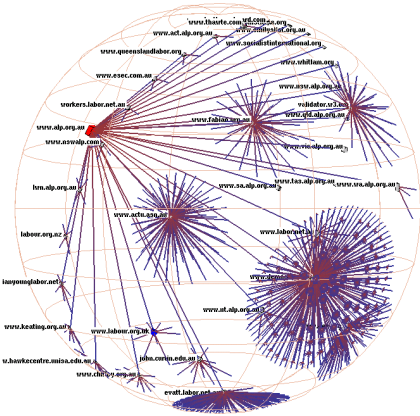




# Collecting and Analyzing Social Media Data Using SocialMediaLab



Dr Robert Ackland  
School of Sociology | Centre for Social Research &  
Methods | VOSON Lab  
Research School of Social Sciences  
Australian National University

E: [robert.ackland@anu.edu.au](mailto:robert.ackland@anu.edu.au)  
T: @RobAckland  
W: <http://vosonlab.net>

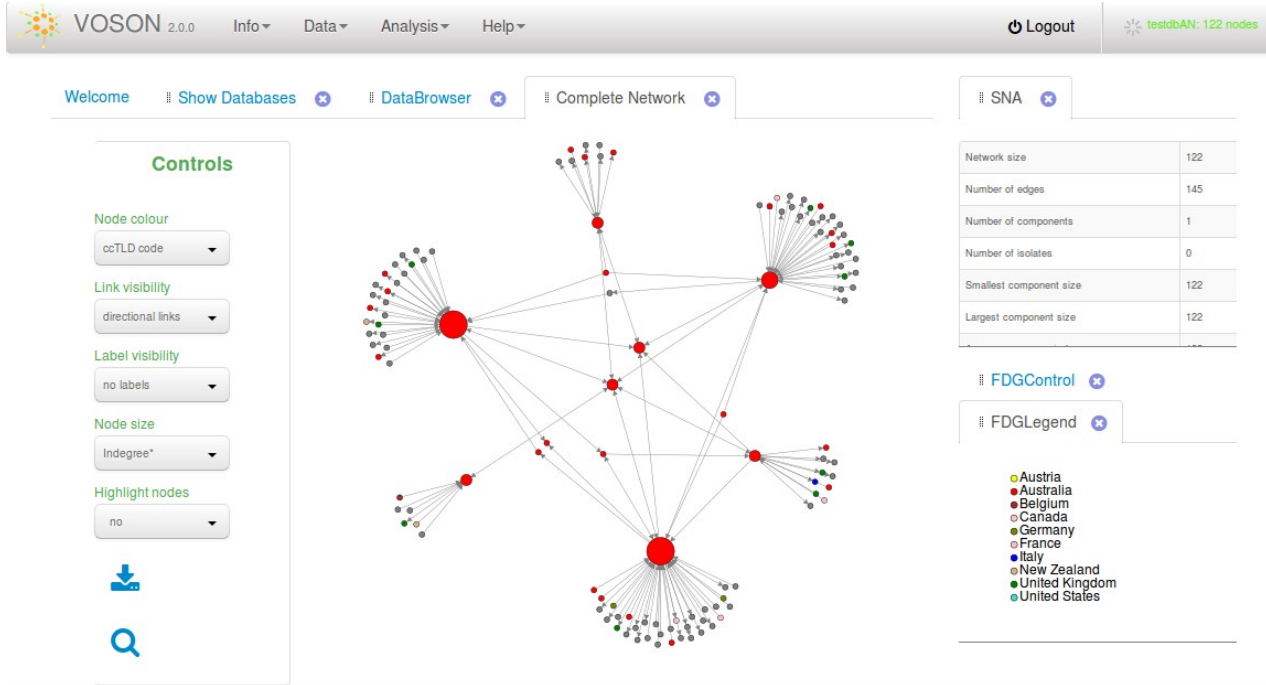


# Virtual Observatory for the Study of Online Networks (VOSON) Lab – brief introduction

- VOSON Lab at the ANU (<http://vosonlab.net>): Teaching, research and tool development in areas of web (social) science, network science, computational social science, big data analytics...
  - Formally commenced in 2005
- New research via Australian Research Council grants:
  - DP0452051 "New Methods for Researching the Existence and Impact of Political Networks on the WWW" Ackland and Gibson – 2004-2006
  - SR0567298 "Virtual Observatory for the Study of Online Networks (VOSON)" - Ackland, Gibson, O'Neil, Buchhorn, Bimber, Ward – 2005
  - LP0990974 "The role of online social networks in successful ageing: benefitting from 'who you know' at older ages" - Booth, Ackland, Windsor – 2009-2012
  - DP110100446 "The institutional structure of e-government: a cross-policy, cross-country comparison" – Henman, Ackland, Margetts – 2011-2013
  - DP140103688 "Understanding online attention and user-generated content creation: An information consumption and production perspective" - Ackland – 2014-2016

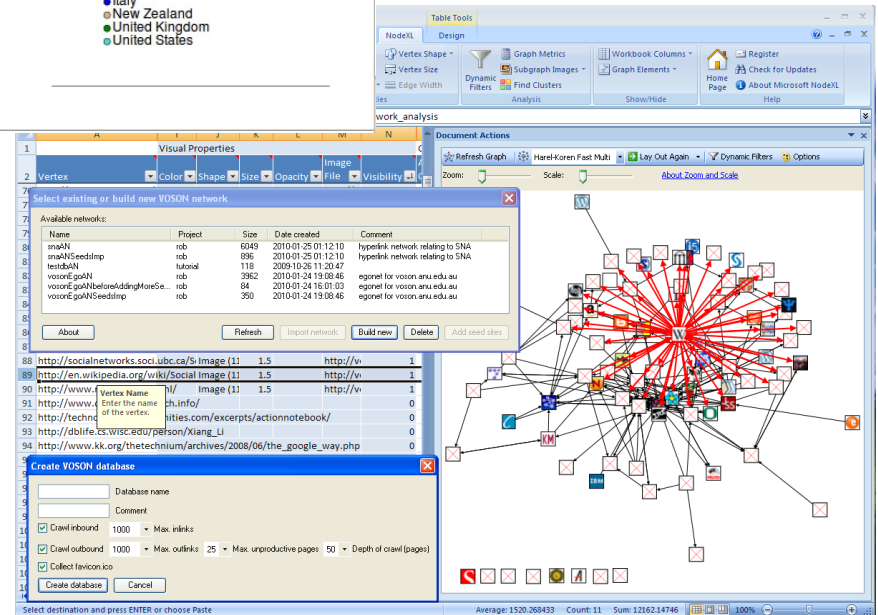
- Research tools

- **VOSON software** for hyperlink network construction & analysis (publicly available since 2006, over 2000 user accounts issued)
  - Now available commercially via Uberlink (<http://www.uberlink.com>)
- R packages:
  - **SocialMediaLab** (with Tim Graham) – released on CRAN Nov 2015
    - collects (via free APIs) data from: Twitter, YouTube, Facebook, Instagram
    - creates various networks (actor networks, semantic networks) and datasets for text analysis
  - **Adaptive Sampling** (with Kyosuke Tanaka)
    - Implements adaptive sampling methodology of [Thompson (2006): Adaptive Web Sampling, Biometrics 62, 1224–1234, December 2006] to enable construction of samples from large-scale networks and unbiased estimates of population parameters.
- Australian Seniors' Online Networks (**AuSON**) Facebook App
  - Collects Facebook friendship data (ties and attributes) of participants, social capital and personal attributes also collected via online survey
  - Mahin Raissi's PhD project at ANU

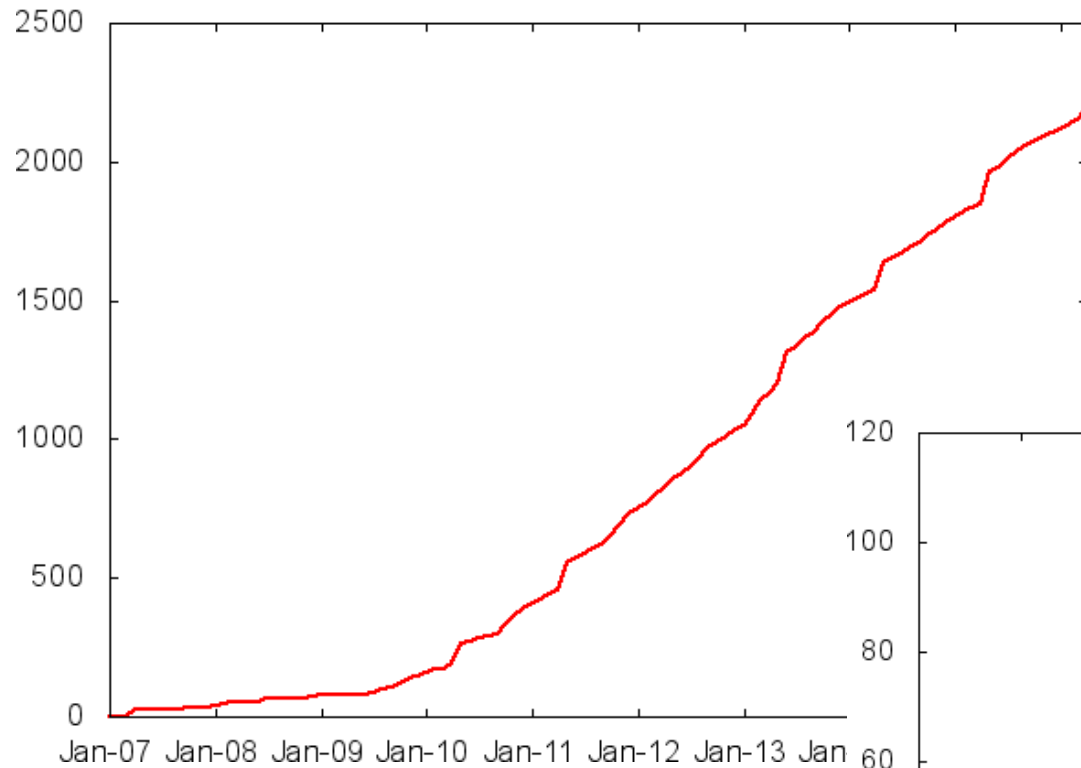


VOSON 2.0 web interface works with Firefox, Chrome, Safari, iPad

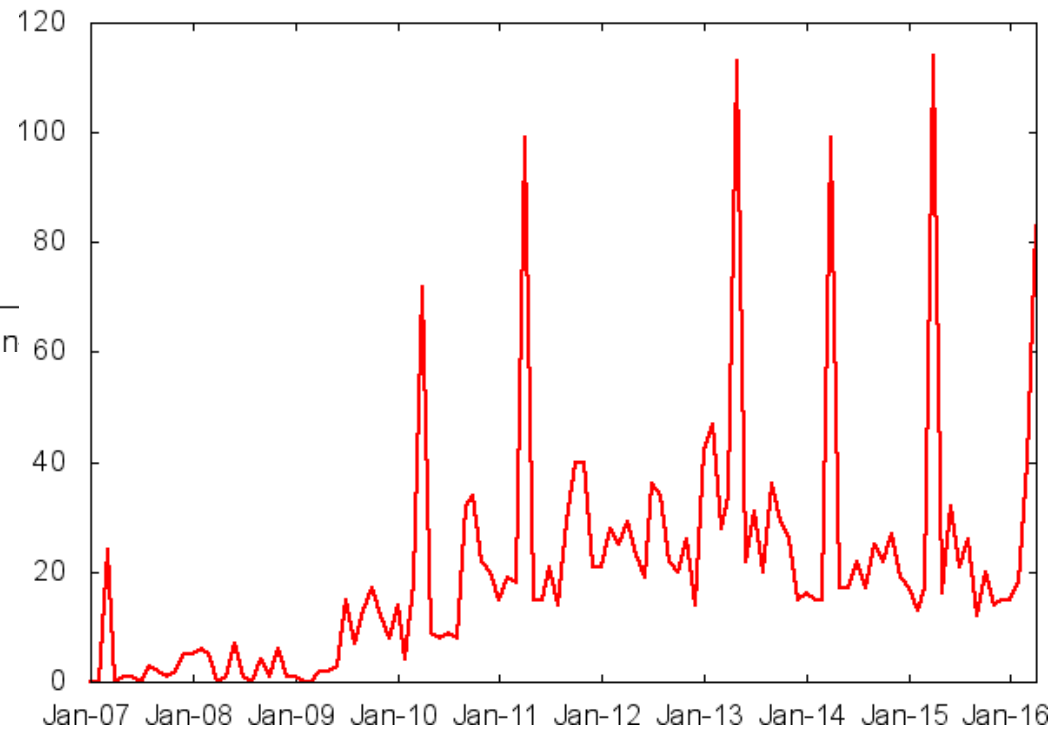
VOSON+NodeXL allows construction and import of hyperlink networks from within NodeXL [to be decommissioned later this year...]



Number of VOSON accounts issued - cumulative total



Number of new VOSON accounts per month



- Teaching & training
  - Social Science of the Internet specialisation in the ANU's Master of Social Research, established in 2008
  - Master of Digital Social Science from 2017
  - PhD supervision
  - ACSPRI courses
    - Big Data Analysis for Social Scientists (R-based course including SocialMediaLab)
    - Social Media Analysis (VOSON, NodeXL, Gephi)



The World Wide Web is only around 20 years old, but It has transformed the way we work, collaborate, engage in commerce, participate in politics and interact socially.

The Master of Social Research (Social Science of the Internet) was launched in 2008 and focuses on:

- the fundamental changes to society, politics and the economy brought about by the web
- social science concepts and methods for understanding life in the internet age
- online research methods for collecting and analysing Internet data.

The emphasis on social science (economics, political science and sociology) and quantitative research methods is what distinguishes the Master of Social Research (Social Science of the Internet); Internet studies elsewhere typically have a media and communication studies perspective, or else focus on the governance of the Internet.

The Master of Social Research (Social Science of the Internet) can be completed in one year of full-time study (part-time students are also welcome).

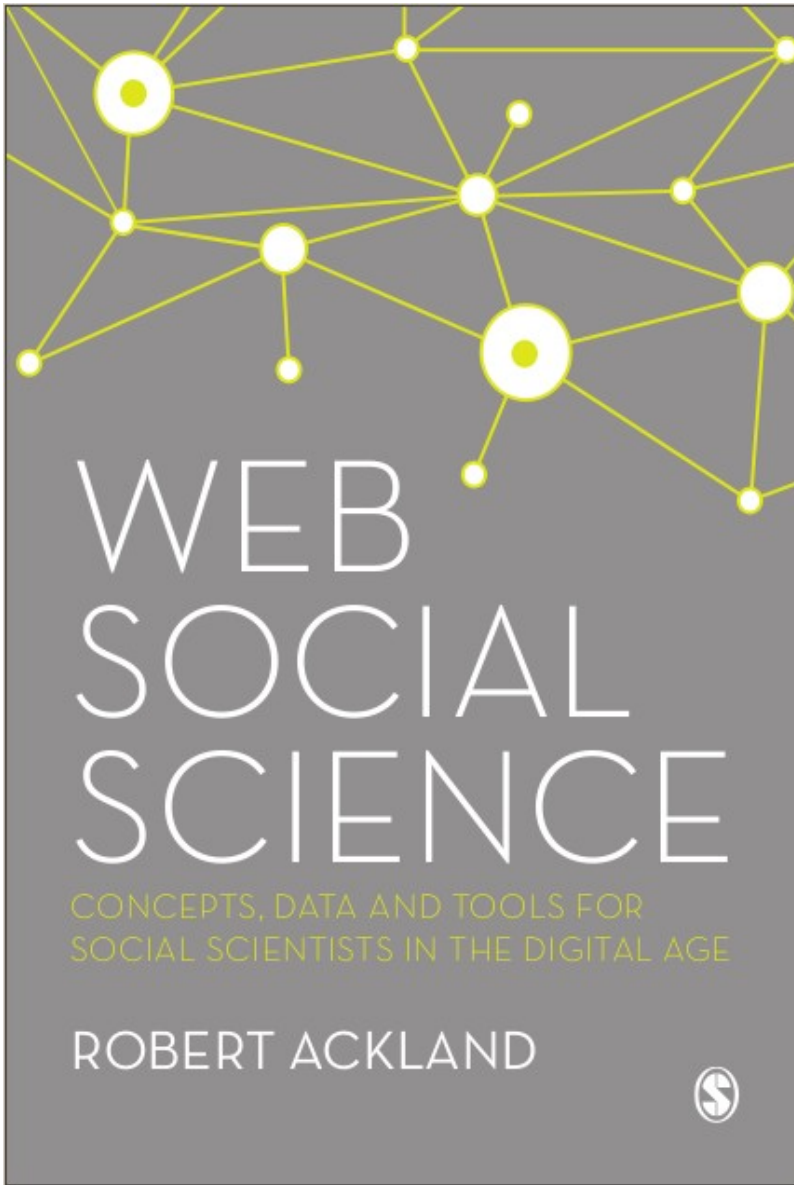
For more information contact  
Dr Robert Ackland, Fellow and Masters Coordinator  
E: [Robert.Ackland@anu.edu.au](mailto:Robert.Ackland@anu.edu.au)  
T: 02 6125 0312  
CRICOS # 001200C  
<http://adsri.anu.edu.au/study/ssi.php>

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- Part I – Web Social Science Methods
  - Ch 1 – Introduction - Web Primer and Perspectives
  - Ch 2 – Online Research Methods
  - Ch 3 – Social Media Networks
  - Ch 4 – Hyperlink Networks
- Part II – Web Social Science Examples
  - Ch 5 – Friendship Formation and Social Influence
  - Ch 6 – Organisational Collective Behaviour
  - Ch 7 – Politics and Participation
  - Ch 8 – Government and Public Policy
  - Ch 9 – Production and Collaboration
  - Ch 10 – Commerce and Marketing





# SocialMediaLab R Package

# SocialMediaLab R Package

- Aims to be the “Swiss army knife” for collecting social media data via free APIs and constructing datasets for network and text analysis
- Current data sources:
  - Twitter
  - Facebook
  - YouTube
  - Instagram
  - [...interested in a new data source? Consider contributing to SML!]
- Released on CRAN November 2015 – current version is 0.22.0

# Who has contributed to SocialMediaLab?






- **Tim Graham** (Sociology, Univ. of Queensland - soon to be at ANU, @TimothyJGraham) – Lead developer and maintainer
- **Rob Ackland** (ANU, @RobAckland)
- **Chung-hong Chan** (Journalism and Media Studies Centre, Univ. of Hong Kong, @chainsawriot) – implementation of new UI using maggritr



- More information

- CRAN page (<https://cran.r-project.org/web/packages/SocialMediaLab/index.html>)
- VOSON page (<http://vosonlab.net/SocialMediaLab>)
- GitHub page (<https://github.com/vosonlab/SocialMediaLab>)

VOSON SocialMediaLab – Data Typology (5<sup>th</sup> April 2016, version 0.20.1)

	Facebook 	Twitter 	Instagram 	Instagram – Ego 	YouTube 
<b>Data collection</b>	Manually created list of Facebook fan pages	Search on terms (usernames, words, hashtags)	Search on terms in captions OR geographical search (location of person posting caption i.e. uploading photo)	Manually created list of users (who may or may not have posted)	Manually created list of videos
<b>Actor(s)</b>	Users Facebook fan pages posts (not comments)	Users	Users Captions (proxy for photo)	Users	Users
<b>Network(s)</b>	<p>“bi-modal” - directed ties from user to post, based on likes and comments</p> <p>“actor network (users)” - undirected ties from user to user via projection (not yet implemented in package, but via igraph)</p> <p>“actor network (posts) – undirected ties from posts to posts via projection (not yet implemented)</p>	<p>“bi-modal” - directed ties from user to word/hashtag</p> <p>“actor network” - directed ties from user to user based on @mention, @reply, RT</p>	<p>“bi-modal” - directed ties from user to caption (photo) based on likes and comments. Note that author of caption is stored as vertex attribute.</p>	Directed ties from user to user based on follows	Directed ties from user to user based on mention or reply (“affiliation network”)
<b>Semantic network</b>	No	Yes – words and hashtags are different actor types, edges are co-occurrence in tweet payload	No	No	No
<b>Dynamic network</b>	Yes	No	No	No	No
<b>Text content</b>	Post and comment text Usernames	Tweet payload Usernames	Comment and caption text Usernames	Usernames	Comment text Usernames