

XXX Sunbelt
International Network for
Social Network Analysis



Riva del Garda, Italy
29 June – 4 July 2010

Workshop Schedule by Date & Time with Location

Tuesday, June 29, 14:00 – 17:30					
100/B	Meeting	Stampa/A	Stampa/B	Belvedere	
<p><i>Mixed Methods Research Designs for Ego-centered Social Networks- Part 1</i></p> <p>Bettina Hollstein, Laura Bernardi</p>	<p><i>NetworkX introduction: Hacking social networks using the Python programming language</i></p> <p>Aric Hagberg, Drew Conway</p>	<p><i>Networks for Newbies</i></p> <p>Alexandra Marin</p>	<p><i>Introduction to the Analysis of Network Data via UCINET and NetDraw- Part 1</i></p> <p>Rich DeJordy, Dan Halgin</p>	<p><i>Introduction to Exponential- family Random Graph (ERG or p*) Modeling with Statnet</i></p> <p>Martina Morris, Steven M. Goodreau, Carter Butts, Mark S. Handcock</p>	

Wednesday, June 30, 8:30 – 12:00					
100/A	100/B	Meeting	Stampa/A	Stampa/B	Belvedere
<p><i>Relational Text Analysis and Network Analysis: From AutoMap to ORA – Part 1</i></p> <p>Jana Diesner, Kathleen Carley</p>	<p><i>Mixed Methods Research Designs for Ego-centered Social Networks- Part 2</i></p> <p>Bettina Hollstein, Laura Bernardi</p>	<p><i>An Introduction to Modeling Social Networks Part 1</i></p> <p>Matthew Jackson</p>	<p><i>Collecting Social Network Data</i></p> <p>Alexandra Marin</p>	<p><i>Introduction to the Analysis of Network Data via UCINET and NetDraw- Part 2</i></p> <p>Rich DeJordy, Dan Halgin</p>	<p><i>tnet: Software for Analysis of Weighted, Two-mode, and Longitudinal networks</i></p> <p>Tore Opsahl</p>

Wednesday, June 30, 14:00 – 17:30					
100/A	100/B	Meeting	Stampa/A	Stampa/B	Belvedere
<p><i>Relational Text Analysis and Network Analysis: From AutoMap to ORA – Part 2</i></p> <p>Jana Diesner, Kathleen Carley</p>	<p><i>Pajek workshop: Analysis of Large Networks – Part 1</i></p> <p>Vladimir Batagelj, Andre Mrvar, Wouter de Nooy</p>	<p><i>An Introduction to Modeling Social Networks – Part 2</i></p> <p>Matthew Jackson</p>	<p><i>VennMaker: A New Software for participative visualization, interpretation and analysis of social networks – Part 1</i></p> <p>Michael Schoenhuth, Markus Gamper, Michael Kronenwett</p>	<p><i>Advanced Social Network Analysis using UCINET and NetDraw- Part 1</i></p> <p>Stephen Borgatti, Martin Everett</p>	<p><i>The Analysis of Longitudinal Social Network Data using SIENA - Part 1</i></p> <p>Tom Snijders</p>

Thursday, July 1, 8:30 - 12:00

100/A	100/B	Meeting	Stampa/A	Stampa/B	Belvedere
<p><i>Social Network Approaches for Behavior Change</i></p> <p>Thomas Valente</p>	<p><i>Pajek workshop: Analysis of Large Networks - Part 2</i></p> <p>Vladimir Batagelj, Andre Mrvar, Wouter de Nooy</p>	<p><i>visone - Analysis and Visualization of Social Networks</i></p> <p>Ulrich Brandes, Jurgen Lerner</p>	<p><i>VennMaker: A New Software for participative visualization, interpretation and analysis of social networks - Part 2</i></p> <p>Michael Schoenhuth, Markus Gamper, Michael Kronenwett</p>	<p><i>Advanced Social Network Analysis using UCINET and NetDraw- Part 2</i></p> <p>Stephen Borgatti, Martin Everett</p>	<p><i>The Analysis of Longitudinal Social Network Data using SIENA - Part 2</i></p> <p>Tom Snijders</p>

Workshop Schedule by Date and Time with ID

		June 30, 2010 - Morning (8am - 12pm)		July 1, 2010 - Morning (8am - 12pm)	
	1	1	Introduction to the Analysis of Network Data with UCINET and NetDraw – Part 2	5	Advanced Social Network Analysis using UCINET - Part 2
	2	2	An Introduction to Modeling Networks – Part 1	9	Social Network Approaches for Behavior Change
	11	11	Mixed Methods Research Designs for Ego-centered Social Networks - Part 2	8	VennMaker – A New Software for participative visualization, interpretation and analysis of social networks - Part 2
	4	4	tnet: Software for Analysis of Weighted, Two-mode, and Longitudinal networks	10	visone – Analysis and Visualization of Social Networks
	6	6	Collecting Social Network Data	12	Pajek Workshop : Analysis of Large Networks – Part 2
	13	13	Relational Text Analysis and Network Analysis: From AutoMap to ORA – Part 1	14	The Analysis of Longitudinal Social Network Data using SIENA - Parts 1 & 2
June 29, 2010 - Afternoon (1pm - 5pm)		June 30, 2010 - Afternoon (1pm - 5pm)			
1	Introduction to the Analysis of Network Data with UCINET and NetDraw – Part 1	12	Pajek Workshop : Analysis of Large Networks – Part 1		
3	Networks for Newbies	5	Advanced Social Network Analysis using UCINET Part 1		
11	Mixed Methods Research Designs for Ego-centered Social Networks - Part 1	8	VennMaker – A New Software for participative visualization, interpretation and analysis of social networks - Part 1		
7	Jacob’s Ladder 12 and NetXML CANCELLED	2	An Introduction to Modeling Networks – Part 2		
15	NetworkX introduction: Hacking social networks using the Python programming language	13	Relational Text Analysis and Network Analysis: From AutoMap to ORA – Part 2		
16	Introduction to Exponential-family Random Graph (ERG or p*) modeling with statnet	14	The Analysis of Longitudinal Social Network Data using SIENA - Parts 1 & 2		

The number listed to the left of the workshop is the order of presentation for workshop descriptions that follow.

1 Introduction to the Analysis of Network Data with UCINET and NetDraw

Rich DeJordy

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Dan Halgin

University of Kentucky
Lexington KY USA.
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Pricing (US \$)

Regular : \$ 100.00
Student : \$ 50.00

Part 1 or 2 Only

Regular : \$ 60.00
Student : \$ 30.00

Schedule

June 29, 2010

Part 1 – Morning
Part 2 – Afternoon

A beginner's tutorial on the concepts, methods and data analysis techniques of social network analysis. The workshop begins with a general introduction to the distinct goals and perspectives of network analysis, followed by a practical discussion of network data, covering issues of data collection, data entry, visualization of datasets, transformation of datasets and mathematical/computer representation using UCINET and NetDraw. We then discuss the interpretation and calculation of the most common measures of network centrality. An important element of this workshop is that all participants obtain hands-on experience working with UCINET 6 for Windows and NetDraw visualization software. In order to participate fully in the workshop, each participant should bring a Windows laptop computer (or Mac with a Windows emulator) to follow along and gain hands-on experience running the analyses as they are being demonstrated by the instructors. We ask that participants download a free trial version of UCINET (which includes NetDraw as well as sample network data), available at <http://www.analytictech.com/ucinet/>, prior to the workshop.

2 Introduction to the Modeling of Networks

Matthew O. Jackson

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Pricing (US \$)

Regular : \$ 100.00

Student : \$ 50.00

Part 1 or 2 Only

Regular : \$ 60.00

Student : \$ 30.00

Schedule

June 30, 2010

Part 1 – Morning

Part 2 – Afternoon

This workshop provides an introduction to a set of analytic tools for modeling both network formation and how network structure affects individual behavior. The first part of the workshop will include an overview of some of the basic random graph and game theoretic models of network formation and how such models can be used to understand observed social-network phenomena. The second part of the workshop will provide an introduction to a series of interactive models of learning, contagion, and diffusion, and how these shed light on peer effects. This workshop will draw material from a recent graduate text and research reference: “Social and Economic Networks”, Princeton University Press 2008. More information on the book is available at <http://www.stanford.edu/~jacksonm/> and the contents and first chapter are available at <http://www.stanford.edu/~jacksonm/netbook.pdf>.

3 Networks for Newbies

Alexandra Marin

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Pricing (US \$)

Regular : \$ 50.00

Student : \$ 30.00

Combined with #6

Regular : \$ 80.00

Student : \$ 40.00

Schedule

June 29, 2010

Afternoon

This is a non-technical introduction to social network analysis aimed at newcomers to the field. The workshop will treat social network analysis as a perspective rather than simply a method. The workshop begins with the development and fundamental principles of the social network perspective and goes on to describe social network data, and common measures of network composition and structure. Resources for further study will be listed.

Because there is some overlap the content of the two workshops, a discounted fee is offered for conference attendees who register for both "Networks for Newbies" and "Social Network Data Collection."

4 tnet: Software for Analysis of Weighted, Two-mode, and Longitudinal networks

Tore Opsahl

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Pricing (US \$)

Regular : \$ 50.00
Student : \$ 30.00

Schedule

June 30, 2010
Morning

tnet is a package written in R to serve three purposes:

1. Calculate social network measures on weighted datasets

Not everyone is the same. Some people are close to us, whereas others are just acquaintances. Few network measures, and fewer network analysis programmes, can deal with datasets where the ties are differentiated by weights. By removing the weights of relations, we are removing a lot of the richness within the dataset. This means that we are limiting the weight analysis to sensitivity analyses, which are difficult to interpret. A close friendship is not the same as an acquaintance.

2. Calculate social network measures on two-mode

Most forms of interaction occur through mediums, such as meetings, projects, forums, etc. By simply joining two people if they have interacted with the same medium, we greatly reduce the information available to analyse. For example, the clustering coefficient on a one-mode projection of a two-mode network is meaningless as triangles are formed automatically when three or more people interact with the same medium. To remove some of the biases that might invalidate the analysis, a new set of measures directed at analysing two-mode networks directly (and a software were these measures are implemented) are needed.

3. Detect underlying principles that guide tie formation in datasets with time-stamped ties

Network analysis is often based on static networks. In these networks there are issues of dependence as everything depends on everything. Therefore it is difficult to say why certain ties are created and others are not. In networks where the exact sequence of ties is known, the endogeneity issue can be dealt with. This type of data is generally from online communities, email networks, and telephone networks (if your dataset is not like this, but collected in waves, try Siena).

5 Advanced Social Network Analysis using UCINET

Stephen Borgatti

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Martin Everett

Pricing (US \$)

Regular : \$ 100.00
Student : \$ 50.00

Part 1 or 2 Only

Regular : \$ 60.00
Student : \$ 30.00

Schedule

June 30, 2010
Part 1 – Afternoon

July 1, 2010
Part 2 - Morning

This is a 1-day workshop for participants who already have some experience with network analysis, but would like to learn more. We cover advanced aspects of centrality, finding subgroups, and measuring equivalence. We also cover advanced techniques for analyzing network change and handling multiple relations, missing data, non-symmetric data, valued data and 2-mode data. Throughout, we demonstrate powerful, sometimes-undocumented features of UCINET and NETDRAW, including convenient ways of entering non-standard data. Note: what makes this workshop “advanced” is the selection of topics, not the speed or complexity of the exposition. In other words, wherever practical, all concepts are explained from first principles, making as few assumptions about prior knowledge as possible. However, we do assume basic familiarity with UCINET as a pre-requisite for the workshop.

6 Collecting Social Network Data

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Pricing (US \$)

Regular : \$ 50.00

Student : \$ 30.00

Combined with #3

Regular : \$ 80.00

Student : \$ 40.00

Schedule

June 29, 2010

Afternoon

This workshop will describe methods of collecting network data, including methods for collecting whole network and ego network data. The workshop begins with a brief introduction to network data and how it differs from variable-based data. We will cover a number of methods of collecting network data and the uses and limits of data collected using different methods. In addition, we will discuss defining network boundaries, the reliability of data collected by various methods, factors affecting the data reliability, design of survey or interview instruments, and the problem of respondent burden. This workshop is intended primarily for researchers thinking about collecting their own social network data using survey or interview methods. It may also be of interest to researchers using such data who wish to better understand the strengths and limitations of these data.

Because there is some overlap the content of the two workshops, a discounted fee is offered for conference attendees who register for both "Networks for Newbies" and "Social Network Data Collection."

7 Jacob's Ladder 12 and NetXML

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<http://www.elbirttechnologies.com>

Pricing (US \$)

Regular : \$ 50.00
Student : \$ 30.00

Schedule

June 30, 2010
Morning

This workshop will show participants a step-by-step tutorial for the use of NetXML and Jacob's Ladder to visualize, intonate and animate network data in a 3D OpenGL environment. The software and examples are free for download from <http://www.elbirttechnologies.com>.

CANCELLED

8 VennMaker – A New Software for participative visualization, interpretation and analysis of social networks

Prof. Dr. Michael Schoenhuth / Markus Gamper, MA / Michael Kronenwett, MA
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Pricing (US \$)

Regular : \$ 100.00
Student : \$ 50.00

Schedule

June 30, 2010
Part 1 – Morning
Part 2 - Afternoon

VennMaker is a new software tool for participative visualization and analysis of ego-centered networks. It is also suitable for strategic mapping and for conflict-actor mapping of whole networks (organizations, departments, projects etc.). The software allows for process-oriented interviews, for the realization of wizard guided interviews with the researcher not being present, for jointly generating strategic network maps in a group process, and – still in development - for comparing of different individual perspectives and visualizing changes within a network through time. Every step is stored electronically and can be tracked up afterwards – visually and via audio recording. VennMaker combines for the first time aspects of quantitative, qualitative and participative network analysis and has got various storing and export functions (Excel, SPSS, and UCINET).

Participants of this one day workshop will learn how to use the most important features of this new powerful tool on the administrator (configuring), free network drawing (interviews) and analyzing (calculating network measures) level. If you want to know more about the various possibilities and fields of application of VennMaker 1.0 for scientific and consulting purposes beforehand, visit the VennMaker website of the Cluster of excellence of Trier University; www.vennmaker.com.

9 Social Network Approaches for Behavior Change

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Pricing (US \$)

Regular : \$ 50.00

Student : \$ 30.00

Schedule

July 1, 2010

Morning

This workshop reviews existing evidence for the utility of using social network data for behavior change in a variety of settings including health behaviors and organizational performance. We present a typology of such efforts and demonstrate existing software programs for implementing social network interventions. The workshop will be conducted by Tom Valente who has developing and implementing network based interventions for over 10 years.

10 visone - Analysis and Visualization of Social Networks

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Pricing (US \$)

Regular : \$ 50.00

Student : \$ 30.00

Schedule

July 1, 2010

Morning

This is a hands-on introduction to visone, a graphically oriented software tool that combines comprehensive means for analysis with unique visualization capabilities.

Content:

After a brief introduction to its design and features, we will explore some of the core functionality of visone using exemplary network analyses; step-by-step from data input to presentation of results.

Target audience:

Researchers, students, and practitioners. Some elementary knowledge of social network analysis is required, and it is advisable to bring a laptop running Windows, MacOS, or Linux.

About visone:

visone (ital.: mink) is written in Java and freely available from www.visone.info. It features many standard and non-standard methods for analysis and visualization of networks, and a powerful graphical user interface. Its native file format is GraphML, allowing for arbitrarily many attributes of nodes, links, and networks, but other formats such as CSV tables, UCINET DL, Pajek .net, etc., can be imported. Visualizations can be exported as pdf, png, tiff, svg, or Windows metafiles.

11 Mixed Methods Research Designs for Ego-centered Social Networks

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Prof. Dr. Laura Bernardi

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Pricing (US \$)

Regular : \$ 100.00

Student : \$ 50.00

Schedule

June 29, 2010
Part 1 – Afternoon

June 30, 2010
Part 2 – Morning

This workshop will be conducted in two parts. The first part we introduce social network qualitative research and the principles of mixed methods research designs; we will review data collection and sampling procedures, analytical approaches, and triangulation strategies pointing out advantages and challenges of this approach. Illustrations of the theoretical and methodological aspects are given by bringing a variety of examples from different fields of sociological inquiry.

The second part is devoted to the presentation of concrete procedure to apply mixed methods in network research both at the level of data collection and analysis. There will be four modules: a) introduction of different graphical instruments to collect network data for ego centered networks and their strong and weak points b) quantitative and qualitative dimensions of network relationships c) the analysis of ego networks in a mixed method perspective (type construction, generalization questions) d) participants will be asked to join in a specific exercise designed to practice social networks in a mixed methods perspective.

In order to participate fully in the workshop, participants should read the papers which will be available at <http://www.wiso.uni-hamburg.de/index.php?id=8853> two weeks before the conference begins. There are no other prerequisites for the attending the workshop.

12 Pajek Workshop : Analysis of Large Networks

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Pricing (US \$)

Regular : \$ 100.00
Student : \$ 50.00

Part 1 or 2 Only

Regular : \$ 60.00
Student : \$ 30.00

Schedule

June 30, 2010
Part 1 - Afternoon

July 1, 2010
Part 2 - Morning

Pajek is a program for Windows for analysis and visualization of large networks. It is free for noncommercial applications and can be downloaded from its home page (<http://pajek.imfm.si>). To actively follow the workshop participants are expected to bring their laptops.

The workshop consists of two parts.

a) First part: Introduction to Pajek.

In the first part we will give an introduction to the use of Pajek based on our textbook on social network analysis 'Exploratory Social Network Analysis with Pajek'. At the end some hints on converting excel/text file datasets into Pajek format (using Jurgen Pfeffer's program Text2Pajek) and on exporting networks to different output graphics formats will be given.

b) Second part: Advanced uses of Pajek.

In the second part we will present some efficient approaches (valued cores, triangular and short cycle connectivity, citation weights, pattern search, generalized blockmodeling of one and two mode networks, islands) to analysis and visualization of real-life large networks.

We will also demonstrate some newest additions to Pajek: network multiplication and kinship relations, (p,q)-cores and 4-rings weights in analysis of two-mode networks, matrix display of dense networks, linking network visualizations to Internet, and clustering of large datasets with relational constraint. Program WoS2Pajek for conversion of the data from Web of Science to Pajek's (two-mode) networks.

13 Relational Text Analysis and Network Analysis: From AutoMap to ORA

Jana Diesner

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Pricing (US \$)

Regular : \$ 100.00

Student : \$ 50.00

Part 1 or 2 Only

Regular : \$ 60.00

Student : \$ 30.00

Schedule

June 30, 2010

Part 1 – Morning

Part 2- Afternoon

A lecture and hands-on workshop that introduce attendees to relational text analysis, the AutoMap toolkit for extracting networks from unstructured texts, social and dynamic network analysis, and the ORA toolkit for analyzing networks. The collection and storage of unstructured, natural language text data has become fast, cheap, and easy. Examples of potentially large-scale corpora are surveys, emails, wikis, blogs, chatlogs, news, political debates, legal documents, mission statements, and annual reports. The challenge with these data is to efficiently, systematically and reliably extract network data from them. Such networks entail entities of one or more node types, such as people, organizations, and events and the relations among them. Going from texts to networks has helped people in answering questions like: Who communicates what with whom? How do trends emerge, spread and vanish in blogs and chats? What groups promote or suppress what ideas, and how successful are they in that?

The workshop attendees are introduced to several fundamental natural language processing and information extraction techniques that are often applied in text mining processes, such as the identification of central terms and themes within and across documents, positive and negative filters, stemming (converting words into their morphemes), parts of speech tagging (assigning a grammatical category to every word), anaphora resolution (translating pronouns into the social entities that the pronoun refers to), named entity extraction (identifying agents, organizations and places that are referred to by a name), and text coding according to user-defined ontologies. We will cover various ways of linking words and concepts into edges. The participants are furthermore introduced to the network analysis of email data with AutoMap and the CEMAP sub-tool. We cover how to load the extracted relational data into ORA in order to visualize, analyze, and interpret them. Throughout all phases of the workshop we discuss several empirical examples and real-world applications for the covered techniques.

All tools used in this workshop are developed by CASOS: AutoMap has been applied by multiple groups and across different domains and languages to perform a variety of Natural Language Processing techniques, to extract concepts, semantic networks, and meta-networks, and to infer beliefs from texts. Unique

features include full user control over semantic units, machine learning based models for various Natural Language Processing routines such as entity extraction, and sentiment inference techniques.

CEMAP is a software tool that enables the user to extract social networks from email meta-data.

ORA is a widely used network science package that facilitates the examination of networks and their spatio-temporal dynamics at multiple levels. Unique features include the ability to handle multi-mode, multi-plex, and multi-level networks as well as both small and very large networks, 2D and 3D visualization, attribute and network statistics, change detection, network simulation, and the display of networks on maps.

Who Should Attend?

Those who are interested in text mining and the extraction of relational data from texts should attend. The material and its delivery is suitable for researchers and practitioners, alike. This is designed to be a non-technical workshop, however, by its very nature, the material will involve some mathematics, although this will be minimized as the delivery is driven towards forming an understanding the practice of using AutoMap, CEMAP, and ORA.

Topics Include:

Text Mining and Natural Language Processing: Content analysis, Extraction of semantic networks (one-mode networks) and meta-networks (multi-mode networks) from texts

- Social and Dynamic Network Analysis
- AutoMap and ORA software

Computer Equipment:

The software presented in this tutorial is Windows operating system based. Mac users should use virtual PC. All participants, if possible, are asked to pre-load the AutoMap from the CASOS website – <http://www.casos.cs.cmu.edu/projects/automap/> and the *ORA software from the CASOS website – <http://www.casos.cs.cmu.edu/projects/ora/>. Participants are invited to bring their own laptops. Nevertheless, participants not able to bring a Windows-based laptop computer to the sessions are welcome to participate, and will still fully benefit from the workshop. The software will be screen-projected to the group as a live walk-through demonstration. Participants will be provided with a data CD containing installers for the software, sample data, and manuals; and will be guided through software installation and subsequent hands-on usage.

14 The Analysis of Longitudinal Social Network Data using SIENA - Parts 1 & 2

Tom A. B. Snijders

Professor of Statistics in the Social Sciences
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Nuffield College, University of Oxford
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Pricing (US \$)

Regular : \$ 100.00
Student : \$ 50.00

Part 1 or 2 Only

Regular : \$ 60.00
Student : \$ 30.00

Schedule

June 30, 2010
Part 1 - Afternoon

July 1, 2010
Part 2 - Morning

This workshop is about statistical inference for longitudinal observations on social networks. Longitudinal social network data are understood here as two or more repeated observations of a directed graph on a given node set (usually between 30 and a few hundred nodes). The workshop teaches the statistical method to analyze such data, for which a tutorial is given in Snijders, T.A.B., Steglich, C.E.G., and van de Bunt, G.G. (2009), Introduction to actor-based models for network dynamics (in press, Social Networks), and implemented in the RSIENA program.

The statistical model used for the network evolution allows to include various network effects (reciprocity, transitivity, cycles, popularity, etc.), effects of individual covariates (covariates connected to the sender, the receiver, or the similarity between sender and receiver), and of dyadic covariates. One interpretation of this model is an actor-oriented model where the nodes are actors whose choices determine the network evolution. An important extension is to have, in addition to the network, one or more actor variables that evolve in mutual dependence with the network; an example is a friendship network of adolescents where drinking behavior is a relevant actor variable which influences, and is influenced by, the friendship network. This leads to models for the simultaneous dynamics of networks and behavior, which are a special option in RSIENA. Further information about this method can be found at the SIENA website (see below). The statistical analysis is based on Monte Carlo simulations of the network evolution model and therefore is a bit time-consuming. The computer program RSIENA is a package in the statistical computer system R.

The workshop will demonstrate the basics of using RSIENA. Attention will be paid to the underlying statistical methodology, to examples, and to the use of the software.

The first session (part a, Tuesday afternoon) is intended for those without previous experience with this method, and will focus on the intuitive understanding of the model and operation of the software. The second session (part b, Wednesday morning) is intended for those with previous experience with the method

and the software, and also for those who followed the first session. It will present models for the simultaneous dynamics of networks and behavior and other more advanced topics such as model specification, multivariate networks, structurally determined values, and goodness of fit checking.

Participants are requested to check the SIENA website in the week before the workshop to download the workshop materials. For optimal benefit, it is advisable to bring an own laptop with R and RSIENA already installed, such that some steps of data manipulation and analysis can be followed hands-on.

SIENA website: <http://www.stats.ox.ac.uk/~snijders/siena>

15 NetworkX introduction: Hacking social networks using the Python programming language

Aric Hagberg

Mathematical Modeling and Analysis Department
Los Alamos National Laboratory

Drew Conway

New York University
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Pricing (US \$)

Regular : \$ 50.00
Student : \$ 30.00

Schedule

June 29, 2010
Afternoon

Prerequisites

- * Basic familiarity with programming in Python or other modern language
- * Familiarity with basic SNA concepts (see abstract for specific metrics, etc.)
- * Laptop with Installation of Python, NetworkX and associated tools

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This workshop is a hands-on introduction to exploring and analyzing networks with the open-source Python package NetworkX. NetworkX provides data structures for representing many types of networks including networks with parallel edges and self-loops. The network nodes can be any type of object and edges can contain arbitrary data; this flexibility makes NetworkX ideal for representing social networks.

The workshop will give a high-intensity introduction to social network analysis with NetworkX including interacting with data and computing and visualizing social network metrics. The workshop will finish with small class projects demonstrating how to use NetworkX to design and develop new social network tools and use NetworkX with your own data.

Proposed Schedule

- 30 min: Introduction to NetworkX (Hagberg)
 - Overview of project history, goals, features, and applications.
- 30 min: Why do SNA with NetworkX (Conway)
 - Speed and scalability advantages for researchers with large data sets
 - The suite of packages in Python designed for scientific research that complement NX
 - Ability to feed data from any source into NX on the fly (use some examples)
- 30 min: Getting started (Hagberg)
 - Running Python and starting NetworkX

- b. Finding what is in NetworkX and viewing documentation and code
- c. What is a Networkx Graph
- d. Interacting with NetworkX graphs (adding, removing edges)
- e. Running some simple examples (prewritten codes)
- 4. 60 min: Basic Analysis (SNA) Conway
 - a. Loading data from files, databases, web
 - b. How to run basic centralities
 - c. Review of the dict data type and why it is so useful
 - d. How to output results into multiple formats
 - e. Basic visualizations
- 5. 30 min: Developing new algorithms (Hagberg)
 - a. Examples of simple algorithms for e.g. paths, degree centrality, graph generators
 - b. Show how to write a new algorithm
 - c. Challenge class to write algorithm
- 6. 30 min: Bring your own data (Conway, Hagberg)
- 7. Last 30 minutes help users load own data (or some of our sample data) and do a small project. e.g. use example code that computes centralities as prototype to write customized version for users data.

210 minutes (assuming about 240 minutes including breaks)

16 Introduction to Exponential-family Random Graph (ERG or p^*) modeling with statnet

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Pricing (US \$)

Regular : \$ 50.00
Student : \$ 30.00

Schedule

June 29, 2010

Afternoon

This workshop is a tutorial on exponential random graph models for social networks, emphasizing a hands-on approach to fitting these models to empirical data. This workshop will provide a hands-on tutorial to **statnet**, a statistical package for the visualization, analysis and simulation of social network data. The modeling capabilities of **statnet** include the class of exponential random graph (ERG) models. These models recognize the complex dependencies within relational data structures, and provide a very flexible framework for representing them. Examples include degree distributions and stars, attribute-based mixing patterns, triadic patterns that lead to clustering, shared partner distributions, the new specifications in Snijders et. Al. 2006, and other systematic network configurations. **statnet** has a coherent and flexible user interface and can handle relatively large networks (~3,000 is the largest network we have estimated models for), and it has very efficient algorithms for data manipulation and analysis. The package provides tools for both model estimation and model-based network simulation, with visualization, tools for inference and validation, and goodness of fit diagnostics. The package is written for the **R** statistical computing environment, so it runs on any computing platform that supports **R** (Windows, Unix/Linux, Mac), it is freely available through the Comprehensive **R** Archive Network (CRAN), and it has a seamless interface to SNA (an **R** package for traditional network analysis written by Carter Butts).