Tutorial:
Introduction to Social Media Network Analysis with NodeXL

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Abstract — **This introductory overview tutorial on social network analysis (SNA) demonstrates through theory and practical case studies applications to research, particularly on social media, digital interaction and behavior records. NodeXL provides an entry point for non-programmers to access the concepts and core methods of SNA and allows anyone who can make a pie chart to now build, analyze and visualize complex networks.**

Keywords — networks; influencer; clusters; SNA; NodeXL; social media; information visualization

Social network theory conceptualizes networks as a group of actors who are connected by a set of relationships. Actors are often people, but can also be nations, organizations, objects, etc. SNA focuses on patterns of relations among actors that include humans. It seeks to describe networks of relations, including identifying prominent patterns, tracing the flow of information through them, and discovering the effects network structures have on people and organizations. SNA can be used to study network patterns of organizations, ideas, and people that are connected via various online environments and platforms. The increasing popularity of social networking websites and social computing in general require new methods and tools.

The NodeXL [1] Excel spreadsheet add-in by the Social Media Research Foundation [2] offers a full range of tools to quickly generate useful network statistics and create visualizations of network graphs. Recent research created by applying the tool to a range of social media networks has already revealed the variations in network structures present in online social spaces. A report co-authored with the Pew Research Center's Internet Project documents the discovery of six basic forms of social media network structures present in social media platforms like Twitter. The report provides a step by step guide to analyzing social media networks [3]. The application of NodeXL in a growing number of publications reflects the potential of network analysis to enable novel academic research in various disciplines. It can also provide practical knowledge for social media managers by supporting influencer marketing and content marketing strategies in social media. NodeXL supports the exploration of social media with import features that pull data from Twitter, Facebook, YouTube, Wikis, blogs
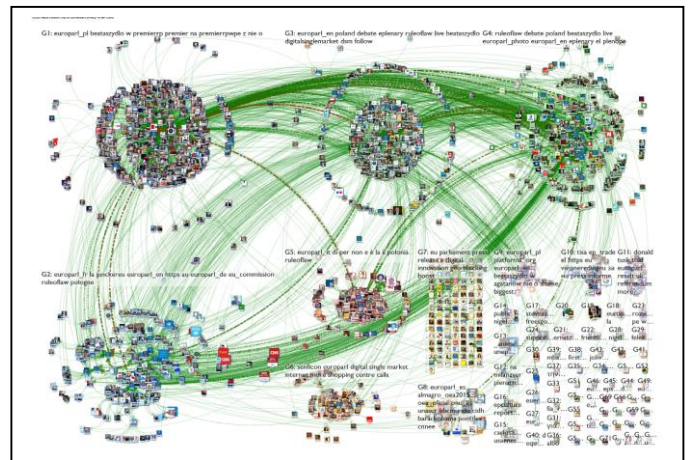
and several other sources. Tutorial attendees will learn to easily make a map of public social media conversations around topics that matter to them and reveal clusters in the crowd as well as key actors in core or bridge positions. Further, the attendees will also learn to use NodeXL content analysis features to detect sentiment, most frequently used words, word pairs, hashtags, and URLs within whole networks, clusters and user accounts.

Tutorial host Dr. Marc A. Smith is a sociologist. He co-founded and directs the Social Media Research Foundation and is Chief Social Scientist at Connected Action Consulting Group. Smith specializes in the social organization of online communities and computer mediated interaction. Smith is accompanied by Harald Meier, a geographer and founder of the Digital Space Lab in Germany which is concerned with the exploration of social and economic networks. Meier specializes in the field of world city network research and is an expert for network visualizations with NodeXL.

REFERENCES

[1] http://nodexl.codeplex.com/

[2] http://www.smrfoundation.org/

[3] M.A. Smith, L. Rainie, I. Himmelboim and B. Shneiderman, "Mapping Twitter Topic Networks: From Polarized Crowds to Community Clusters", 2014, http://www.pewinternet.org/2014/02/20/mapping-twitter-topic-networks -from-polarized-crowds-to-community-clust