

Position Paper

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Social networks are ubiquitous in contemporary times as we live in a mobile information society. Digital, internet-based social networks change human behavior. Some examples include: more time looking at electronic displays, more feelings of friendship, less privacy, different ways to travel, changes in world views and distribution of information. While some networks such as Facebook have seen great international success, one may interact with the network purely in a virtual environment. Others can require interactions in the physical environment such as LinkedIn and CouchSurfing. Hence these hybrid networks have different spatio-temporal constraints as they bridge the gap between the virtual and physical worlds. In addition they require variety of social skills from their users and methods used to analyze these networks differ from social networks with only digital interactions.

Geographic visualization techniques and time geography (Hägerstrand 1970) are valuable when combined with social networks. They are used for assessing critical nodes and trails as well as social capital (Pultar *et al.* 2010). An individual with high social capital signifies a critical node in a social network. The constraints of time geography are also a useful starting point for working with spatio-temporal restrictions and the sharing or flow of ideas and information.

Social networks combining virtual and physical worlds create a rich data source for social network studies. In the CouchSurfing (CS) network members from all continents provide each other with a free place to stay. Whether it be a couch, bed, or floor space this hospitality exchange network has created a new, emerging form of connection. Initially users contact each other virtually with a message through the Internet. Once a meeting time and place has been established members meet face to face. After the guest leaves both the host and guest return to the virtual world to leave references for each other. This influences their social capital and how well they will be able to utilize the social network in the future. Hence a critical node in the CS network is one that has high capital and good references, but do they have to play both roles (guest and host) in order to be the most trustworthy? Does one role in the social network have more of an effect than the other? What about the geographical distribution of their connections within the network?

The Internet is a key component of CS and its ability to function. This social network integrates multiple levels of networks such as transportation, data, and communication networks. Mass media affects the network in critical ways. Publications in blogs or widely read periodicals add to the popularity of the network increasing membership. Similarly, mass media depicting a dangerous place for travelers causes a decrease in tourism for a destination and hence the usage levels of a hospitality network.

There is a wealth of crowd-sourced data in the CS network. Members contribute volunteered geographic information (VGI, Goodchild 2007) in their profiles including

- Current city of residence
- Places to travel in the future
- Places traveled in the past
- Places lived in the past

Additional data is available in the references users leave such as available activities near a host's location (Pultar and Raubal 2009). Thus there is a variety of data mining possible here that leads to changes in the way people travel. How trustworthy are these sources? If a member claims they explored caves with their host, how do we determine the level of uncertainty in this information? A member's social capital and reputation within the network are initial indicators for establishing uncertainty.

The field of social networks is quite interesting and rapidly changing as popularity moves from Friendster to MySpace to Facebook. New networks are created often with some services even allowing an individual to make their own social network in less than sixty seconds such as <http://www.ning.com>. The spatio-temporal constraints vary between social networks but some concepts such as making connections and sharing information are present in all the networks. These threads that tie together the multitude of social networks make for an exciting workshop to discuss the past, present, and future of social networks.

References

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