Place and Spatio-temporal Constraints on Social Networks

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My interest in spatio-temporal constraints on social networks is twofold. First and foremost, I am focused on what can be learned about *places* from mining and understanding spatio-temporal constraints on social networks. For instance, how do we define a "local user" in the context of an online knowledge creation-oriented social network? [2] How do we communicate the degree of "localness" to a content consumer? My colleagues and I are also working toward applying this research in novel systems and applications. Second, I am a Ph.D. student in human-computer interaction with a background in geography and close ties to the fields of communication, psychology, and sociology. As a result, I have been involved in many brainstorming sessions in which questions arise about spatio-temporal constraints on social networks. I thus very much appreciate the need for additional research in this area, as well as increased communication between the multitudes of interested disciplines.

Techniques for understanding places in the context of spatio-temporal constraints on social networks require additional research in many areas. There are of course many theoretical questions left unanswered. We have thus far limited our theoretical exploration of these questions to the concept of "localness". For instance, in [2], we found that the people who define place descriptions in knowledge creation social networks are not necessary those most "local" to the described place. We hypothesized that this phenomenon may be due to network effects dominating spatial effects. We also noticed a difference in the "localness" of content when different spatio-temporal constraints were placed on these networks.

Our experiments have also increased our interest in developing technologies that truly understand spatio-temporal constraints on social networks. Web 2.0's dominant model of zero-dimensional point spatial footprint representations that are ignorant spatial relationships (i.e. the First Law of Geography [6]) is highly flawed [4]. This paradigm will have to be retired for models and systems with much greater understanding of geography within a social context. In particular, technology that at a fundamental level recognizes the two-dimensional, fuzzy, and socially-defined nature of footprints (i.e., [5]) will be required.

Interdisciplinarity Issues

I am a computer science Ph.D. student with a Masters in geography who works with many researchers in communication, sociology, and psychology. As a result, I am frequently reminded of the vital importance of spatial science to network science through consultations and brainstorming sessions. It is obvious that much work needs to be done integrating relevant core theory from different disciplines. For instance, how does time geography [1]

relate to existing work on social location-based services? Many opportunities are being missed because of this disciplinary disconnect [3]. In particular, I have found that the spatial science developed through decades of research in the discipline of geography goes largely ignored in many academic contexts. As a result, I am especially excited to see geographers take such an active role in this specialist meeting.

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