Computer science researchers provide insight into how we understand social networking

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The rise of social media has allowed people to connect and re-connect with friends, colleagues and family from across the world. A new paper by University of Minnesota computer scientists in the College of Science and Engineering provides insights into how the analysis of our social networking interactions could discover things like the emergence or decline of leadership, changes in trust over time, and migration and mobility within particular communities online.

The paper, "Computational Modeling of Spatio-temporal Social Networks: A Time-Aggregated Graph Approach," was co-authored by computer science and engineering professor Shashi Shekhar and research assistant Dev Oliver. The researchers recently presented the paper at a national workshop hosted by the University of California, Santa Barbara, in conjunction with the National Science Foundation and Army Research Center.

In most cases, social network analysis today is limited to discovering friend connections, community leaders and outlines, influential people and personal friend recommendations using a static or snap-shot method. The authors say that if new factors could be taken into consideration, specifically changes across time and space, this could help social network analysis better understand why, when and how we are "friends" with people.

These time and space findings are particularly valuable for businesses and software developers, for example on the career networking site

LinkedIn. Most people use the site to see who in their network knows and might endorse whom, but human resources professionals might cross-reference and checking a person's contacts by their work history to discern if a specific contact was established at one timeframe versus another.

Shekhar and Oliver say this points to the need for "a central role for computation and computational models, not only to scale up to the large and growing data volumes, but also to address new spatio-temporal social questions related to change, trends, duration, mobility and travel."

More information: The paper is available [online](#).

Provided by University of Minnesota

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