



## Center for Business GIS and Spatial Analysis

Winter 2017 Speaker Series

**Dr. Cyrus Shahabi, Professor of Computer Science  
University of Southern California (USC)**

### **Privacy-Preserving Inference of Social Relationships from Location Data**

**Tuesday, January 31, 2017  
12 noon – 1:30 p.m.**

University of Redlands Main Campus  
Hall of Letters Room 100  
Lunch served at 11:30 a.m.

**RSVP to Ms. Christine Mee at [gisab@redlands.edu](mailto:gisab@redlands.edu)**

**By January 20, 2017**

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#### About the event

For decades, social scientists have been studying people's social behaviors by utilizing sparse datasets obtained by observations and surveys. These studies received a major boost in the past decade due to the availability of web data (e.g., social networks, blogs and review web sites). However, due to the nature of the utilized dataset, these studies were confined to behaviors that were observed mostly in the virtual world. Differing from all the earlier work, here, we aim to study social behaviors by observing people's behaviors in the real world. This is now possible due to the availability of large high-resolution spatiotemporal location data collected by GPS-enabled mobile devices through mobile apps (Google's Map/Navigation/Search/Chrome, Facebook, Foursquare, WhatsApp, Twitter) or through online services, such as geo-tagged contents (tweets from Twitter, pictures from Instagram, Flickr or Google+ Photo), etc.

In particular, we focus on inferring two specific social measures: 1) *pair-wise* strength -- the strength of social connections between a pair of users, and 2) *pair-wise* influence - the amount of influence that an individual exerts on another, by utilizing the available high-fidelity location data representing people's movements.

Finally, we argue that due to the sensitivity of location data and user privacy concerns, these inferences cannot be largely carried out on individually contributed data without privacy guarantees. Hence, we discuss open problems in protecting individuals' location information while enabling these inference analyses.



**Cyrus Shahabi, Ph.D.**

**Cyrus Shahabi** is Professor of Computer Science and Electrical Engineering and the Director of the Information Laboratory (InfoLAB) at the Computer Science Department and also the Director of the NSF's Integrated Media Systems Center (IMSC) at the University of Southern California (USC). He is also the director of Informatics at USC Viterbi School of Engineering. He was the CTO and co-founder of a USC spin-off, Geosemble Technologies, which was acquired in July 2012. Since then, he founded another company, ClearPath, focusing on predictive path-planning for car navigation systems.

He received his B.S. in Computer Engineering from Sharif University of Technology in 1989 and then his M.S. and Ph.D. Degrees in Computer Science from the University of Southern California in May 1993 and August 1996, respectively. He has authored two books and more than two hundred research papers in the areas of databases, GIS and multimedia with more than 12 US Patents.



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